THE INTERSECTION OF COGNITIVE-BEHAVIORAL PROGRAMMING AND 
DESISTANCE THEORIES

A dissertation presented

By

Kristin Rose

to
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In partial fulfillment of the requirements for the degree of 
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ABSTRACT OF DISSERTATION

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Abstract

While a great deal of work has been done to explore the effectiveness of cognitive-behavioral programs in reducing recidivism as a result if the interest in understanding “what works” in correctional interventions, there has been comparatively little focus devoted to understanding how or why these programs may be effective. Desistance theories, particularly cognitive transformation desistance theories, may be useful in contextualizing the discussion of how and why cognitive-behavioral programs work in reducing recidivism. In this dissertation, the effect of participation in cognitive-behavioral programming on recidivism was examined through three measures of cognitive-transformation: self-efficacy, perceptions of deviance, and motivation to change one’s behavior. These analyses were conducted using data that was collected as part of the Serious and Violent Offender Reentry Initiative (SVORI).
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Introduction

The purpose of the dissertation outlined here is to explore the relationship between offenders’ participation in cognitive-behavioral programming during incarceration and their subsequent desistance from crime. Specifically, this study aims to understand how and why cognitive-behavioral interventions may aid individuals in their desistance from criminal activity. This examination of cognitive-behavioral interventions is conducted using the desistance perspective as a framework, specifically utilizing the desistance theories that focus on cognitive transformation.

Cognitive-behavioral interventions are treatment programs that are focused on “broad human change” and emphasize behavioral change in the manner in which the individual perceives, addresses, or thinks about their life situation (Dobson and Khatri, 2000, p. 908). In a correctional context, the main goal of cognitive-behavioral treatments is to identify offenders who have cognitive deficits and address problematic patterns of thinking that may be a factor in criminal behavior (Allen, MacKenzie, and Hickman, 2001). These treatment programs have been a popular research focus among corrections scholars in recent years. A number of meta-analyses have been conducted examining studies of cognitive-behavioral programs in correctional settings (e.g. Allen et al., 2001; Landenberger and Lipsey, 2005; Lipsey, Chapman, and Landenberger, 2001; Lipsey, Landenberger, and Wilson, 2007; Pearson, Lipton, Cleland and Yee, 2002; Tong and Farrington, 2006). The results of these meta-analyses indicate that cognitive-behavioral interventions can be an effective tool in reducing recidivism. These findings are further supported by MacKenzie’s (2006) work, in which she examined many different programs and interventions that are implemented to reduce recidivism and assessed their effectiveness. This included an examination of the numerous studies and meta-analyses from the existing cognitive-
behavioral literature, including an assessment of the quality of these studies. MacKenzie (2006) was able to conclude that cognitive-behavioral interventions are effective in reducing the criminal offending of the program participants. The findings in the existing literature indicate that cognitive-behavioral interventions can be effective in reducing the recidivism of the program’s participants.

Thus, a great deal of the research attention has been focused on whether programs are effective and examining “what works” (e.g. MacKenzie, 2000; 2006), meaning understanding of which correctional interventions and services are effective in achieving their goals. However, less focus has been directed at understanding the way in which these interventions function. As such, the current study builds on and expands the existing research by examining how and why cognitive-behavioral programs can be effective in reducing offenders’ recidivism following release from incarceration.

Cognitive transformation desistance theories are used as a framework for this investigation. Cognitive transformation desistance theories, such as the work of Maruna (2001) and Giordano, Cernkovich, and Rudolph (2002), are theories that aim to explain individual change in terms of an identity shift (Sullivan, 2012). This provides another important development in the literature as presently there has been little work done to connect correctional interventions to criminological theory (see Cullen and Jonson, 2011; Maruna, Immarigeon, and LeBel, 2004a; Sullivan 2012). As such, this dissertation examines whether cognitive-behavioral program participation results in cognitive change and, ultimately, reductions in recidivism. The questions in this analysis are explored using data from the Serious and Violent Reentry Initiative (SVORI) impact analysis. This was a federal funding initiative to aid states in developing programs and services designed to improve offender outcomes, such as employment, education,
housing, and recidivism, following release from incarceration (Lattimore and Visher, 2009; Lattimore and Steffey, 2009).

This is an important topic to examine because at the end of 2016, approximately 2,162,400 individuals were incarcerated in prisons and jails across the United States (Kaeble and Cowhig, 2018). While this number has generally been trending downward, it is still key to address the large number of people incarcerated in the United States. As Petersilia (2003) noted in her influential work, approximately 93% of offenders who are incarcerated will, at some point, return to their communities. In addition, a Bureau of Justice Statistics analysis indicated almost half of the offenders in their sample were reincarcerated within three years (Durose, Cooper, and Howard, 2014). These two facts highlight the importance of addressing the needs of offenders prior to their return to the community. This has lead to a renewed interest in obtaining a thorough understanding of “what works”. However, in order to adequately implement correctional interventions and address offender’s needs, it is also necessary to understand how and why these interventions work (or don’t work).

The second chapter of this dissertation presents an examination of the problem that is investigated in the present study. In this chapter, the gaps in the existing literature are presented and discussed. In addition, the hypotheses of the present study are outlined. Chapters three, four, five, and six are all devoted to exploring the current literature. Chapter three discusses the existing literature related to the theories in the desistance perspective. An overview of the desistance paradigm, definitions of desistance, and the various perspectives are all explored here. In chapter four, a review of theories of correctional intervention is undertaken. This includes a discussion of the background of these theories along with the current empirical support and criticism. The focus of chapter five is cognitive-behavioral programming. The principles and
theoretical backing of this particular treatment is discussed. In addition, the fidelity of prison programs to these principles is also discussed. Chapter six is focused on cognitive-behavioral programming in correctional settings literature. Several popular cognitive-behavioral programs used in correctional settings are described. Additionally, the current literature in this area is examined along with various outcome variables.

In chapter seven, the methodology of the Serious and Violent Offender Reentry Initiative (SVORI) is presented along with a review of literature utilizing this data. Chapter eight includes the methodology and analytic approach for this dissertation. This includes a discussion of the sample and key measures are described. In addition, missing data procedures are explained along with the propensity score methods and the multiple mediation analyses. The results of these analyses are described in chapter nine. In chapter ten, the results are discussed along with the limitations of the current study, the implications of the study, and the final conclusions.
Problem to be Investigated

Introduction

In this chapter, several gaps in the existing literature will be outlined. In addition, the ways in which the present study will address these gaps will be addressed. Lastly, the research questions and hypotheses of the present study will be discussed.

Gaps in the Existing Literature

Cognitive-behavioral Programming.

Cognitive-behavioral interventions have been receiving plentiful attention from corrections researchers in recent years (e.g. Chamberlain, 2012; Frost and Clear, 2012; Lipsey and Cullen, 2007; MacKenzie, 2006). A great deal of the research conducted on cognitive-behavioral programs in corrections is concentrated on a given program’s ability to aid offenders in desisting from crime following their release from prison, finding employment, or changing their cognitive skills and attitudes. Recently, there have been a number of studies investigating the impact of cognitive-behavioral programming has on offenders’ recidivism. Most of these evaluations of cognitive-behavioral programs have demonstrated this particular form of correctional programming can be effective in reducing recidivism. For instance, in her analysis, Gosse (2013) used data from the Serious and Violent Offender Reentry Initiative (SVORI) to investigate the impact participation in cognitive-behavioral programming has on offenders’ recidivism. The results of this study indicated that offenders who participated in cognitive-behavioral interventions were rearrested at significantly lower rates following their release from incarceration than those who did not. Offenders who received cognitive-behavioral interventions were 15.4% less likely to be rearrested at each of the three follow-up waves (Gosse, 2013). This is an important study to examine because the study also utilizes the SVORI dataset for its
analyses. Lowenkamp, Hubbard, Makarios, and Latessa (2009) investigated the effectiveness of Thinking for a Change, one popular cognitive-behavioral intervention, in reducing the recidivism of offenders. In this investigation, Thinking for a Change was administered to felony probationers in a community corrections setting. Lowenkamp and his colleagues (2009) found that those offenders who participated in the Thinking for a Change program recidivated at a rate of 28% while those offenders who did not participate in the program had a recidivism rate of 43%, a statistically significant difference. This is an important study to examine because it is one of the more influential and frequently cited studies of the Thinking for a Change program.

In addition, several well-constructed meta-analyses (e.g. Allen et al., 2001; Landenberger and Lipsey, 2005; Lipsey et al., 2001; Lipsey et al., 2007; Pearson, Lipton, Cleland and Yee, 2002; Tong and Farrington, 2006), have also explored the effectiveness of cognitive-behavioral programs in terms of offenders’ recidivism. For example, Landenberger and Lipsey (2005) conducted a meta-analysis of 58 studies that examined the effects of cognitive-behavioral programs on the recidivism of offenders. The results of Landenberger and Lipsey’s (2005) examination showed that the treatment groups of offenders, who had been exposed to the intervention, experienced a 25% decrease in the mean recidivism rate as compared to the control group of offenders, who had not been exposed to the intervention. Similar results were found in Pearson and his colleagues’ analysis (2002). This meta-analysis, which examined the outcomes in 44 studies of cognitive-behavioral programs, found that offenders receiving cognitive-behavioral interventions recidivated at a 14% lower rate than those offenders in the control groups (Pearson et al., 2002). Additionally, Tong and Farrington (2006) conducted a meta-analysis of 16 evaluations of the Reasoning and Rehabilitation program, another common cognitive-behavioral intervention offered in correctional settings. Their results indicated an
overall significant 14% decrease in recidivism for offenders who participated in Reasoning and Rehabilitation compared to the control groups of offenders who had not participated in this program (Tong and Farrington, 2006).

Given the current focus on evidence-based policies and an increased interest in obtaining an understanding of “what works” as the basis for policy decisions (MacKenzie, 2000; 2006), these findings demonstrating the efficacy of cognitive-behavioral programming are crucial. However, there is still work to be done in determining how and why these programs can be successful. This is important to understand because, as Lin (2000) highlights in her work, understanding how and why a program works is essential to transforming a theoretical treatment into an actual program that works in its intended context. The present study explores how and why cognitive-behavioral programs can work by concentrating on whether cognitive transformation occurs following participation in cognitive-behavioral intervention and if this cognitive transformation ultimately impacts offenders’ recidivism following release from incarceration. Meaning, the cognitive changes that result from participation in cognitive-behavioral interventions may be how and why these interventions can have a positive impact on recidivism. This is the central argument of the present study and will be discussed in greater detail later in this chapter.

**Longitudinal Measures.**

Despite the evidence that cognitive-behavioral interventions can be effective in helping offenders desist from crime, there are still additional gaps in this literature. One of these gaps relates to longitudinal measures of desistance from crime and exposure to correctional interventions. Maruna and his colleagues (2004a) have defined desistance as a sustained period of time in which the offender has refrained from criminal activity. Additionally, as Sullivan
(2012) highlights in his work, there are currently few studies that utilize measures of effective correctional intervention (or even simply measures of program exposure) alongside longitudinal measures of offending. Sullivan (2012) further contends that “the field has many studies that look at the so-called natural history of offending but very few that consider how correctional contact and treatment fit into behavioral trajectories” (p. 218). As such, it is clear there needs to be greater attention paid to the role correctional contact and treatment play in an offender’s long-term desistance process.

While there are examples of studies in the cognitive-behavioral intervention literature in which offenders’ recidivism is tracked for two years or longer (e.g. Hubbard and Latessa, 2004; Mitchell and Palmer, 2004; Polaschek, Wilson, Townsend and Daly, 2005; Wilkinson; 2005), there are many more instances in the cognitive-behavioral intervention literature in which offenders’ recidivism has been tracked for one year or less. In their meta-analysis of the effects of cognitive-behavioral programs for offenders, Lipsey, Landenberger, and Wilson (2007) noted that 78% of the studies measured offenders’ recidivism one year following release or sooner, with some measuring recidivism as early as one month following release (see also Austin, Robinson, Elms, and Chan, 1997; Golden, Gatchel, and Cahill, 2006; Lipsey et al., 2001). Given the definition of desistance put forth by Maruna and colleagues (2004a), a follow-up period of one year or less may not be sufficient to truly ascertain whether the offender has ended their criminal career.

The present study aims to address this gap in knowledge by examining the impact correctional contact and interventions have had on the desistance process of inmates. The sample of offenders used for the present study is tracked for a 15-month period following their release from incarceration. While a longer follow-up period may be preferable, this sample of offenders
is contacted at several points during this 15-month period. This presents the opportunity to identify the specific points at which offenders begin to experience difficulty following their release from incarceration. In addition, as Frost and Clear (2012) underscore, “accumulated research also tells us that the immediate period following release is by far the most risky for the released offender in terms of elevated risk for reoffending and for death” (p. 635). Uggen (2000) highlights that research indicates (e.g. Ekland-Olson and Kelly, 1993) official recidivism risk rises and peaks during the first year following release before declining. Given this, a 15-month follow-up period is preferable to one year as it encompasses the time period of rising official recidivism risk and the start of the time period of decreasing risk of official recidivism.

**Connections to Theory.**

An additional gap in the literature pertains to the divide between criminological theory and research evaluating correctional interventions. Cullen and Jonson (2011) assert that while criminology has a number of modern theories of crime, true theories of correctional intervention are few and far between. As Maruna and his colleagues (2004a) underscore, much of the field is dominated by evaluation research that is “descriptive and atheoretical” (p. 8). Sullivan (2012) has further supported this criticism, highlighting that criminological theory and studies of correctional interventions have often been considered to be “separate streams of thought” (p. 218). Additionally, Sullivan (2012) contends that this separation is harmful to the study of both criminological theory as well as the evaluation of correctional interventions. This critique can be clearly observed, as there is little criminologically informed research on cognitive-behavioral interventions in correctional settings (e.g. Berman, 2004; Golden et al., 2006).

Specifically, attention has been drawn to the lack of research examining the connection between desistance theories and evaluations of correctional interventions. As Frost and Clear
(2012) underscore, a discrepancy exists between desistance research findings and findings from the correctional intervention research. The desistance research proposes marriage, work, and family ties are key to ending criminal careers. In contrast, the correctional programming research argues cognitive-behavioral interventions, which take an individual-level approach to addressing criminal activity, are most appropriate in terms of helping offenders achieve behavioral change (Frost and Clear, 2012). Sullivan (2012) has also argued for the importance of further research examining the relationship between correctional interventions and desistance theories. In particular, Sullivan (2012) advocates for a greater understanding of the role that the skills and tools provided by correctional interventions play in the desistance process. Understanding the presence of these abilities is crucial because even if an offender desires to desist and end their criminal career, they may not possess the tools needed to complete this desired change (Maruna, 2001). An example of this is the use of narratives as a key part of the process of desisting from criminal offending. Cognitive transformation desistance theories (e.g. Giordano et al., 2002; Maruna, 2001) argue the process of creating “scripts” or narratives is key to the identity transformation process (Sullivan, 2012). The abilities emphasized in some treatment programs, such as cognitive-behavioral interventions, may help offenders in creating these narratives. As a result, these narratives may, as Sullivan (2012) argues, enable offenders to successfully navigate both the prosocial as well as the criminogenic situations they are presented with when they reenter society.

However, despite this deficiency of criminologically informed evaluation research, some studies of cognitive-behavioral treatment in correctional settings do utilize Andrews and Bonta’s (2010) Risk-Need-Responsivity model. Maruna and his colleagues, along with Cullen and Jonson (2011), both suggest that Andrews and Bonta’s (2010) model is one of the few theories
that aims to explain how or why treatment interventions work. Maruna and colleagues (2004a) have referred to this model as one of the “aberrant exceptions” of reintegration theory (p. 8). Meaning, Andrews and Bonta’s (2010) work is one of the few examples of a theory of effective correctional intervention. In their model, Andrews and Bonta (2010) argue effective correctional interventions match offenders with specific forms of treatment in order to achieve the greatest level of efficacy from the treatment. This is achieved through three core principles: risk, need, and responsivity. The risk principle of Andrews and Bonta’s (2010) model of correctional intervention holds that treatment programs must be matched to offenders based on their risk of reoffending. Since offenders pose varying levels of risks for reoffending, interventions must be targeted accordingly. For example, the highest risk offenders require more intensive services and treatment in order for a significant reduction in recidivism to be achieved. In contrast, minimal interventions or even no intervention at all is often sufficient for low risk offenders (Andrews and Bonta, 2010).

The need principle focuses on ensuring that the offender’s criminogenic needs are met in effective correctional interventions. These needs are a subset of the offender’s risk of reoffending and include items such as antisocial behavior, family circumstances, antisocial peers, and substance abuse (Andrews and Bonta, 2010). Andrews and Bonta (2010) argue these criminogenic needs must be addressed if reductions in recidivism and criminal behavior are desired.

Lastly, the responsivity principle holds that treatment should be provided in a style and manner that is suited to the offender’s learning style and abilities (Andrews and Bonta, 2010). This entails ensuring that the methods and techniques used in the provided treatment are appropriate for the offender’s individual characteristics, such as their sensitivity, motivation,
verbal intelligence, and cognitive maturity. In addition, the responsivity principle also requires that programming be adapted to the setting in which the treatment intervention is being offered (Andrews and Bonta, 2010). For example, treatment interventions presented in a custodial setting, such as a prison or jail, should differ from those offered in a community setting, such as those treatments offered to individuals on probation or parole. Properly matching correctional programming to an offender’s personality and cognitive style as well as the treatment setting is key to successful intervention (Andrews and Bonta, 2010). While the cognitive-behavioral literature has established that these programs can be effective, there is still work to be done in determining why and how these programs work (Frost and Clear, 2012). Additionally, it is clear that further work is needed to link the study of correctional interventions to criminological theory.

The present study will address this gap between criminological theory and correctional interventions by applying cognitive transformation desistance theories to the study of cognitive-behavioral interventions in a correctional setting. Cognitive-behavioral programming seems particularly well suited to the task of examining the role correctional interventions play in the desistance process. Although cognitive-behavioral programming is often associated with Andrews and Bonta’s (2010) model, this particular form of correctional intervention could also be used along with desistance theories, particularly those desistance theories focused on cognitive-transformation as a change mechanism. Cognitive-behavioral programs operate with the goal of changing criminal behavior by changing the thinking processes offenders utilize (Allen et al., 2001). This is achieved through teaching skills such as problem solving skills, social skills, anger management techniques, along with general thinking and decision making skills (Lipsey et al., 2007). Similarly, Maruna’s (2001) work on desistance from crime is based
in the idea of the offender making a fundamental shift in how they view themselves and their criminal history. In the process of “making good”, an offender must restructure the way in which they discuss and view their criminal history (p. 9). Rather than viewing the criminal past as a negative and shameful chapter of life, the process of “making good” enables the offender to reframe their criminal history in such a way that it may be viewed as a “necessary prelude” to the offender becoming a positive and productive individual (Maruna, 2001, p. 87). The offender is then able to desist from crime when they begin to view themselves as this positive and productive individual rather than as an individual who engages in criminal activity (Maruna, 2001). Giordano and her colleagues (2002) also have based their view of desistance in cognitive-transformation, arguing that cognitive change must occur as part of the process of desistance from crime. In particular, Giordano and colleagues (2002) contend that, in order for desistance from crime to occur, an offender must have: (1) a shift in their openness to changing their behavior; (2) a shift in receptivity to “hooks” or opportunities for behavioral change; (3) a shift in one’s own identity to that of a conventional individual who does not engage in criminal behavior; (4) a shift in the way criminal and deviant behavior is viewed. These examples clearly highlight that cognitive-behavioral programming and cognitive transformation desistance theories are well suited to exploring the gap in the literature between correctional interventions and criminological theory.

**High-Risk Offenders.**

Lastly, there is a gap in the literature regarding the study of high-risk offenders. Specifically, there have been few studies that investigate the success of high-risk individuals who have succeeded following release despite predictions indicating they would almost undoubtedly fail (Frost and Clear, 2012). There have been numerous studies that examine the failures of
offenders who have been predicted to succeed as well as of programs that have failed despite following evidence-based practices (e.g. Marlowe, 2006; Wilson and Davis, 2006). However, little attention has been devoted to understanding why some individuals succeed when every metric predicts that their recidivism following a return to the community. This is a key issue to address because understanding the success of those offenders who have been predicted to fail is ultimately an essential component to developing a comprehensive theory of offender change (Frost and Clear, 2012).

The present study aims to address this gap by utilizing a sample of high-risk offenders in the analyses. This sample of high-risk offenders includes individuals with lengthy criminal and substance abuse histories as well as families and peers who are involved in substance abuse and the criminal justice system. In addition, these high-risk offenders also have a limited education and few employable skills (Lattimore and Visher, 2009). While other studies have utilized this sample of male high-risk offenders previously and examined the success of these offenders in terms of recidivism (Lattimore, Steffey, and Visher, 2010; Lattimore, Barrick, Cowell, Dawes, Steffey, Tueller, and Visher, 2012; Orrick, 2012; Taylor, 2012; Gosse, 2013; Taylor, 2015; Taylor and Becker, 2015; Wikoff, 2015; Zweig, Yahner, Visher, and Lattimore, 2015; Visher, Lattimore, Barrick, and Tueller, 2016; Link and Roman, 2017; Chamberlain, Gricius, Wallace, Borjas, and Ware, 2018; Mowen and Boman, 2018; Mowen, Wodahl, Brent, and Garland, 2018; Stansfield, Mowen, and O’Connor, 2018; Workman, 2018), few have used this sample to explain how or why some of these offenders may have succeeded following their release from incarceration when many metrics would suggest that they would recidivate and return to crime. The present study will investigate factors that may explain how and why some high-risk succeed following release from incarceration.
The Present Study (Hypotheses)

In order to address the gaps in the literature discussed above, the present study explores four different hypotheses. These hypotheses will be examined using data from the Serious and Violent Offender Reentry Initiative (SVORI). The primary goal of this analysis is to address the mechanisms by which cognitive-behavioral programs can be successful in aiding offenders in desisting from crime and ending their criminal careers. With the first research question, the present study explores whether offenders who participate in cognitive-behavioral programming are more likely to experience some form of cognitive transformation than offenders who have not been provided with cognitive-behavioral interventions. The cognitive change process is investigated using three concepts from the existing cognitive transformation desistance research: self-efficacy, motivation to change behavior, and perceptions of criminal and deviant behavior. There are several existing studies that demonstrate these items are indicative of cognitive transformation and will ultimately impact the desistance process. Specifically, these three concepts are found in the desistance research conducted by Maruna (2001) as well as in the work of Giordano and her colleagues (2002). This study advances the literature by applying these concepts to cognitive-behavioral interventions and their relationship to desistance from crime. Since this dissertation has a follow-up period of fifteen months, it examines the early stages of the desistance process. As a result, the reoffending observed here is likely mainly primary desistance. Primary desistance refers to any gap or break in a criminal career while secondary desistance is related to discarding the role of an offender and adopting a new, changed identity (Maruna et al., 2004a). However, more recent research (e.g. King, 2013; Stone, Morash, Goodson, Smith and Cobbina, 2018) suggests that these categories are not as distinct as initially thought and that identity change also plays a role in primary desistance.
Bandura (1997) describes self-efficacy as “one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). Further, he contends that the belief in one’s own efficacy is the main factor in human agency, which refers to acts done intentionally. Meaning, if one does not believe that they have the ability to achieve results, no attempt will even be made (Bandura, 1997). The ideas of agency and self-efficacy are central to the cognitive transformation process in both Maruna’s (2001) model and the model created by Giordano and her colleagues (2002). In Maruna’s (2001) examination of persisting and desisting offenders, the narratives of the persisting offenders lacked self-initiative, describing their lives as dependent on circumstance and chance events. The persistent offenders in this study did not see hope for change and accepted the fate that was handed to them. In addition, these offenders didn’t have a clear plan or vision for their future lives. However, the desisting offenders had clear plans and were also optimistic about their ability to follow these plans to fruition (Maruna, 2001). Maruna (2001) argues a lack of self-efficacy may lead individuals to situations or events that will reinforce a worldview in which they are victims. In contrast, individuals with higher self-efficacy feel more in control of their own fate (Maruna, 2001).

Additionally, Giordano and her colleagues (2002) argue agency is required to make cognitive shifts and, ultimately, both agency and cognitive shifts are necessary for sustained behavioral change. Similar results were found in LeBel and colleagues’ (2008) investigation. In this research, LeBel and his colleagues (2008) examined the effect of several subjective factors on long-term desistance using a sample of 130 property offenders. These offenders were interviewed at several points in time. First, they were interviewed prior to their release from prison. This interview was focused on what the individual plans and expectations were for their time after release from incarceration as well as what difficulties they anticipated (LeBel et al.,
2008). The second interview took place about four to six months following the first interview. This interview was directed toward the individual’s social circumstances along with any difficulties they had face following their return to the community. Finally, ten years following the initial interview, the official criminal records of all the offenders were examined (LeBel et al., 2008). The results of this analysis indicated self-efficacy “may be a necessary if not a sufficient condition for an individual to be able to desist from crime” (LeBel et al., 2008, p. 154). Specifically, self-efficacy can prepare offenders to take advantage of positive opportunities and also endure disappointment (LeBel et al., 2008). Several scholars have argued that although agency is key aspect of the cognitive-transformation desistance perspective, this concept has yet to be fully specified or tested (e.g. Bottoms et al., 2004; Sullivan 2012). Since self-efficacy is the primary concept in agency (Bandura, 1982; 1997), examining self-efficacy in the present study takes a step toward addressing this need in the literature.

The second cognitive transformation concept that is explored in this study is the offender’s motivation to change their criminal behavior. Miller and Rollnick (1991) define motivation as “a state of readiness or eagerness to change” (p. 14). There are a number of studies that highlight motivation to change as a form of cognitive transformation along with the role it plays in ending a criminal career. Giordano et al. (2002) discuss several forms of cognitive transformation in their perspective. They contend that a shift in an offender’s overall readiness to change their behavior is perhaps the most fundamental form of cognitive transformation (Giordano et al., 2002).

The third form of cognitive transformation that will be explored is the respondents’ perceptions of deviance and crime. In Giordano and colleagues’ (2002) model of cognitive transformation, changing perceptions toward deviant behavior is one of the main types of
cognitive shifts. Criminal and deviant behaviors have “meaning and significance” as do conforming behaviors (Giordano et al., 2002, p. 1002). However, when an offender experiences this form of cognitive transformation, criminal and deviant behaviors no longer hold the meaning they once did. As such, these behaviors are no longer viewed positively and may even become irrelevant to the offender’s current life (Giordano et al., 2002).

There is also support in the existing literature for the argument that cognitive-behavioral interventions may affect an offender’s self-efficacy, their motivation to change, as well as their perceptions of deviance. Cognitive-behavioral interventions attempt to modify offenders’ flawed thinking patterns, address impulse control, individual accountability, and awareness of the consequences of behavior (Allen et al., 2001; Lipsey et al., 2007; Ross et al., 1988). Specifically, some cognitive-behavioral programs include cognitive restructuring elements that are designed to help offenders to see their behaviors and outcomes as the result of decisions they make (Lipsey et al., 2007). This aspect of cognitive-behavioral interventions is particularly relevant for individuals with low self-efficacy. Offenders with low levels of self-efficacy may feel their life and outcomes are based on chance and circumstance (Maruna, 2001). In addition, Berman’s (2004) analysis examined the impact the Reasoning and Rehabilitation program, one form of cognitive-behavioral intervention, had on several forms of behavioral change. This study indicated that offenders who completed the program experienced pro-social changes in terms of their views of the criminal justice system, their tolerance for crime, as well as their personal identification with other criminals (Berman, 2004). These assertions and findings highlight the reality that cognitive-behavioral programs are ultimately designed to result in changes at the individual-level (MacKenzie, 2006). Given this, it is believed offenders who participate in these cognitive-behavioral interventions will be more likely to undergo cognitive transformation than
offenders who do not participate in cognitive-behavioral programs. This change will be observable in terms of the offender’s self-efficacy, motivation to change, and their perceptions of deviance and crime.

- $H_1$: Participation in cognitive-behavioral programming increases the likelihood of cognitive transformation occurring.
  - $H_{1A}$: Offenders who participate in cognitive-behavioral programming will exhibit higher levels of self-efficacy.
  - $H_{1B}$: Offenders who participate in cognitive-behavioral programming will exhibit higher levels of motivation to change.
  - $H_{1C}$: Offenders who participate in cognitive-behavioral programming will exhibit more negative perceptions of deviance.

The second research question that is examined in this present study addresses whether cognitive transformation aids in the process of desisting from crime. As with the first hypothesis, cognitive transformation will be investigated in terms of the offender’s self-efficacy, the motivation to change their behavior, as well as their perceptions of crime and deviance. There is support in the existing literature for the argument that these measures of cognitive transformation are linked to desistance from crime. For instance, the findings in Orrick’s (2012) research support these assertions. Orrick (2012) found that offenders with higher levels of self-efficacy when they were released from incarceration had a significantly greater time to first rearrest as well as fewer total rearrests than those offenders with lower levels of self-efficacy. LeBel and his colleagues (2008) also found support for the idea that self-efficacy is linked to offender desistance following release from incarceration. Their findings indicated that self-efficacy was a
significant predictor of reconviction and a marginally significant predictor of reimprisonment (LeBel et al., 2008).

In terms of an offender’s motivation to change their behavior, Laub and Sampson’s (2001) analysis of the desistance literature indicates several elements are present when individuals discontinue addictive behaviors or predatory criminal behavioral. These elements include readiness or motivation to change, cognitive restructuring, social support, and general lifestyle changes (Laub and Sampson, 2001). Further, under the desistance paradigm, motivation has important part in understanding the change process. As Maruna and LeBel (2010) contend, this perspective relies heavily on the experiences of successfully reformed offenders and takes the views of correctional clients seriously. As such, interventions should be designed with the goal of enhancing or complementing offenders’ motivation and desire to change their behavior (Maruna et al., 2004a).

In Giordano and colleagues’ (2002) model of desistance, changing perceptions toward deviant behavior is one of the main forms of cognitive change. When the offender begins to accept a new law-abiding persona, their law-violating behaviors no longer seem positive, desirable, or relevant. At this point, the process of desisting from criminal behavior can be viewed as relatively complete (Giordano et al., 2002). Similarly, Sampson and Bartusch (1998) explore this idea in terms of “legal cynicism” or “the sense in which laws or rules are not considered binding in the existential, present lives of respondents” (p. 786). Their analysis indicated that those individuals who perceived the criminal justice system as being unfair or irrelevant (those who were more “legally cynical”) were less likely to desist from criminal behavior following their release from incarceration (Sampson and Bartusch, 1998). Taylor (2012) also found that offenders who have higher levels of legal cynicism were more
significantly likely to report committing drug crimes following their release from incarceration. Given the findings from the literature discussed here, it is expected that offenders who experience cognitive transformation will be more likely to desist from criminal behavior than offenders who do not experience cognitive change. This desistance from criminal activity will be observable in terms of the offender’s self-reported behaviors as well as their official recidivism records.

- $H_2$: Offenders who experience higher levels of cognitive transformation will desist at higher levels than offenders with lower levels of cognitive change.
  - $H_{2A}$: Offenders with greater self-efficacy will be more likely to desist from crime.
  - $H_{2B}$: Offenders with greater motivation will be more likely to desist from crime.
  - $H_{2C}$: Offenders with positive perceptions of deviance will be less likely to desist from crime.

In addition, a third hypothesis logically follows from these first two hypotheses.

- $H_3$: Participation in cognitive-behavioral programming will increase desistance indirectly through the cognitive transformation process.
  - $H_{3A}$: Participation in cognitive-behavioral programming will increase desistance indirectly through self-efficacy.
  - $H_{3B}$: Participation in cognitive-behavioral programming will increase desistance indirectly through motivation to change.
  - $H_{3C}$: Participation in cognitive-behavioral programming will increase desistance indirectly through perceptions of deviance.
The final research question that is explored by the present study is whether these forms of cognitive change operate independently or if they work together, cumulatively. It is important to examine the cumulative effect of the cognitive transformation measures because some of the existing literature suggests that these forms of cognitive change may have rather synergistic relationships. For instance, as Maruna (2001) highlights in his analysis, one form of cognitive transformation may not be enough to encourage desistance from crime. Maruna (2001) points out that motivation to change one’s behavior on its own may not enough for the desistance process to occur. Desistance also requires a level of agency to put one’s desires to change into action (Maruna, 2001). Giordano and her colleagues (2002) also make the argument that desistance may require more than one form of cognitive change. For example, both readiness to change one’s behavior and individual agency are elements of their model of cognitive change (Giordano et al., 2002). As such, it is expected that combining multiple measures of cognitive change will be more impactful, in terms of desistance from crime, than only one measure individually.

- $H_4$: Forms of cognitive transformation function together as a cumulative process.

Ultimately, it is expected that offenders who participate in cognitive-behavioral programming will be more likely to experience cognitive transformation and, thus, be more likely to desist from criminal behavior than offenders who do not participate in this form of programming. While offenders who do not participate in cognitive-behavioral programming may desist from offending after their release from incarceration and may undergo cognitive transformation, it is anticipated that those offenders who have exposure to cognitive-behavioral programming will have a greater likelihood of both cognitive transformation and, ultimately, desistance. This is outlined with two conceptual models. The first model summarizes this process with cognitive
transformation functioning as a cumulative whole while the second outlines cognitive transformation as a series of three individual changes.

**Figure 1: Cumulative Cognitive Transformation Model**
Conclusion

In this chapter, several gaps in the existing literature were identified. These include a lack of research addressing how and why cognitive-behavioral programs work as well as a lack of longitudinal measures of desistance from crime following participation in correctional interventions. In addition, there is a gap in knowledge related to the divide between evaluation of correctional interventions and criminological theory as well as the study of high-risk offenders. The present study poses four hypotheses in order to address the gaps in the current literature. In the next chapter, the theoretical foundations for the present study will be discussed and outlined.
Literature Review: Desistance Theories

Introduction

Explanations of desistance, like cognitive-behavioral interventions, have been receiving increased research interest in recent years. Explanations regarding the desistance from crime range from structural or environmental explanations (such as marriage or work) to more subjective explanations that focus on the individual’s agency. It is these agentic theories that may be most relevant in terms of understanding cognitive-behavioral interventions. This chapter will examine the definitional issues associated with desistance, the roots of the desistance perspective, and the various perspectives explaining desistance from crime, including those explanations focusing specifically on cognitive transformations. In addition, the role of desistance theories in the current study will also be outlined.

Defining Desistance

The main focus of desistance research is to understand why and how former offenders are able to stay away from and stop engaging in criminal activity. This was originally approached with a somewhat critical eye towards the treatment and programming that were typical of the medical model of corrections. In the medical model of corrections, offenders are ‘rehabilitated’ through participation in treatment and programs. In contrast, other offenders may ‘desist’ from crime on their own without intervention. Desistance research was thus interested in examining those offenders who were able to change their offending behavior without the influence of correctional interventions. The medical model was ultimately critiqued because some theorists believed that it was unnecessary to have rehabilitation programs if offenders are going to grow out of crime on their own (Maruna et al., 2004a). However, not all theorists believed that desistance and treatment interventions are separate, incompatible concepts. Maruna and his
colleagues (2004a) suggest that the self-change of criminal behavior and rehabilitation through more formal interventions are essentially the same thing and part of the same process. This point is highlighted by acknowledging that “Individuals spend only a tiny fraction of their daily lives undergoing formal treatment or counseling, so most of the hard work involved in changing one’s sense of self takes place outside therapy or other formal, professional interventions” (Maruna et al., 2004, p. 12). As such, correctional interventions should be designed in such a way that acknowledges and complements self-change efforts (Maruna et al., 2004a).

As Maruna and his colleagues (2004a) highlight, desistance has traditionally been defined in the criminological literature as an offender’s “termination point”, meaning the point at which he or she ceases their criminal activity (p. 17). This view of desistance from crime as a single event has been widely critiqued by several scholars (e.g. Bushway, Piquero, Broidy, Cauffman, and Mazerolle, 2001; Laub and Sampson, 2001; Maruna et al, 2004a). The key criticism of the view of desistance as a single event is that offenders frequently go periods of time without engaging in criminal activity. Maruna (2001) points out that the termination of offending often occurs multiple times during the course of an individuals’ life in crime. Additionally, an offender may continue to engage in crime without drawing the attention of the criminal justice system, giving the appearance of desistance without truly desisting from crime. These simple facts make it difficult to accurately determine when an offender has finally stopped committing crimes until they are deceased (Maruna et al., 2004a).

As such, Laub and Sampson (2001), along with other researchers, have argued for the interpretation of desistance as a causal process rather than as a single event. They contend desistance is a process that “maintains the continued state of nonoffending” (p. 11). Thus, desistance is framed as an ongoing process that ultimately results in the end of criminal activity
(Maruna et al., 2004a). This framing of desistance as a process means this paradigm places greater focus on the discovery of ‘how change works’ rather than the more traditional evaluation of ‘what works’ (Maruna and LeBel, 2010). In other words, the desistance perspective suggests that in order to understand what interventions are effective, we must first understand the “organic or normative processes that seem to impact offending patterns over the life course” (Maruna and LeBel, 2010, p. 72).

Maruna and colleagues (2004a) argue that further definitional clarity can be obtained by applying Lemert’s (1951) concepts of primary and secondary deviance to desistance. This framework would create room for at least two distinct phases of the desistance process. Primary desistance would be the most literal interpretation of the concept and would consist of any break or gap in an offender’s criminal career. In contrast, secondary desistance would require a break or gap criminal activity as well as a change in the offender’s existing roles and a subsequent reorganization based on their new roles (Lemert, 1951; Maruna et al., 2004a). For example, an offender’s past roles may have included that of a drug addict, an arsonist, or a thief. However, as part of the secondary desistance process these existing roles are discarded in favor of new roles, which may be the role of a good student, a caring parent, or a trusted employee (Maruna, 2001). Since every criminal career includes a number of breaks and suspensions, Maruna and his colleagues (2004a) suggest that primary desistance would not be particularly interesting to desistance researchers. Instead, the secondary desistance process of adopting the identity of a reformed individual rather than the role of an offender would be the focus of desistance research (Maruna et al. 2004a).

However, the findings of King’s (2013) analysis suggest that there may not be a clear distinction between primary and secondary desistance, suggesting that there is little empirical
evidence to support this distinction. To examine this argument, King (2013) conducted semi-structured interviews with a small sample of twenty individuals early in their probation supervision (one month to two years). This sample consisted of self-reported desisters. Individuals were asked to discuss their probation, their offending history, and their plans for the future.

The results of this study indicated that would-be desisters began the process of identity change much earlier than originally believed. This involves identifying and envisioning an alternate identity as well as changing their sense of moral agency. These individuals also acknowledge the work and changes that would be necessary in order to maintain their desistance (King 2013). These findings are contrary to previous assertions that primary deviance is simply the absence of offending and that primary deviance may not differ in a significant way from secondary deviance. Rather, early stages of desistance may just be “tempered with a degree of trepidation on the part of the would-be desister until their efforts result in a more continuous state of non-offending”, making the difference between primary and secondary deviance negligible (King, 2013, p. 161).

The finding that identity change can occur during primary desistance is further supported by the findings from the analysis conducted by Stone and her colleagues (2018). This study used both quantitative and qualitative methods to examine identity themes and arrest. Identity themes were examined in terms of redemption and contamination (Stone et al., 2018). Redemption sequences are described by offenders as negative life circumstances that gave them insight and motivation to change their behavior. In contrast, contamination sequences are described by offenders as negative life circumstances that make it difficult for an individual to change for the better (Maruna, 2001). Data was collected from a series of three interviews conducted every
three months (resulting in a nine-month time span) and arrest data from official police records for a period of 36 months. The sample consisted of 93 women who had a felony conviction, a substance abuse history, and had been on parole for three months (Stone et al., 2018).

The results of this study indicated that there was evidence of identity change even though the interviews only occurred over a nine-month period during the first year following release from incarceration. For example, “Alice demonstrated the transition from ambivalence about the possibility of identity change, to increasing commitment to change, to seizing available opportunities (school, family, and support groups) that supported a new prosocial identity” (Stone et al., 2018, p. 395). In addition, early identity change to a positive personal identity during the first year following release had a significant effect on recidivism for 36 months (Stone et al., 2018).

**Explanations of Desistance**

There are two key questions that are posed in the desistance paradigm. First, this paradigm explores what is empirically known about why some offenders desist from offending and others do not. Second, the paradigm seeks to understand what interventions can be implemented to support or even to accelerate organic and naturally occurring desistance processes (Maruna & LeBel, 2010). As Maruna and LeBel (2010) emphasize, there is no single theory explaining the process of desistance from crime. Rather, there are numerous theories offering explanations for desistance from crime, which can be classified into two dominant perspectives. Theories in the structural perspective are based in the concept that desistance from crime is structurally induced. In contrast, theories in the agentic perspective make the argument that desistance from crime results from the behavioral choices made by the individual.

**Structural Perspective.**
The most notable of the structural theories is Sampson and Laub’s (1993) age-graded theory of informal social control. This theory “provides a sociological explanation of stability and change in crime and deviance over the life course with an explicit focus on within-individual changes in offending and deviance” (Sampson and Laub, 1993, p. 246). Pertaining to desistance, Sampson and Laub (1993) suggest that social bonds and significant life events can effect and, even counteract, trajectories laid out early in life. Essentially, in the transition to adulthood, bonds to institutions of social control can alter the pathways to crime as well as the pathways to conforming behavior. Examples of these institutions include marriage, employment, and the military (Sampson and Laub, 1993).

Using data originally gathered by Glueck and Glueck (1950) in their influential study, Sampson and Laub (1993) tested this theory and explored the impact of a number of factors on both childhood delinquency and adult criminal offending. These factors include: family, school, delinquent influences, structural background factors (e.g. family socioeconomic status, parental deviance, residential mobility), along with the impact of social bonds to marriage and work (Sampson and Laub, 1993). Desistance was measured as “little or no offending in adulthood (ages 17-32)” (Sampson and Laub, 1993, p. 219). The results of the examination of Sampson and Laub’s (1993) theory indicated that weakened bonds to family and school play a key role in the increasing likelihood of delinquent behavior. In addition, marital relationships and stable employment played an important role in adult criminal activity. Individuals who had strong social bonds in the form of strong marital relationships and stable employment engaged in less criminal activity than individuals without these social bonds (Sampson and Laub, 1993). This is noteworthy because these bonds to work and marriage had a similar impact despite the
individual’s earlier life history or prior delinquent behavior. As such, the presence of these bonds can serve as an explanation for desistance from crime (Sampson and Laub, 1993).

Several subsequent studies also examined the impact of employment, marriage, and other structural factors on desistance. In their analysis, Horney, Osgood, and Marshall (1995) extend the work done in Sampson and Laub’s (1993) study by examining whether “local life circumstances” impact criminal behavior (p. 659). Horney et al. (1995) define local life circumstances as conditions in an individual’s life that are subject to change on a relatively frequent basis and may strengthen or weaken social bonds. These circumstances may also influence an individual’s criminal behavior. Examples of these include marriage, school, employment, and drug or alcohol use (Horney et al., 1995). Offenders participating in this study were asked to consider their local life circumstances during a reference period that “included the months up to and including the month of arrest for the calendar year of arrest and the two calendar years preceding the year of arrest” (Horney et al., 1995, p. 660). As a result, the time period being examined varied by individual and ranged from 25 to 36 months (Horney et al., 1995).

The results of this study indicated that respondents were less likely to engage in criminal activity when they were living with their wife (Horney et al., 1995). The likelihood of stopping criminal behavior doubled when moving in with their wife, as compared to moving away from their wife. The likelihood of starting criminal activity doubled when respondents moved away from their wives, as compared to moving in with their wife. Furthermore, respondents living with their wife was associated with lower levels of offending but respondents living with their girlfriend was associated with higher levels of criminal offending (Horney et al, 1995). These findings support Sampson and Laub’s (1993) conclusions that marital attachment can serve as a strong indicator of criminal behavior. Horney and colleagues (1995) argue that, “If we assume
that formalizing a relationship through marriage indicates attachment, then the lesser attachment may explain why living with a girlfriend does not lower the odds of offending” (p. 667). Lastly, school attendance was significantly associated with reduced odds of involvement in crime. However, employment was only weakly related to criminal behavior (Horney et al., 1995). This is contrary to the findings in Sampson and Laub’s (1993) analysis. Horney et al. (1995) suggest that this may be due to the way in which employment was measured. This study measured employment as the presence of a job while Sampson and Laub (1993) explored the concept in terms of attachment to job.

In his analysis, Warr (1998) also examined the effect of marriage on desistance from crime. However, he took a very different position from Sampson and Laub (1993). While Sampson and Laub (1993) based their argument in control theory, Warr (1998) suggests that the impact of marriage on desistance is due to changing relationships with delinquent peers. The analysis utilized data from the National Youth Survey, focusing specifically on the waves in which the respondents were ages 15-21 (wave five) and age 18-24 (wave six). Desistance was examined in terms of smoking marijuana. An individual who smoked marijuana in the year prior to wave five but did not smoke prior to wave six, the individual was coded as desisting from crime. If the individual reported smoking marijuana in the year prior to wave five and also smoked in the year prior to wave six, the individual was coded at not desisting from crime. Wave five asked individuals to report events that occurred during 1980 while wave six required individuals to report events that occurred during 1983 (Warr, 1998).

Warr (1998) found that marriage has two key consequences for criminal behavior. First, marriage reduces the amount of free time available for friends. This lack of time for friends is an indicator of a shift from a peer-oriented lifestyle to a family-oriented lifestyle. Married
individuals in this study spent about half as much time with their friends as did the unmarried individuals in the study (Warr, 1998). Second, “marriage alters the kinds of friends with whom individuals associate; it reduces exposure to deviant friends and increases exposure to conventional others” (Warr, 1998, p.193). Warr (1998) explained, “life transitions like marriage may simultaneously reduce exposure to delinquent associates while increasing stakes in conformity and attachment to conventional others” (p. 211). Additionally, marriage had a statistically significant impact on criminal behavior, even when controlling for other major life-course transitions. However, when changes in delinquent peers are accounted for in the model, marriage no longer has a significant effect on desistance (Warr, 1995).

While Horney et al. (1995) and Warr (1998) further explored Sampson and Laub’s (1993) findings in terms of marriage, Uggen (2000) looked at the relationship between employment and the desistance process. Specifically, Uggen (2000) explored whether work was related to reduced criminal behavior and if this relationship was age-dependent or if it occurred throughout the offender’s life-course. Desistance was examined over a period of three years, noting the time to the first arrest (Uggen, 2000).

The outcome of this analysis indicated that the rate of rearrest rose during the first nine months following release from incarceration and then began to decline thereafter. This pattern was true both for offenders under age 26 and offenders over the age of 26. Additionally, there was no difference in reoffending for offenders under the age of 26 based on treatment assignment. Offenders who were provided employment recidivated at rates that were not significantly different from offenders who did not have employment (Uggen, 2000). However, work does appear to be a turning point in the criminal career trajectories for offenders over the age of 26. Offenders in this age group who were provided employment opportunities were
significantly less likely to reoffend than offenders in this age group who did not have access to job opportunities. This indicates that employment is connected to the process of desisting from crime and that this connection is dependent on the age of the offender (Uggen, 2000).

In their later research, Laub and Sampson (2001; 2003) updated the lives of the men from Glueck and Glueck’s (1950) research as the men neared the age of 70. Life histories were gathered from 52 men, which were combined with various official records data that were available for the entire original sample of 500 delinquents. Laub and Sampson (2001; 2003) contend that desistance results from a combination of both individual choice and the impact of structural factors (e.g. family, employment, or the military). Laub and Sampson (2001; 2003) suggest that structural factors, such as the military, are successful in their ability to aid in desistance from crime due to their “knifing off” potential (p. 49). Meaning, these structures have the ability to aid offenders in splitting from their current path or environment and embracing a new, different path for the future. Laub and Sampson’s (2001; 2003) analysis of these life histories also led them to conclude that “structured role stability” and daily routines created by structural factors played an important role in the process of desistance from crime (p. 49). For example, steady employment and marriage can dramatically change an individual’s daily routine and how an individual interacts with their peer group. Laub and Sampson (2003) identified and investigated two groups of desisters. The men in the first group were arrested as juveniles for only nonviolent crimes and were not arrested for any violent or property crimes as an adult. The second group of desisters had at least one arrest for a violent crime as a juvenile but did not have any arrests for violent or property crimes as an adult (Laub and Sampson, 2003). The men in the study who desisted from crime fully embraced the structure provided by marriage, even though it resulted in distancing themselves from their delinquent peers (Laub and Sampson, 2001; 2003).
This is supportive of Warr’s (1998) findings that marriage can play an important role in distancing an individual from their delinquent peers. Additionally, marriage along with employment can assist the desistance process by providing a set routine and a set of obligations that must be tended to each day. As a result, opportunities to engage in criminal activity are limited simply due to time constraints in the individual’s schedule (Laub and Sampson, 2001). However, as Laub and Sampson (2001; 2003) underscore, the mere act of being married or of being employed is not sufficient to lead to desistance from crime. Rather, desistance from crime is aided by quality marriage relationships, in which the benefits are gradually reaped over time, and by stable employment (Laub and Sampson, 2001; 2003).

**Agentic Perspective.**

In contrast, the desistance theories in the agentic or subjective perspective take the stance that desistance occurs based more on individual agency and change than on structural or social factors (Sullivan, 2012). This perspective includes research centered on cognitive transformation, which refers to individual change in terms of a personal identity shift (Sullivan, 2012). Shover (1996) was one of the first to examine the role of identity change in the desistance process. In his study, he identified five different criminal identities that are commonly adopted among persistent thieves. Those persistent thieves who adopt criminal identities used crime as a way to gain the respect of their peers and also display their aptitude for engaging in these criminal behaviors (Shover, 1996). However, as offenders age and construct their future, the criminal identity they had as a younger individual begins to have less importance and less value. Rather than focusing on money, material goods, and a party lifestyle, a new lifestyle and identity begin to take precedence. This new life and identity are more concerned with the value of time, spending time with family, and financial responsibility. Eventually, the aging persistent thieves in Shover’s
(1996) study began to redefine “their youthful criminal identity as self-defeating, foolish, or stupid” (p. 132).

In contrast, the analysis conducted by Bottoms, Shapland, Costello, Holmes, and Muir (2004) focused on examining the role of agency in the desistance process. Specifically, Bottoms et al. (2004) discuss a theoretical framework that can be used to understand the process of desistance from criminal activity, which highlights the importance of both structure and agency to the desistance conversation. They argue that structure and agency function by interacting continuously (Bottoms et al., 2004). The theoretical framework outlined here consists of three main parts: programmed potential, social context, and agency. First, ‘programmed potential’ refers to the likelihood that the individual will reoffend based on characteristics such as their age, gender, or past behavior. The second component is ‘social context’. This refers to the structures, cultures, and situational contexts an individual encounters. Thirdly, ‘agency’ refers to the impact of individuals’ personal choices or actions (Bottoms et al., 2004).

Bottoms and colleagues (2004) contend that while agency is an important aspect of the desistance argument, it is often limited by the extent to which the individual is self-aware and aware of the context surrounding them. If an individual does not have a clear understanding of why they engage in certain behaviors, agency is limited in its ability to truly understand and explain the behavior. Bottoms et al. (2004) also contend that the concept of agency is “under-theorized” and is often used differently by different authors. As an example, they suggest that individuals may not realize they are undergoing changes during the desistance process. While offenders are able to acknowledge and recount the changes they have experiences when looking back, Bottoms et al. (2004) suggest that they may not be able to do so during the desistance process.
Similar to Shover (1996), Farrall’s (2005) analysis is focused on the importance and role of identity. Farrall’s (2005) analysis uses a case study along with the existential sociological perspective to examine the manner in which both internal and external factors impact the desistance process. The existential perspective is concerned with studying human existence is all its forms, with a specific focus on looking for meaningful identity (Farrall, 2005). Farrall (2005) argues that the existential perspective is particularly useful for understanding the process of desisting from a criminal career:

When people try to stop offending, try to make amends for past behavior and succeed in so doing, they are not merely “no longer offending,” but in some cases have gone through lengthy periods of rebuilding, remodeling, or remaking their own social identities. By understanding these processes of change (sometimes self-initiated, sometimes supported by criminal justice agencies, and almost always “propped-up” by partners, parents, and offspring), we are able to understand how people “re-make” themselves (p. 372). This highlights the way in which agency and the creation of a new, prosocial identity are essential to ending one’s involvement in criminal behavior. The way in which both agency and structure work together is highlighted in Farrall’s (2005) work. In one example, the subject links her employment with her ability to stay away from criminal activity. Farrall (2005) points out that while her employment was a source of legitimate income, it also provided her a way to “rebuild” herself and who she could potentially be in the future (p. 376). In the following section, two theories from the agentic perspective will be examined in greater detail.

Two Theories of Identity and Cognitive Change

Some of the significant identity and cognitive transformation literature includes the research conducted by Maruna and his colleagues (Maruna 2001; Maruna et al., 2004b) as well as the work of Giordano and her colleagues’ (Giordano et al., 2002; Giordano, Cernkovich, and Holland, 2003; Giordano, Schroeder, and Cernkovich, 2007). The literature in this area
demonstrates that cognitive transformation can be observed in a number of different ways. For example, Giordano and colleagues (2002) incorporated several forms of cognitive transformation in their model of the change process, such as openness to change, ability to envision and conceive a conventional replacement self, and a change in attitudes toward deviant behavior. Similarly, attitudes toward criminal behavior, locus of control, agency, self-efficacy, and offenders’ motivation to change their behavior were highlighted in Maruna and colleagues’ research (Maruna, 2001; Maruna et al., 2004b).

**Making Good.**

Maruna (2001), along with his colleagues (Maruna et al., 2004a; Maruna et al., 2004b; Maruna and LeBel, 2010), have explored desistance from crime as being the result of a cognitive change. The core argument of Maruna’s (2001) model is that, in order for desistance from crime to occur, an offender needs to develop a conventional, prosocial identity. The cognitive change process in this model requires the offender to be able to understand and explain their criminal past as well as being able to understand and explain the ways in which they have changed as an individual. Maruna (2001) argues that in order for truly lasting desistance from crime to occur, the offender must choose to make a fundamental change to their sense of self. Desistance from crime is operationalized as “the process by which stigmatized, former offenders are able to ‘make good’ and create new lives for themselves” (Maruna, 2001, p.7).

‘Making good’ is a process of “willful, cognitive distortion” that allows offenders to find meaning and value in their life histories (Maruna, 2001, p. 9). By engaging in the making good process, the offender’s identity is both changed and reconstructed (Maruna, 2001). Making good involves creating a new narrative life history, in which the offender presents a more positive view of their crimes and criminal behavior. These positive accounts of the offender’s criminal
history are usually a sharp contrast (and distortion) of the ugly reality of their criminal history (Maruna, 2001). However, these cognitive distortions serve the purpose of allowing offenders to both view and depict their criminal past as a necessary stepping-stone to reaching their current status, rather than being viewed as shameful or through a negative lens. When this new narrative is complete, offenders are able to offer a credible explanation, to themselves as well as to others, as to how their criminal past led to their current, reformed identity (Maruna, 2001). In order for an individual to make a successful transition to desistance, they must accept the beliefs of conventional society and also have those in conventional society accept that the offender has changed their behavior (Maruna and LeBel, 2010). Similarly, Maruna and LeBel (2010) suggest that an individual transformation has a “looking-glass element. People start to believe that they can successfully change their lives when those around them start to believe they can” (p. 76).

Maruna (2001) argues that the process of making good can function as a way to create a sense of order in the disorderly lives that many offenders lead, which may be especially important to those individuals who are working to desist from crime. However, only offenders who are desisting from crime use the cognitive distortions that are implemented in the making good process. Offenders still actively engaged in criminal behavior do not have a need to reframe their criminal activity in a more positive light (Maruna, 2001).

Former offenders who wish to accomplish the goal of making good do so using redemption scripts. These scripts are the mechanism used by longtime, persistent offenders to explain their desistance from crime. As Maruna (2001) highlights, a coherent narrative is essential in order for others to believe the genuineness of such a dramatic life transformation. It is also crucial that this narrative is sufficiently believable to convince the offender that their change is real and lasting. The redemption script should make the behavioral change from
criminal offending to desistance seem obvious and like a “logical necessity” (Maruna, 2001, p. 86).

There are several steps in the process of developing redemption scripts. The first step is establishing the “goodness and conventionality” of the narrator of the script (Maruna, 2001, p. 87). For example, the script may portray the narrator as someone who is a victim of society and of his or her circumstances. As such, criminal activity presents an opportunity for the narrator to achieve a degree of control and power over their life (Maruna, 2001). In the next step of the redemption script, the criminal lifestyle begins to catch up with the narrator of the script. He or she enters a brutal cycle of imprisonment and criminal activity (Maruna, 2001). This cycle does not appear to have an exit point. It is at this point that the narrator receives assistance from some outside source who believed in the narrator’s ability to succeed. With this support, the narrator is able to achieve their goals. The final step in the redemption script process consists of the narrator using their newly found stability and conventional lifestyle to give back to society (Maruna, 2001). Ultimately, redemption scripts allow individuals to take a troubled history and reconstruct it so that it becomes “necessary prelude” to a new, more conventional life (Maruna, 2001, p. 87).

**A Theory of Cognitive Transformation.**

Giordano and her colleagues (2002; Giordano et al., 2007) also outlined a theory of criminality and cognitive change. This model aimed to address some of the weaknesses present in control theory perspectives, such as the reliance on transition events as drivers of change in an individual’s life. Giordano et al. (2007) argue that, in these perspectives, the individual could move from adolescence to adulthood without changing, if not for the interference of transition events. As such, Giordano et al. (2002; 2007) developed a perspective that relied on the cognitive transformation of the individual as a driver of criminality or desistance. Giordano and her
colleagues (2002) argue that, in order to obtain a thorough understanding of adult desistance, one must “theorize a more reciprocal relationship between actor and environment and reserve a central place for agency in the change process” (p. 999).

Giordano and colleagues’ (2002) model is situated within the symbolic interactionist perspective. Blumer (1969) summarized the perspective into three key premises. The first is “that human beings act toward things on the basis of the meanings that the things have for them” (p. 2). Symbolic interactionism views the meanings that people assign to things (i.e. other people, physical objects, institutions) as central and important in their own right (Blumer, 1969). The second premise is “that the meaning of such things is derived from, or arises out of, the social interaction that one has with one’s fellows” (Blumer, 1969, p. 2). In this sense, meaning is not intrinsic and it does not arise from psychological elements coalescing together. Rather, in the view of symbolic interactionists, meaning is assigned to things through social interaction between people (Blumer, 1969). The third premise of symbolic interactionism is “that these meanings are handled in, and modified through, an interpretive process used by the person in dealing with the things he encounters” (Blumer, 1969, p. 2). Blumer (1969) contends this premise has two steps. The first requires that the actor must first “point out to himself the things that have meaning” and then in the second step, “interpretation becomes a matter of handling meanings” (Blumer, 1969, p. 3).

The work of Mead (1964), an important theorist in the symbolic interactionist perspective, is prominent in Giordano et al.’s (2002; 2007) work. One example of this is the concept of the environment providing a framework for the individual to make significant life changes. As Mead (1964) emphasizes:

Our attention enables us to organize the field in which we are going to act. Here we have the organism as acting and determining its environment. It is not simply a set of passive
senses played upon by the stimuli that come from without. The organism goes out and determines what it is going to respond to and organizes that world. One organism picks out one thing and another picks out a different one, since each is going to act in a different way. (p. 138-139)

In this sense, the environment can provide a background or setting in which the individual can make life changes. However, this requires that the individual actively choose to take advantage of these new possibilities while also distancing themselves from their old habits as they begin to create their new life (Giordano et al., 2002). Additionally, the argument that there is an important connection between cognitive and behavioral changes is also consistent with symbolic interactionist approach (Giordano et al., 2002). Ultimately, Giordano et al. (2002) argue that this model is both well suited to examining adult desistance from criminal activity as well as studying significant changes in the life course.

Giordano and her colleagues (2002) identified four types of cognitive transformation in their model: openness to change; hooks for change; ability to envision and conceive a conventional replacement self; and a change in attitudes toward criminal and deviant behavior. These cognitive transformations are closely related and also serve to inspire and direct behavior. The first of the cognitive transformations discussed by Giordano and colleagues (2002) is a shift in the offender’s basic openness towards change. This is the most fundamental of the cognitive transformations and is described as readiness to change the behavior along with a general cognitive openness towards change (Giordano et al., 2002). Readiness or openness to change one’s behavior is described as being a continuum of sorts. While some individuals may have no intention of changing their behavior and desisting from crime, others may be open to the idea of changing their behavior but perhaps are not yet prepared to match their behavior to their plans. For example, an offender who has been involved in a criminal lifestyle her entire life and makes
better money engaging in crime than she could in a straight lifestyle may not be interested in changing her entire life (Giordano et al., 2002). Other offenders may be completely open moving away from criminal activity and, as such, their plans and behaviors are in sync. These offenders often use the past tense when discussing their criminal history because they have now undergone an identity shift and no longer identify with their criminal self (Giordano et al., 2002).

While a general openness to change is an important and necessary step in the process of changing one’s behavior, it is frequently insufficient on its own. For successful change to occur, exposure to a hook or a set of hooks for change must also be present. Hooks for change, the second form cognitive transformation in this model, are defined as elements in the environment that “serve well as catalysts for lasting change when they energize rather fundamental shifts in identity and changes in the meaning and desirability of deviant/criminal behavior itself” (Giordano et al., 2002, p. 992). Four prominent examples of potential hooks for change emerged in Giordano and et al.’s (2002) study. Two hooks could be categorized as hooks related to ‘formal organizational settings’: prison or treatment received while in prison as well as religion. The other two were categorized as being connected to ‘intimate networks’: the presence of children and a marital or romantic partner.

Hooks for change (and an individual’s response to them) are key to Giordano et al.’s (2002) conceptual model because they focus attention on the reciprocal relationship between the actor and the environment. Additionally, it is the offender’s response to an opportunity for change that may be presented is key. The offender may perceive this opportunity for change as more accessible than in the past and the perception of the importance or meaning of the hook may also change over time (Giordano et al., 2002). The hook can actually help the development
of these changes. As the change process progresses, it becomes necessary for the hook to make the offender make a cognitive connection in which they view their new life situation as a positive development and also define this new situation as incompatible with deviance (Giordano et al., 2002). An example of this process is one respondent in Giordano et al.’s (2002) sample who described the changes she went through when she became a parent. After having her child, a criminal lifestyle was no longer viewed as a viable option for her. She didn’t want to risk losing custody of her child and did not want her child to grow up having a mom who gets in trouble and has been to jail (Giordano et al., 2002). In this example, the birth of a child serves as a hook for the respondent to get out of her criminal life. The hook (her child) has also helped the respondent view her current life situation as both positive and completely incompatible with deviance, as she does not want her child raised in that environment.

It is important to acknowledge that openness towards change is related but conceptually distinct from receptivity to hooks for change. Essentially, an increased openness to changing one’s behavior is different from an increased receptivity to hooks such as a good job or good marriage (Giordano et al., 2002). Openness to change refers to the acknowledgement and recognition that changing one’s criminal or deviant behavior is desirable. In contrast, receptivity to hooks for change refers to the offender’s attitude towards a particular hook (such as marriage or treatment interventions)(Giordano et al., 2002). If an offender is receptive to a particular hook, they have become amenable to engaging in the change offered by that particular hook (e.g. a straight marriage away from criminal behavior or participating in a treatment intervention designed to aid in desisting from crime).

The third form of cognitive transformation addresses the creation of a new life incompatible with deviance and involves the creation of a replacement self. This change occurs
“when actors are able to envision and begin to fashion an appealing and conventional 'replacement self’ that can supplant the marginal one that must be left behind” (Giordano et al., 2002, p. 1001). When this new replacement self with conventional values is adopted, engaging in criminal behavior becomes inappropriate, as this does not align with the conventional values of the replacement self. This concept of creating a replacement self with conventional values is based in Mead’s (1964) ideas regarding human consciousness and the ability to focus reflexively on the self. Giordano et al. (2002) suggest that Mead’s (1964) argument regarding the organizational capabilities of cognitions can be further expanded, with identity bringing greater organization and coherence to an individual’s cognitions. Ultimately, then, the replacement self is able to serve as a cognitive filter and is able to guide future decision-making (Giordano et al., 2002).

The final form of cognitive transformation is a change in the way behavior is viewed. As Giordano et al. (2002) highlight that, like conventional and law-abiding behaviors, deviant and criminal behaviors have meaning and importance. During this final stage of the cognitive transformation process, the meaning and importance the offender assigns to criminal or deviant behavior and the criminal or deviant lifestyle is transformed. When an offender begins to view criminal behavior in a negative light and no longer views this behavior as an option that is relevant to their life, the desistance process can be seen as more or less complete (Giordano et al., 2002).

In their initial model, Giordano and colleagues (2002) suggest an ideal sequence for moving through these cognitive transformations would be one in which “an overall ‘readiness’ influences receptivity to one or more hooks for change, hooks influence the shift in identity, and identity changes gradually decrease the desirability and salience of the deviant behavior” (p.
1002). In this version, cognitive change is a linear and sequential process, with each form of change impacting the next. However, Giordano and her colleagues have recently revised their ideas regarding the sequencing of the steps of cognitive change. Now, Giordano (2016) argues that it may be “more useful to consider these elements as unfolding simultaneously, and as mutually reinforcing facets of the change process” rather than as sequential steps (p. 15). When examining the fourth type of cognitive transformation (changes in the meaning and desirability of criminal behavior), the limits of the linear sequencing model become readily apparent. In the initial model, changes in the meaning and desirability of criminal behavior are presented as the final step in the cognitive transformation process. However, findings from Giordano and colleagues’ recent analyses would suggest that changes in attitudes towards criminal behavior actually impact all phases of the cognitive change process. Giordano (2016) contends that this change in attitudes toward criminal behavior can actually serve as a mechanism to explain why individuals may become more open to changing their behavior, why they may be more receptive to presented hooks for change, and why individuals may be more able to envision and create a replacement self. However, this revision to the model may present challenges for testing the theory. The time-ordering of the theory’s components becomes less clear when one component can influence each of the theory’s other components and also occur simultaneously.

**Empirical Tests.**

These desistance theories have received little direct empirical attention in the literature. In one example, Giordano et al., (2007) expand their original theory of cognitive transformation (Giordano et al., 2002) using a “symbolic interactionist perspective on emotion… that highlights their social character, forges links to cognitive processes, and suggests ways in which emotions influence long-term patterns of criminal involvement.” (Giordano et al., 2007, p. 1603). This
study uses the same sample as the original Giordano et al. (2002) study, though an additional wave of follow-up interviews was completed in 2003 and added to this analysis. The sample consists of males and females who were initially interviewed as adolescents while incarcerated in 1982. The first follow-up interview was conducted in 1995 (average age of 29), with most respondents contributing life history narratives. The new follow-up wave was conducted in 2003 when the respondents averaged 38 years of age (Giordano et al., 2007).

These narratives and findings of this study indicate that as the respondents mature through the interview waves, their criminal involvement has decreased. This is to be expected and consistent with previous desistance research. The narratives also demonstrated the “notion that emotions and cognitions are deeply interconnected, and that sustained behavioral change is more likely when social, cognitive, and emotional processes align in ways that facilitate the desistance process” (Giordano et al., 2007, p. 1627). For example, one respondent combined a cognitive transformation and emotion by redefining her previous party and drug-fueled lifestyle as “stupid and crazy” (Giordano et al., 2007, p. 1627). This respondent not only changed the meaning and desirability of this behavior but also did so with emotionally charged wording. The quantitative component of this analysis demonstrates that there is a statistically significant positive association between anger identity and self-reported adult criminal behavior. Anger identity is a scale designed to explore the anger dimensions of the respondent’s self-concept (e.g. “When people say or do something that hurts me, I usually try to hurt them back,” “I can be a pretty mean person”) (Giordano et al., 2007, p. 1620). Anger identity also has a statistically positive impact on perpetration of relationship violence as well as problems resulting from alcohol and drug use (Giordano et al., 2007). In addition, the quantitative analysis explored the role anger identity played in the ability to desist from criminal activity. The results indicated that
anger identity significantly decreased the odds a respondent would be able to be a stable desister (as opposed to one who persists in offending)(Giordano et al., 2007).

Opsal (2012) also tested the theory of cognitive transformation laid out in Giordano et al. (2002). In her study, Opsal (2012) tested the ability to construct replacement selves and to use work as a hook for change in a group of women recently released from prison. As Opsal (2012) notes, the results of Maruna’s (2001) analysis indicated that rewarding or quality work is more likely to serve as a mechanism for successful identity change. In contrast, Giordano et al.’s (2002) examination did not find evidence that work served as a hook for change. Opsal (2012) addresses this contrast by conducting semi-structured interviews with 43 women who have recently been released from prison and are now on parole. The narratives in this study indicate that employment was utilized as a hook for change early in the reentry and cognitive change process. However, when facing challenges or disadvantages, some of the women in the sample were not able to continue with their identity change, either doubting or fully rejecting employment as a hook for changing their self and their circumstances (Opsal, 2012).

While there are not many studies that test these theories directly, there are many studies that examine identity theories more generally. For example, the analysis conducted by King (2013) examined identity early in the desistance process. Narratives were gathered using semi-structured interviews from 20 individuals who were considered to be in the primary desistance phase of the desistance process. Primary desistance refers to the time period in which there are lulls or gaps in criminal offending. In contrast, secondary deviance refers to longer-term avoidance of criminal activity along with change in identity (Maruna et al., 2004). The argument resulting from these narratives contends that early-stage desisters often feel “in part at least, a sense of powerlessness or a lack of autonomy” surrounding many of the events in their past
(King, 2013, p. 161). This understanding aids in the construction of an alternative identity, which also involves changes to the individual’s moral agency. The respondents indicated awareness that maintaining desistance would require changes to both their personal and social situations (King, 2013). King (2013) notes that many narratives indicated that the powerlessness over events was linked to disadvantage. This may present difficulties for respondents’ maintaining their desistance if they are confronted with the same disadvantaged circumstances (King, 2013). King (2013) also suggests that the findings of this study indicate that a clear distinction may not exist between primary and secondary deviance, arguing that potential desisters may begin the identity change process much earlier than originally suggested.

F-Dufour, Brassard, and Martel (2015) used narratives gathered from semi-structured interviews with 29 male Canadian former offenders to examine how the process of desisting from crime works. The findings from the narratives examined here suggest the desistance process can be explained in three stages. First, the desistance process is begun or initiated by a structural opening or opportunity (F-Dufour et al., 2015). This is similar to the hooks for change presented in Giordano et al.’s (2002) model. Without an opportunity for change, the offender cannot participate in the desistance process. The second stage involves the acquisition of a new social identity (F-Dufour et al., 2015). When presented with the opportunity to change one’s behavior, some also take on new social identities. Here, social identity refers to a social role, such as that of a student, spouse, parent, or employee. F-Dufour et al. (2015) argue that other figures in the offender’s life (such as friends, family and even probation officers) can play an important role at this stage by helping the individual to recognize opportunities for change as well as reinforcing and supporting this new role. Lastly, the narratives indicate that agency is needed to successfully maintain the desistance process. At this final stage, the offender has been
able to adopt at least one prosocial identity and determine that deviance or criminal activity is not consistent with this identity. As such, their criminal social identities are abandoned (F-Dufour et al., 2015).

The study conducted by Rocque, Posick and Paternoster (2016) explores how prosocial identities change and how these changes relate to the process of desisting from crime. While many scholars are using qualitative methods to answer questions regarding identity and desistance, Rocque and colleagues (2016) highlight that few prospective quantitative analyses have been conducted examining these theories. While both forms of analysis are important, qualitative and quantitative analyses answer different questions. Specifically, qualitative analyses are not best suited for examining causal relationships (Rocque et al., 2016). As such, Rocque and his colleagues (2016) used quantitative methods to address whether within-individual identity change over time can explain changes in offending behavior. Multilevel growth curve models were used to examine a sample of 447 individuals that were followed from the age of twelve until their late twenties. This data was originally collected as part of the Rutgers Health and Human Development Project (Rocque et al., 2016).

One of the first findings of this study was that respondents’ prosocial identity tended to increase over time and eventually slows around age 25. This increase in prosocial identity over the life course indicates that prosocial identity may play a role in desistance from crime (Rocque et al., 2016). This study also examined the relationship between prosocial identity and desistance while controlling for a number of covariates, including race, sex, marital status, friends’ delinquency, and work. The results indicated that identity was still a strong predictor of crime over time. When an individual has a stronger prosocial identity, their likelihood of engaging in crime ultimately decreases (Rocque, Posick, and Paternoster, 2016).
Comparison.

Maruna (2001) and Giordano et al.’s (2002) desistance perspectives are overall quite compatible, with several overlapping concepts. One example of this is the identity change that occurs as part of the desistance process. In the model formulated by Giordano et al. (2002), one of the four components involves creating a replacement self. This replacement self is created to replace the current self that is engaged in law violating behaviors. As such, the replacement self will have conventional values and be more socially acceptable than the previous version of the self (Giordano et al., 2002). Similarly, Maruna’s (2001) process of making good includes creating a new version of the self. By utilizing redemption scripts, individuals are able to reconstruct their past into a more positive narrative. Focus and attention is drawn to the individual’s positive qualities and the positive elements that can be drawn from past events, even scenarios that were criminal or deviant in nature (Maruna, 2001).

There is also overlap between these perspectives in regards to the necessity of an outside catalyst for change. Maruna (2001) contends that while individual agency is critical and necessary for desistance from crime to occur, the catalyst for this process is an outside source. This is frequently another individual, a program, or religion. However, while the outside source catalyzes the desistance process, the individual must still take the next step and follow through, moving toward the ultimate goal. In Giordano et al.’s (2002) perspective, an outside source, labeled as a hook for change, is also required for cognitive change, and ultimately desistance, to occur. As in Maruna’s (2001) model, hooks for change can be either individuals (e.g. children or a romantic partner) or an organizational setting (e.g. prison or treatment intervention) (Giordano et al., 2002).
One of the areas in which the Maruna (2001) and Giordano et al., (2002) perspectives somewhat differ is in the way in which they each frame desistance. In Giordano et al.’s original model (2002), the fourth aspect of cognitive change involves a change in the way in which criminal or deviant behaviors are viewed. The desistance process is viewed as being complete when these behaviors and the criminal lifestyle as a whole are no longer seen as being positive or “personally relevant” (Giordano et al., 2002, p. 1002). While Maruna’s (2001) model expects that offenders will adopt conventional values, he also acknowledges that few of the desisting offenders in his study actually have come to believe that crime and deviance is ‘wrong’ or negative (p. 100). Despite this, the desisting individuals in the study have not engaged in criminal activity from approximately two or three years and do not intend to return to criminal activity (Maruna, 2001).

An additional avenue worthy of comparison is each perspective’s handling of correctional interventions. One way in which Maruna (2001) addresses correctional programming is in terms of narratives and rebiographing. Rebiographing is a method of storytelling in which one’s past is reconstructed or reinterpreted to be more consistent with the individual’s new identity. Several forms of correctional treatment, including cognitive self-change programs, may be useful in the process of self-story analysis and rebiographing. Maruna and his colleagues (2004a; 2004b) also discuss correctional interventions in terms of the role they play in the change process of the individual. As discussed earlier in this chapter, Maruna et al. (2004a) believe that all behavioral change, whether an individual is a self-changer or if they’re receiving the help of a treatment program, is essentially the same process. This change process is also fundamentally an individual process, since the individual is still responsible for doing the hard work of reform with or without treatment interventions. Similarly,
interviewed practitioners suggest that while they can offer services, support, guidance, and training, it ultimately depends on the individual whether they will succeed or fail at changing their criminal behavior (Maruna et al., 2004b). These arguments and observations lead to the conclusion that treatment interventions should be designed to work around the individual’s natural reform efforts. Rather than trying to force an individual into a particular path, Maruna et al. (2004a) argue for the creation of programs that are designed to complement the individual’s existing efforts or desire to change their criminal behavior. Given all of this, Maruna (2001) contends that it may be worthwhile to focus treatment resources on those offenders who are committed to changing their behavior rather than on trying to change offenders who are uninterested in desisting from criminal behavior.

In Giordano et al.’s (2002) model, treatment or programs can serve as a hook for change. However, Giordano et al. (2002) argue that most treatment interventions do not function well as mechanisms for lasting change. Treatments or hooks for change that occur as part of the correctional system are limited in their ability to succeed, according to Giordano and her colleagues (2002), because the individual participating in the program may not have been able to make the choice to participate in that treatment. Thus, individuals are not able to be an active participate in choosing a hook for their own change process. In addition, they argue, “such cognitions are eventually grounded in the past (memories of past jail time) and do little to direct or sustain any kind of forward motion” (Giordano et al., 2002, p. 1034). Despite this, approximately 27% of the men and 13% of the women in the study described either prison or treatment interventions as playing a large role in aiding their desistance from crime (Giordano et al., 2002). In order for a hook for change to be successful, the individual must play an active role in selecting or moving toward the hook. Prison often fails as a hook for change because the
individual is not in the active role; the criminal justice system is in the active role and selecting
the individual into the system. However, treatment programs and interventions often fare better
in this regard since the individual often is able to maintain agency and an active role (Giordano
et al., 2002).

Some treatment programs may be viewed as helpful because they provide the offender
with a “cognitive blueprint”, meaning they “provide the actor with a well-developed linguistic
and cognitive guide to the change process. That is, they offer the actor a great deal of specific
detail about how one is to proceed as a changed individual” (Giordano et al., 2002, p. 1035). In
addition, treatment interventions may also offer the opportunity to assume a replacement self that
is more socially acceptable than current or previous identities. However, a criticism of treatment
programs, particularly those that target cognitive processes, is also offered. Giordano and
colleagues (2002) contend that these programs tend to place cognitive process and emotional
experience in contention with each other. Instead, a neo-Meadian perspective, as is embrace by
Giordano et al. (2002), requires that attention be devoted to both cognitions and emotions, which
“requires moving beyond the relatively individualistic, ‘deficit’ emphasis of many intervention
strategies (e.g., the idea of “thinking errors”), and explicitly recognizing that many offenders’
negative attitudes and feelings do have social and indeed rational underpinnings” (Giordano et

While neither of these perspectives takes a purely negative view of correctional treatment
interventions, they both are clear regarding what they view as the inherent limitations of these
treatments. For example, both Giordano et al. (2002) and Maruna et al. (2004a) are clear that
while interventions may serve as a successful hook or catalyst for change, success can only come
when the individual is also engaged in the change process. Additionally, these perspectives share
a view that correctional interventions can be key to creating and molding a new identity. Both perspectives suggest that treatment programs can offer offenders opportunities to reframe one’s narrative and assume a more prosocial replacement self.

**Current Study**

Elements from both of the Maruna (2001; Maruna et al., 2004a) and Giordano et al. (2002) perspectives discussed above inform the current study. One way in which these perspectives impact the current study is the way in which treatment interventions may impact the cognitive transformation process. In Maruna’s (2001) framework, the process of making good is often catalyzed from some outside source, such as a particular organization, individual, religion, or program. This does not, however, diminish the necessity of individual agency in the change process (Maruna, 2001). While the outside source may catalyze the change process, individuals should still be active participants in their rehabilitation. Maruna (2001; Maruna and LeBel, 2010) also describes the importance of external support and motivation in terms of the “looking-glass recovery” (p. 96). As discussed previously, this concept refers to the idea that the offender is able to believe that they are able to succeed and desist from crime when they observe that others (whether they are an individual, a program, or an agency) believe that the offender is capable of succeeding and leading a prosocial life (Maruna, 2001; Maruna and LeBel, 2010).

Similarly, Giordano et al.’s (2002) model utilizes hooks for change in their cognitive change process. Hooks for change are described as environmental components that serve as catalysts for change. One of the four main hooks identified in by Giordano et al.’s (2002) subjects was the effect of a treatment intervention. Given this, the current study utilizes an outside source or hook as the catalyst for cognitive change, specifically, participation in a cognitive-behavioral intervention. Giordano (2016) points out that successful hooks not only act
as a mechanism from changing the individual’s conduct but also “provide a specific blueprint for how to proceed as a changed individual” (p. 21). Cognitive-behavioral interventions may function well in this regard as they work to provide the individual with cognitive skills that will help address their problematic behaviors and aid their functioning in society following their release from incarceration.

In addition, these perspectives have both informed the selection of the measures in the present study. The first measure is motivation to change one’s behavior. Giordano et al. (2002) utilize openness or readiness to change one’s behavior as one of the key steps in their model. Maruna (2001) suggests that the offender must make the choice to change their sense of self in order to change their behavior. Additionally, both of these perspectives rely on individual agency for change to ultimately occur. Self-efficacy, the second important measure in the current study, is closely related to the concept of agency. The third measure relates to the offender’s perceptions of deviance and crime. Changes in the meaning of criminal or deviant behavior are an important step in Giordano et al.’s (2002) cognitive transformation process. Maruna’s (2001) use of this concept is a bit more nuanced. He suggests that accepting the beliefs of conventional society is a key component of the desistance process (Maruna and LeBel, 2010). However, he also points out that few of the desisting individuals in his study actually believed that crime was ‘wrong’ (Maruna, 2002).

Conclusion

In this chapter, the definitional issues associated with desistance, the roots of the desistance perspective, and the perspectives explaining desistance from crime were each examined. The findings from Laub and Sampson (2001; 2003) demonstrate that both marriage and employment can have a positive impact on the desistance process when these are quality
marriages and quality jobs. Shover (1996) concluded that persistent thieves found less value and importance in their criminal identity as they aged. Instead, a more prosocial identity begins to take precedence. Similarly, Farrall (2005) suggested that in order for an offender to desist from crime, they must be able to create a prosocial identity. The two perspectives that were examined in greater depth here, Maruna (2001) and Giordano et al. (2002), also both require the adoption of a more prosocial identity. These perspectives are also in agreement that an outside catalyst is necessary to spark individual change, though they somewhat differ regarding whether it is necessary for the individual to adopt prosocial views of criminality and deviance. The Maruna (2001) and Giordano et al., (2002) each theoretically inform the current study. In the subsequent chapter, the focus shifts from desistance theories to theories of correctional intervention.
Literature Review: Theories of Correctional Intervention

Introduction

In order to examine and understand how any correctional intervention works, it is important to first understand theories of effective correctional interventions. In this chapter, the background and history of these theories is explored along with the elements used to define program effectiveness. In addition, the current empirical support for these theories will also be explored along with criticisms of these models.

Background

The belief in the effectiveness of correctional interventions famously took a blow with Martinson’s (1974) claim that ‘nothing works’. Following his examination of over 200 treatment interventions, Martinson (1974) concluded most of these interventions did not have an impact on recidivism. In addition, he contended practitioners did not understand how to construct a correctional intervention that would be successful in reducing recidivism (Martinson, 1974). The outcome of his analysis discouraged many and directed much research attention and work away from the previously popular rehabilitative ideal and toward policies designed to be more punitive toward offenders (Gendreau, Smith and French, 2006).

Nonetheless, many researchers maintained their belief in rehabilitation and the ability of treatment to work and change behavior. The leaders in confronting Martinson’s (1974) challenge to rehabilitation and correctional intervention were those in the “Canadian School” of rehabilitation (Cullen, 2002). This group was made up of psychologists who followed the scientist-practitioner model and, as such, believed their main role was to implement, administer, and evaluate offender assessment and treatment programs (Gendreau, Smith, and French, 2006). As believers in social learning perspectives, they believed most social behaviors, including
criminal behavior, were largely learned and could be changed. Gendreau and colleagues (2006) found Martinson’s (1974) claim that nothing works was unimpressive. Rather, they argued that it was essential that individuals study the “black box” of treatment programs, determining what principles distinguish effective correctional programs from ineffective programs (Gendreau, Smith, and French, 2006, p. 421).

The initial response to Martinson’s (1974) claims was to construct “bibliotherapy for cynics” (Gendreau and Ross, 1979). This was an undertaking in which these researchers carried out literature reviews and demonstration programs with the ultimate goal of demonstrating that offender treatment programs were both useful and effective. This work had the added goal of creating a practical theory of effective correctional treatment and ultimately exploring the “black box” of correctional interventions (Gendreau, Smith, and French, 2006). As highlighted by Gendreau (1996), the key question to be explored in the black box is “what are the principles that distinguish between effective and ineffective programs?” (p. 118).

**The Risk-Need-Responsivity Model**

In their work, Andrews, Bonta, and Hoge (1990) outlined their model for effective correctional intervention, known as the Risk-Need-Responsivity or RNR Model. The goal of this model is to pair particular groups of offenders with specific forms of discretionary services in order to achieve the highest level of efficacy from treatment (Andrews, Bonta, and Hoge, 1990). In this instance, effectiveness is operationalized as a reduction in recidivism. Discretionary service is operationalized as various correctional services including supervision, counseling, training, and treatment (Andrews, Bonta, and Hoge, 1990). This model specifically lays out who should be offered intensive rehabilitative treatment, what should be the focus of programming in
order to achieve a reduction in recidivism, and which treatment styles, methods, and strategies are best utilized (Andrews and Bonta, 2010).

**Human Service.**

The first principle outlined in Andrews and Bonta’s (2010) model is the human service principle. The human service principle contends that common criminal justice principles such as just desserts, deterrence, and retribution are not effective in addressing the risks and needs of offenders. Andrews and Bonta (2010) argue that these principles are not able to change individuals’ offending patterns and criminal behavior. Rather, various human, clinical and social services and programs, embodying the rehabilitative principle are necessary to truly change an individual’s criminal behavior. These programs are most effective in changing criminal behavior because these methods address offenders’ risks and needs (Andrews and Bonta, 2010). Programs focused on human service include those programs that employ a treatment philosophy of some sort as their driving philosophy. Examples of this include cognitive-behavioral programs, client centered programs, and therapeutic communities (Lowenkamp, Flores, Holsinger, Makarios, and Latessa, 2010). In contrast, an example of just desserts, deterrence, and retribution principles includes criminal sanctions, which are “imposed at the front end of the correctional process and not involving deliberate variation in rehabilitative service” (Andrews et al., 1990, p. 379).

Several meta-analyses have been conducted examining the empirical validity of the RNR model. In a meta-analysis conducted by Andrews and his colleagues (1990), the human services, risk, need, and responsivity principles were all applied to studies of adult and juvenile offenders. This resulted in 154 phi coefficients, which were used to summarize the magnitude and direction of the effect of treatment on recidivism. Types of treatment were coded into four different classifications: appropriate services (treatments and programs which follow the risk, need, and
responsivity principles); inappropriate services (treatment or services offered do not follow the guidelines of the risk, need, responsivity principles); unspecified services (treatment which could not be clearly categorized as appropriate or inappropriate); and criminal sanctions (a variation in judicial disposition involving sanctions rather than rehabilitative services) (Andrews et al., 1990). The results of this meta-analysis indicated that the mean phi coefficient for appropriate correctional services (0.30, p<0.05) was significantly greater than that for criminal sanctions (-0.07), indicating that appropriate services were more effective in reducing recidivism than criminal sanctions (Andrews et al., 1990) This finding is supportive of the human services principle since the RNR model focuses more on the provision of support than on punishment or sanctions.

Dowden and Andrews’ (1999) meta-analysis found similarly strong support for the human service principle. This meta-analysis examined effect of the RNR principles on recidivism, with a specific focus on female offenders. As such, studies included in this analysis had to consist entirely or predominately of female offenders. Ultimately, the meta-analysis consisted of 26 studies with 45 effect sizes extracted from these studies, some of which were included in the Andrews et al. (1990) meta-analysis. Dowden and Andrews (1999) found that treatment interventions focused on human services had a significantly higher mean effect size (0.18) than programs that were focused on criminal sanctions (0.01). As such, the human service programs were associated with a significantly larger mean reduction in recidivism (Dowden and Andrews, 1999).

Results supportive of the human services philosophy were also found in an analysis conducted by Lowenkamp and his colleagues (2010). In their analysis of 58 intensive supervision programs, Lowenkamp and colleagues (2010) found that programs based in a human
service philosophy were more likely to reduce recidivism. Programs in this study with a human service philosophy had a mean effect size of 0.06 (95% C.I. = 0.03-0.08) (Lowenkamp et al, 2010). While this is not a large effect, it is statistically significant and it does indicate that, on average, the likelihood of recidivism would decrease. In contrast, programs with a deterrence philosophy had a mean effect size of -0.11 (95% C.I. = -0.15-0.08). This finding was also statistically significant and indicates that, on average, the likelihood of recidivism would increase in deterrence-oriented programs (Lowenkamp et al, 2010).

Risk.

The risk principle is the next principle outlined in this model. There are two key aspects to the risk principle: prediction and matching. Prediction involves assessing the offender’s risk factors, which are defined as “personal attributes and circumstances that are assessable prior to service and are predictive of future criminal behavior” (Andrews, Bonta, and Hoge, 1990, p. 24). Clinical assessments rely on a “knowledgeable person” to use “informal, nonobservable” criteria in the process of evaluating the risk an individual poses (MacKenzie, 2006, p. 63). However, the actuarial approach utilizes clear, unambiguous criteria that are validated by research in the risk assessment process. There are two different forms of actuarial decision-making. Empirical systems use empirically derived data to choose the factors that are most closely related to recidivism and to create a summated risk classification scale. Theoretical systems first select factors that are connected to recidivism theoretically. Then, these factors are empirically examined and the factors most strongly related to recidivism are included in a summated risk classification scale (MacKenzie, 2006).

The second component of the risk principle, matching, involves ensuring that the level of service provided is properly matched to the offender’s risk level. Since offenders pose varying
levels of risk for reoffending, interventions must be targeted accordingly. Matching serves as the
core of the risk principle and is the essential link between assessment and effective treatment
(Andrews and Bonta, 2010). For example, the highest risk offenders require more intensive
services and treatment in order for a significant reduction in recidivism to be achieved. In
contrast, lower risk offenders tend to do better with minimal services and treatment. More
intensive services have been shown to be potentially detrimental to low risk offenders (Andrews,
offenders may cease criminal activities even without treatment intervention. However, the idea
of matching offenders to services based on their risk of reoffending doesn’t necessarily carry
over to practice. Practitioners may find working with motivated, low-risk offenders to be more
rewarding than working with higher risk clients who may be more difficult and resistant to
treatment (Andrews and Bonta, 2010). In summary, Andrews and Bonta (2010) suggest the risk
principle tells us who to treat.

Dowden and Andrews’ (1999) meta-analysis found strong support for the risk principle.
As discussed above, this meta-analysis explored the impact of the RNR principles on recidivism,
focusing on a female offender population. The risk principle was examined by coding studies
based on whether they targeted high risk or low risk offenders. A study was coded as involving
high-risk offenders if “the majority of those in the study had penetrated the justice system at the
time of the study or had a previous criminal offense” (Dowden and Andrews, 1999, p. 441). The
results of this meta-analysis indicated that programs targeting higher risk offenders rather than
lower risk offenders had a significantly greater mean reduction in recidivism ($\eta = 0.31$)
(Dowden and Andrews, 1999).
Andrews and Dowden (2006) conducted the first extended meta-analysis of the risk principle. This meta-analysis examined the empirical validity of the risk principle using a sample of 225 studies of correctional treatment with a resulting total of 374 effect sizes. In addition, this analysis investigated whether the validity of the risk principle was impacted by the presence of program elements targeting criminogenic needs, noncriminogenic needs, or by program elements addressing the general responsivity principle (Andrews and Dowden, 2006). The risk principle received moderate support in this analysis. The “mean effect size was .03 in 96 tests of correctional treatment with lower risk cases and .10 in 278 tests with higher risk cases ($\eta = .17, p < .00$)” (Andrews and Dowden, 2006, p. 93). As such, there were significantly higher mean effect sizes for programs with higher risk subjects than those with lower risk subjects. In addition, risk had a significant effect in programs where criminogenic needs were targeted and/or where the general responsivity principle was followed. Risk did not have a significant effect in terms of noncriminogenic needs (Andrews and Dowden, 2006).

Results supporting the risk principle and programming targeted at higher risk offenders was also found in Lowenkamp, Latessa, and Holsinger’s (2006) analysis. This meta-analysis was one of the largest tests of the risk principle and aimed to address weaknesses that existed in many other studies of risk by utilizing two independent studies of 97 correctional programs with a total of 13,676 individual offenders. The goal of this meta-analysis was to examine how adhering to the risk principle affected program effectiveness in terms of recidivism. Adherence to the risk principle was measured in terms of focusing programming on high-risk offenders, varied length of stay according to risk, and varied amount of services according to risk level. The results of the meta-analysis indicated all three measures of the risk principle were significantly related to a decrease in recidivism (Lowenkamp et al., 2006). As Lowenkamp, Latessa, and Holsinger
(2006) summarize “The results of these analyses, taken together, show a consistent pattern. The correctional programs included in these analyses, whether residential or nonresidential, showed increases in recidivism rates unless offenders who were higher risk were targeted and provided more services for a longer period of time” (p. 88).

However, some of the literature has not been supportive of the risk principle. In their analysis, Antonowicz and Ross (1994) had the goal of determining what factors were essential to treatment program effectiveness. To be included in the analysis studies must have been published between 1970 and 1991, utilized either experimental or quasiexperimental research designs, and used “community-based” outcome measures, such as rearrest, reconviction, or reincarceration. A total of 44 studies were included in the examination. Antonowicz and Ross (1994) found that, when looking at how offenders respond to various levels of services, there was not a significant difference between high-risk offenders and low-risk offenders. Ultimately, they argue that both high-risk and low-risk offenders can be successful (Antonowicz and Ross, 1994).

Need.

The third principle described in the RNR model is the need principle. The focus of this principle is outlining what factors should be targeted by treatment programs (MacKenzie, 2006). According to the need principle, offenders have both criminogenic and noncriminogenic needs. Criminogenic needs “are a subset of risk factors. They are dynamic attributes of offenders and their circumstances that, when changed, are associated with changes in the chances of recidivism” (Andrews, Bonta, and Hoge, 1990, p. 31). Andrews and Bonta (2010) argue these dynamic criminogenic needs must be addressed if reductions in recidivism and criminal behavior are desired. The need principle suggests dynamic criminogenic needs should be the focus of correctional treatment since these factors are changeable. Examples of dynamic criminogenic
needs include substance abuse, procriminal attitudes, and an antisocial personality type (Bonta and Andrews 2007; MacKenzie, 2006). However, while many criminogenic needs are dynamic, some may also be static, or unchangeable by participation in treatment programs (MacKenzie, 2006). For example, age, race, gender, and criminal history are all factors that are correlated with criminal activity. However, these factors cannot be changed by participation in treatment interventions. Therefore, these factors are considered to be static criminogenic needs (Bonta and Andrews, 2007; MacKenzie, 2006).

As Bonta and Andrews (2007) highlight, offenders often have many issues in need of treatment even though not all of these needs are associated with criminal activity. Noncriminogenic needs are needs that are not closely associated with reductions in recidivism and are considered to be less promising targets for treatment intervention (Andrews and Bonta, 2010; Bonta and Andrews, 2007). However, Andrews and Bonta (2010) argue it is still important to address noncriminogenic needs; however, this is not done with the immediate goal of reducing recidivism. Rather, these needs are typically addressed in order to improve motivation, to remove a barrier to treatment participation, or for humanitarian reasons (Andrews and Bonta, 2010; Bonta and Andrews, 2007). Examples of noncriminogenic needs include self-esteem, mental health, and physical health (Bonta and Andrews, 2007; MacKenzie, 2006). Ultimately, the need principle, specifically the criminogenic needs, tell us what to treat (Andrews and Bonta, 2010).

In their research, Andrews and Bonta (2010; Bonta and Andrews, 2007) have outlined major predictors of criminal behavior, known as the “central eight” risk/need factors. The central eight includes seven risk/need factors as well as one static risk factor. These are further broken down into major and moderate risk/need factors. Each of the risk/need factors includes a
description of the risk as well as the need worthy of treatment intervention (Andrews and Bonta, 2010).

The “big four” risk/need factors are: a history of antisocial behavior, an antisocial personality pattern, antisocial cognition, and antisocial associates (Andrews and Bonta, 2010). A history of antisocial behavior is the static risk factor in this model. The risk component (who should be treated) consists of those who are involved in numerous antisocial activities early in life. While one’s criminal history is not an element that is amenable to treatment intervention, Andrews and Bonta (2010) suggest that other actions may be taken, such as focusing on building new noncriminal behaviors and skills as well as building self-efficacy and avoiding criminal activity.

The second of these factors is an antisocial personality pattern. The risk component focuses on those individuals who are impulsive, adventurous, pleasure seeking, restlessly aggressive, as well as have a callous disregard for others. The need component focuses on treating weaknesses in self-control skills, anger management skills, and problem-solving skills (Andrews and Bonta, 2010). The third major risk/need factor is antisocial cognition. The risk component is targeted to individuals described as having values, beliefs, rationalizations, attitudes, as well as a personal identity that is favorable to crime. Further, Andrews and Bonta (2010) suggest those with antisocial cognition would display “identification with criminals, negative attitudes toward the law and justice system, a belief that crime will yield rewards, and rationalizations that specify a broad range of conditions under which crime is justified” (p. 59). The need component of antisocial cognition focuses on using treatment to reduce antisocial thoughts and feelings (Andrews and Bonta, 2010). Lastly, having antisocial associates is identified as being a risk/need factor. The risk component of having antisocial associates is
defined as those associating with procriminal others while also being relatively isolated from anticriminal others. The need component is focused on reducing contact with procriminal others and increasing contact with anticriminal others (Andrews and Bonta, 2010).

In addition to the four major risk/need factors outlined by Andrews and Bonta (2010), there are four risk/need factors that are considered to be moderate: family/marital circumstances, school/work situation, leisure/recreation involvement, and substance abuse. The first factor, marital and family circumstances, focuses mainly on relationships within the family of origin as well as relationships between spouses. The risk component of this factor suggests relationships may put one at risk for engaging in criminal activity when poor quality relationships combine with either neutral or procriminal expectations in regard to crime (Andrews and Bonta, 2010). It is important to examine both the quality of these relationships (such as the levels of caring, respect and interest) as well as the behavioral expectations associated with the relationships (such as monitoring, supervision, discipline). The need component of this factor is focused on reducing conflict as well as building more positive relationships (Andrews and Bonta, 2010).

The second moderate risk/need factor is the quality of school or work relationships. The risk component suggests an individual may be at greater risk of criminal behavior when they experience low levels of performance, involvement, satisfaction, and rewards within the settings of school or work (Andrews and Bonta, 2010). The need component of this factor targets (and aims to improve) an individual’s performance along with their level of involvement in school or work. Leisure and recreation can potentially become a risk/need factor. The risk component suggests an individual may be at risk when they are engaged in few noncriminal activities and receives low levels of satisfaction from these noncriminal activities. The need component aims to address this by increasing the individual’s involvement in noncriminal activities (Andrews and
The final moderate risk/need factor in the Andrews and Bonta (2010) model is substance abuse. The risk component suggests problems with alcohol or other drugs create a risk for criminal behavior that should be addressed. This risk is greater for those individuals with current substance abuse issues compared to those individuals who have had problems with substances in the past (Andrews and Bonta, 2010). The need component suggests substance abuse must be reduced along with any supports for substance-oriented behavior (Andrews and Bonta, 2010).

There is a great deal of research supporting the empirical validity of criminogenic needs. In their meta-analysis, Gendreau, Little and Goggin (1996) examined 131 studies and 1,141 effect sizes to assess which predictor domains were the best predictors of recidivism in adult offenders. The results of this study indicate criminogenic need factors are correlated with recidivism ($r=0.17$, $p<0.05$). This is the strongest mean correlation in the meta-analysis and the strength of this relationship between criminogenic needs and recidivism was comparable to the relationship between criminal history and recidivism (mean $r=0.16$, $p<0.05$; Gendreau, Little, and Goggin, 1996).

The Dowden and Andrews (1999) meta-analysis discussed previously also examined the impact of the need principle on the recidivism of female offenders. In this analysis, the need principle was measured by creating an overall need score. This score was calculated using the difference between the number of criminogenic needs addressed in a treatment intervention and the number of noncriminogenic needs addressed in the treatment intervention. Programs that targeted more criminogenic needs than noncriminogenic needs were viewed as appropriately applying and addressing the needs principle (Dowden and Andrews, 1999). In addition, greater mean reductions in recidivism were found in programs that targeted criminogenic needs rather
than noncriminogenic needs ($\eta=0.49$) and in programs that utilized behavioral and social learning methodologies rather than nonbehavioral methodologies ($\eta =0.38$) (Dowden and Andrews, 1999).

Lowenkamp, Pealer, Smith, and Latessa (2006) also examined the need principle in terms of the criminogenic and noncriminogenic needs addressed by treatment interventions. Using a sample from community non-residential treatment programs (i.e. intensive supervision probation, electronic monitoring programs day reporting, work release), this analysis explored the impact of addressing offenders’ needs on recidivism (Lowenkamp et al., 2006). The need principle was measured using a ratio of interventions targeting criminogenic needs to interventions targeting noncriminogenic needs. The need principle was considered to be satisfied when there were three criminogenic needs addressed for every noncriminogenic need. The programs that met the need principle were able to reduce recidivism by 11%, on average. However, programs that did not meet the requirements of the need principle actually increased recidivism by 3%, on average (Lowenkamp et al., 2006).

**Responsivity.**

The final principle outlined in the RNR model is the responsivity principle. This is further broken down into general and specific responsivity. With general responsivity, Andrews and Bonta (2010) argue, “offenders are human beings, and the most powerful influence strategies available are cognitive-behavioral and cognitive social learning strategies” (p. 50). Further, MacKenzie (2006) underscores correctional treatment interventions that are “skill oriented, based on a behavioral or cognitive-behavioral theoretical model, and multimodal are more effective than other models of treatment” (p. 61). As such, the general responsivity principle advocates for employing these methods in order to change problematic criminal behavior. These
behavioral and cognitive-behavioral methods include a variety of techniques such as: modeling, skill building, role-playing, reinforcement, practicing new low risk alternative behaviors, and cognitive restructuring to modify thoughts and emotions (Andrews and Bonta, 2010; MacKenzie, 2006).

In contrast, specific responsivity suggests practitioners should “adapt the style and mode of service according to the setting of service and to relevant characteristics of individual offenders, such as their strengths, motivations, preferences, personality, age gender, ethnicity, cultural identification, and other factors” (Andrews and Bonta, 2010, p. 46). Bonta (1995) argues that treatment is a learning process and any individual characteristics that either aid or interfere in this learning experience may be considered to be responsivity factors. These characteristics impact whether an individual will benefit or respond to a particular form of treatment or to a particular treatment provider (Bonta, 1995). Examples of characteristics that should be considered include: age, gender, race/ethnicity, mental illness, depression, anxiety, self-esteem, verbal intelligence, cognitive maturity, social skill, problem solving skills, verbal skills, and interpersonal sensitivity (Bonta, 1995).

**General Responsivity.**

The use of cognitive and cognitive-behavioral methodologies in correctional settings has been demonstrated to be effective in a number of analyses. In their meta-analysis, Allen and her colleagues (2001) explored the effectiveness of two different cognitive-behavioral interventions in reducing recidivism. Using the Maryland Scale for Scientific Rigor, each study was assessed based on the strength of their research methodology, the program examined (either Reasoning and Rehabilitation or Moral Reconation Therapy), and the measure of recidivism used (reconviction, reincarceration, readmission, or revocation) (Allen et al., 2001). The results of
this analysis indicated that, when looking at studies of sufficient scientific rigor, there were significantly lower rates of recidivism for participants of both Moral Reconation Therapy as well as Reasoning and Rehabilitation programs (Allen et al., 2001).

Similarly, Tong and Farrington (2006) also conducted a meta-analysis looking at the effectiveness of cognitive-behavioral interventions, specifically the Reasoning and Rehabilitation program. Sixteen studies with 26 separate comparisons were involved in this meta-analysis. This included studies of programs conducted in the United States, the United Kingdom, Canada, and Sweden (Tong and Farrington, 2006). Using reconviction as a measure of effectiveness, the results suggest that those offenders participating in the Reasoning and Rehabilitation program had a significant decrease of 14% in recidivism compared to those offenders in the comparison groups (OR=1.16) (Tong and Farrington, 2006).

Berman’s (2005) study also found support for the general responsivity principle. This analysis explored the effectiveness of a particular cognitive-behavioral program, Reasoning and Rehabilitation, in reducing recidivism as well as in helping offenders make pro-social changes. The results of Berman’s (2005) study indicated offenders who completed the program displayed numerous pro-social changes in terms of impulsiveness, coherence, and attitudes towards the criminal justice system. In addition, those who completed the program had significantly lower reconviction rates than offenders who did not complete the program and offenders in the control group (Berman, 2005).

Specific Responsivity.

There has been little research conducted to this point which has established that treatment programs designed for different types of offenders are effective, though MacKenzie (2006) argues the concept of specific responsivity does have face validity. Hubbard and Latessa (2004),
in addition to Hubbard and Pealer (2009), conducted analyses with a focus on the responsivity principle, which suggests certain personal characteristics are linked to an individual’s success (or failure) in a treatment intervention. Hubbard and Latessa’s (2004) examined the role responsivity factors play in terms of both recidivism and program completion. Responsivity factors are those individual characteristics that impact the degree to which an offender is amenable to treatment (Hubbard and Latessa, 2004). The sample utilized for this study consisted of male, female, and juvenile offenders who had participated in cognitive-behavioral programming at one of five different treatment sites. Several personal characteristics were examined as responsivity factors, including personality type, IQ, self-esteem, depression, and history of sexual abuse. The results of the analyses indicated none of the responsivity characteristics that were examined in this study were significantly related to program completion, rearrest, or reincarceration (Hubbard and Latessa, 2004). Hubbard and Latessa (2004) argued that despite their findings, responsivity is an area that is in need of further research and examination.

Hubbard and Pealer (2009) explored the role treatment responsivity plays in reducing cognitive distortions and antisocial attitudes following participation in cognitive-behavioral programming, using a sample of male felony probationers. Like Hubbard and Latessa (2004), this study is also is based in the responsivity principle’s assertion that certain personal characteristics may impact an offender’s success in programming and also uses the same set of responsivity characteristics (personality type, IQ, self-esteem, depression, and history of sexual abuse) (Hubbard and Pealer, 2009). The results of this study indicated offenders who had the largest number of responsivity factors were least likely to have a significant decrease in cognitive distortions. Meaning, the offenders who experience the most issues (i.e. problems with depression, low IQ, low self-esteem, a history of sexual abuse) are those who are the least likely
to see the benefits of participating in treatment interventions and see a decrease in cognitive distortions (Hubbard and Pealer, 2009).

As a result, Hubbard and Pealer (2009) argue it may be beneficial to have these responsivity issues addressed prior to program participation in order to receive the full effects of treatment. The only individual responsivity factor that had an impact on cognitive distortions was depression. Meaning, individuals who had scored higher on depression measures also had greater reductions in cognitive distortions. Hubbard and Pealer (2009) note that this finding is actually the opposite of what they expected to find. Personality type, IQ, self-esteem, and history of sexual abuse were not significant individual predictors of decreases in cognitive distortions (Hubbard and Pealer, 2009). Furthermore, they argue responsivity has been neglected in corrections research and is in need of further research attention (Hubbard and Pealer, 2009). This may be explained by the lack of development and “explanatory depth” in the responsivity principle itself (Polaschek, 2012, p. 8).

**Theory of Effective Correctional Intervention**

**Principles.**

Gendreau, Smith, and French present a theory of effective correctional intervention in their 2006 work. This theory consists of 7 principles of effective correctional intervention:

1. Organizational Culture.
2. Program Implementation/Maintenance.
3. Management/Staff Characteristics.
5. Program Characteristics: General Responsivity and High Risk.
6. Core Correctional Practice.
7. Inter-Agency Communication.

The Theory of Effective Correctional Intervention is described as “a pragmatic ‘how to do it’ theory as to how best to change offenders’ behavior” (Gendreau, Smith and French, 2006, p. 425). The formation of this theory and its principles occurred in three stages. The first stage involved narrative literature reviews while the second involved utilizing the clinical experience and insights from practitioners who had implemented successful treatment programs. These first two steps form the core of the “Bibliotherapy for Cynics” (Gendreau and Ross, 1979), discussed previously. Meta-analyses were the third source of information in the creation of these principles and provided a method for assessing the principles with greater precision (Gendreau, Smith and French, 2006). As such, it is possible to see the influence of others reflected in these principles. For example, the core ideas behind Andrews, Bonta and Hoge’s (1990) principles of risk, need, and responsivity are reflected in the theory of effective correctional intervention. All seven of these principles have been examined empirically, to varying degrees. The strongest empirical evidence exists for the fourth (Client Risk/Need Practices: Targeting Criminogenic Needs), fifth (Program Characteristics: General Responsivity and High Risk), and sixth (Core Correctional Practice) principles in this theory (Gendreau, Smith, and French, 2006). However, there has been less empirical support in the literature for the four remaining principles in the theory of effective correctional intervention (Gendreau, Smith and French, 2006).

Organizational Culture.

The first of the principles in Gendreau, French, and Smith’s (2006) theory is called “Organizational Culture” (p. 13). In order for a correctional intervention to be successful, Gendreau, Smith and French (2006) argue the organization must display certain characteristics such as openness to new ideas, the ability to respond to new initiatives and problematic issues,
and the ability to share information easily within the organization. In addition, the organization should also possess a code of ethics, have a low rate of staff turnover, offer frequent in-service trainings for staff and take a proactive approach to problem solving (Gendreau, Smith, and French, 2006).

Gendreau, Smith, and French (2006) suggest Organizational Culture has little empirical support and instead relies on “the good common sense and clinical wisdom of practitioners who have found the components of this domain to be useful” (p. 433). They contend that general management and industrial organizational theories must be incorporated into the treatment literature in order for further advancement to be made in understanding the role of Organizational Culture (Gendreau, Smith, and French, 2006).

**Program Implementation and Maintenance.**

The second principle of effective correctional intervention is “Program Implementation/Maintenance” (Gendreau, Smith, and French, 2006, p. 13). Before a given program or service is implemented, individual-level survey data should be explored along with the relevant literature to determine if a need for this program or service exists (Gendreau, Smith, and French, 2006). Furthermore, for a program or service to be successful, it should be implemented at a time when the organization is stable and not facing issues that have the potential to negatively impact service implementation. Examples of potential organizational issues include financial difficulties, issues with staffing levels, or reluctant stakeholders (Gendreau, Smith, and French, 2006). Program implementation is considered to be an important component of program integrity. Program integrity “incorporates such things as a clearly identified rationale consistent with the human service theoretical literature, qualified and trained staff to deliver the program, treatment methods shown to be effective, and a consistent protocol”
(MacKenzie, 2006, p. 55). The importance of program integrity is closely linked to the ability to successfully implement effective programs. When policymakers and program administrators are able to “translate knowledge and theory in practice with integrity”, they are then able to implement effective correctional interventions (Leschied, Bernfeld, and Farrington, 2001, p. 17).

There is some empirical support for the second principle. Gendreau and Andrews (1979) assessed 19 programs that they have helped implement as correctional consultants to determine what factors were related to the program being successfully implemented and maintained. One of the factors identified by Gendreau and Andrews (1979) was how contact with the setting was initiated. If the agency or institution itself initiated the consultation, program implementation tended to go smoothly, with resources being readily provided (i.e. meetings were quickly arranged, staff were made readily available, staff identified problems that needed to be addressed by consultants). However, the “least successful efforts, in terms of program maintenance, were those where the consultant initiated the contact alone or in combination with a directive from above” (Gendreau and Andrews, 1979, p. 198).

Another factor involved the stability of the institution. There are two forms of institutional stability: management system and inmate system stability. Inmate instability is present when there are organized or frequent disturbances. Management disturbances involve “public displays of discontent within management, management discontent with groups of staff, high staff turnover, and frequent changes in policy and practice” (Gendreau and Andrews, 1979, p. 198). Gendreau and Andrews (1979) argued that, from their experiences, institutional stability was essential to program implementation and maintenance. Only one of the eight programs implemented in an unstable environment could be maintained (Gendreau and Andrews, 1979).
Additionally, the involvement of staff was a factor in the ability of institutions to maintain their programs. Gendreau and Andrews (1979) contend that if an agency desires to maintain and develop a program then this is a goal that must be planned for. This means that the consultant and the staff must be actively participating in implementing the program. Then, staff involvement become even greater as the consultant prepares to leave. This prepares the staff to take control of the program and their own and successfully maintain it once the consultant has left (Gendreau and Andrews, 1979).

Paparozzi and Gendreau’s (2005) examination of the effect of intensive supervision parole on parolees’ recidivism found significant reductions in recidivism when the program was implemented in a supportive organization. Supportive organizations were defined using a modified version of the Lederman Interview Schedule, which is composed of three indices measuring an organization’s supportiveness: “(a) agency and contract conditions at program’s entry (26 items), (b) consultation process (69 items), and (c) consultation product (15 items)” (Paparozzi and Gendreau, 2005, p. 452). Specifically, offenders in supportive organizations had significantly fewer technical violations as well as significantly fewer revocations as compared to those offenders in unsupportive organizations. There was not a significant difference in terms of revocations for a new conviction (Paparozzi and Gendreau, 2005).

In their analysis, Lowenkamp, Latessa, and Smith (2006), using a sample of over 6,000 offenders under post-release supervision, looked to determine measures of program integrity could explain differences in program effectiveness. Program effectiveness was operationalized as one of three recidivism measures: committing a new offense, a technical violation of parole conditions, or a return to prison. One of the key measures of program integrity used was program implementation. Program implementation was measured using: the qualifications of the
program’s director; the program director’s level of involvement; the level of support from the community; the level of planning and research for the program; and the program’s funding (Lowenkamp et al., 2006). The outcome of this analysis indicated that program implementation was significantly correlated with all three of the outcome measures ($r$ values of 0.33, 0.58, and 0.55). Lowenkamp, Latessa, and Smith (2006) contend that it is important to understand program integrity and implementation because even empirically supported programs can lead to increases in recidivism if they are implemented poorly.

**Management/Staff Characteristics.**

“Management/Staff Characteristics” is the third principle in the theory (Gendreau, Smith, and French, 2006, p. 13). Gendreau, Smith, and French (2006) assert that it is important for both program staff as well as the program director to have post-secondary degrees as well as hands on experience working with offenders. Specifically, they suggest the program director should hold an advanced degree in a helping profession along with experience working in offender treatment programs. Most of the staff involved in service delivery should have undergraduate degrees in helping professions as well as clinical experience working with offenders (Gendreau, Smith, and French, 2006). All program staff should be hired based on their “relationship and skill factors that enhance the integrity of the therapeutic relationship. Staff members are expected to endorse rehabilitation and have confidence in their ability (i.e., self-efficacy) to deliver quality services” (Gendreau, Smith, and French, 2006, p. 427).

Quay (1977) contends that personnel may be the most important component to understanding the program integrity of a treatment intervention. There are three different aspects related to the importance of staff and personnel. The first component is degree of expertise. It is important for those personnel involved in the treatment intervention to be knowledgeable and
experienced before beginning involvement in the treatment program. Anyone involved in the program, such as administrators, treatment providers, researchers, and other involved correctional staff, should have the appropriate prior education (such as credentials or academic degrees) or other related experience (Quay, 1977). The second aspect is the amount of training provided. If the desired intervention requires a higher level of expertise than the correctional personnel possess, the nature and amount of provided training becomes essential (Quay, 1977). The final component is the degree of supervision present. Quay (1977) argues that, while all correctional practitioners receive some form of guidance with their work (even if only informally from their peers), training and supervision becomes an important issue when dealing with practitioners who are have less experience and training.

Gendreau and Ross (1979) also highlight the importance of staff considerations to the overall integrity and effectiveness of the program. First, they argue, it is important to understand whether the treatment staff is actually competent. In addition, it is important to understand how well the staff and personnel follow the principles and techniques of the treatment or program that they offering. If the treatment principles and curriculum are not followed properly, this treatment may become diluted to the point that it becomes treatment in name only (Gendreau and Ross, 1979).

Management and Staff Characteristics have some empirical support. In his analysis, Lowenkamp (2004) explored the role staff characteristics played on the effectiveness of community residential programs. Program effectiveness was defined by comparing the reincarceration rates from the program’s participants to a control group. The presence of ongoing training and educational attainment were both positively correlated with program effectiveness. However, the number of years working in the program and the years of experience working with
offenders were negatively correlated to program effectiveness (Lowenkamp, 2004). Meaning, programs that had staff with more experience and programs where staff was more likely to stay long term were less effective than programs employing less experienced staff. Lowenkamp (2004) suggests that one possible explanation for this may be that a longer career in corrections may lead to a disbelief in the rehabilitative ideal and a stronger belief in custody-oriented attitudes.

**Client Risk/Need Practices: Targeting Criminogenic Needs.**

The fourth principle is called “Client Risk/Need Practices: Targeting Criminogenic Needs” (Gendreau, Smith, and French, 2006, p. 13). In effective correctional interventions, offenders are routinely assessed and reassessed using a risk prediction instrument that has good predictive validity and also addresses a variety of criminogenic needs. Since changes in risks and needs have a significant impact on case management, these assessments should occur every three to six months to ensure the proper offenders are targeted for treatment and that potential changes in needs and risks are monitored over time (Gendreau, Smith, and French, 2006).

As outlined above, there is research in the literature supporting the empirical validity of criminogenic needs and the need principle. There are several meta-analyses (i.e. Antonowicz and Ross, 1994; Dowden and Andrews, 1999; Gendreau, Little, and Goggin, 1996; Dowden, Antonowicz, and Andrews, 2003) as well as primary studies (i.e. Bourgon and Armstrong; 2005; Lowenkamp, Pealer, Smith, and Latessa, 2006) examining the need principle.

**Program Characteristics: General Responsivity and High Risk.**

“Program Characteristics: General Responsivity and High Risk” is the name of the fifth principle of effective correctional interventions (Gendreau, Smith, and French, 2006, p. 14). This principle contains several different components. First, this principle argues that the most
effective programs and services are those that utilize behavioral methods. The general responsivity principle, discussed in the previous section, contends that the most effective ways to change criminal behavior are cognitive-behavioral and cognitive social learning strategies (Andrews, Bonta, and Hoge, 1990). Second, this principle contends that these behavior treatment methods should be specifically focused on the criminogenic needs of high-risk offenders. This again is a reinforcement of the arguments made by Andrews and Bonta (2010) in the RNR model.

Third, Gendreau, Smith, and French (2006) suggest that certain program characteristics be present in effective treatment protocols: “Offenders spend at least 40% of their program time in acquiring pro-social skills. The ratio of reinforcements to punishers is 4:1 or more and completion criteria are explicit. Relapse prevention strategy methods are extended to offenders after completion of the initial treatment phase” (p. 427). The first of these characteristics is related to treatment dosage. The discussion of treatment dosage is essential to include in this principle because treatment dosage is also an important aspect of program integrity. While some programs or interventions may have a specified duration, the length of other treatment interventions may be based on the measured results achieved as an individual proceeds through the treatment (Quay, 1977). Quay (1977) notes that the intensity of dosage is also an important component of treatment integrity, contending that a program offered for merely 10 minutes per week should not be expected to be effective in reducing recidivism. Ultimately, the treatment dosage must be sufficient to have the intended impact on treatment participants (MacKenzie, 2006).

As described in the previous section, the concept of general responsivity has been tested extensively in the criminological literature. The use of cognitive-behavioral programming in a
correctional setting had been demonstrated to be effective in reducing recidivism in a number of meta-analyses (e.g. Allen et al., 2001; Landenberger and Lipsey, 2005; Lipsey et al., 2001; Lipsey et al., 2007; Pearson, Lipton, Cleland and Yee, 2002; Tong and Farrington, 2006). Its effectiveness has also been demonstrated in a number of primary studies (e.g. Berman, 2005; Golden, Gatchel, and Cahill, 2006; Hubbard and Latessa, 2004; Hubbard and Pealer, 2009; Polaschek, et al, 2005).

The role of treatment dosage in correctional interventions has also been examined in the literature. The impact of treatment dosage on recidivism was explored in a meta-analysis conducted by Redondo, Sanchez-Meca, and Garrido (1999). This meta-analysis examined 32 studies from around Europe that evaluated the impact of various forms of treatment (i.e. educational, behavioral, cognitive-behavioral, therapeutic communities) on recidivism. Treatment dosage was looked at through three different measures: the duration of the treatment program (measured in months); the intensity of the program (measured in the number of hours per week/program); and the magnitude of the program (measured as the total number of hours per program) (Redondo et al., 1999). Both program duration and program magnitude were found to have significant, positive impacts on effect sizes. However, Redondo and colleagues (1999) note that the percentages of explained variance for all three measures of treatment dosage were very low (Duration $R^2=0.097$; Magnitude $R^2=0.054$) (Redondo et al., 1999).

Using a sample of 620 incarcerated male offenders, Bourgon and Armstrong (2005) looked to examine the impact treatment dosage has on recidivism. In addition, they also explored if different dosages of treatment were necessary for offenders of varying risk levels. Treatment group offenders in this analysis either participated in a 5-week, a 10-week, or a 15-week cognitive-behavioral intervention. Approximately 100 hours of programming was delivered in a
5-week unit, 200 hours in a 10-week unit, and 300 hours in a 15-week unit (Bourgon and Armstrong, 2005). The results of this study indicated that treatment dosage was significantly related to recidivism. Each week of treatment could be expected to result in a 1.2% to 1.7% decrease in recidivism (OR=.952 and .929). Bourgon and Armstrong (2005) found that while the 5-week program intervention was sufficient and able to significantly reduce recidivism for those offenders with a moderate risk of reoffending, it was not adequate for higher risk offenders. Rather, these results indicate that a minimum of 200 hours of programming is necessary to significantly reduce their risk of recidivism. Essentially, these findings indicate that the relationship between risk and dosage is a linear relationship (Bourgon and Armstrong, 2005).

The work conducted by Sperber, Latessa, and Makarios (2013; Makarios, Sperber, and Latessa, 2014) sought to both replicate and extend the work done by Bourgon and Armstrong (2005). In the 2013 study, they sought to explain the relationship between treatment dosage and offender risk level, specifically focusing on treatments that occur in community-based residential treatment (Sperber, Latessa, and Makarios, 2013). 689 male offenders who participated in a program with a cognitive-behavioral philosophy were separated into categories based on the number of hours they spent in the treatment program as well as their risk of reoffending. The findings of this study demonstrated that the largest reductions in recidivism were achieved when high-risk offenders participated in over 200 hours of programming (Sperber, Latessa, and Makarios, 2013).

In Makarios, Sperber, and Latessa’s (2014) analysis, a sample of over 900 cases from a community-based correctional facility was examined to further understand the connection between risk and treatment dosage. The results of this study indicated that this relationship might not be linear in all situations, contrary to Bourgon and Armstrong’s (2005) findings.
When examining the offenders who have a low/moderate and moderate risk of reoffending, the relationship between dosage and risk is actually parabolic (Makarios, Latessa, and Sperber, 2014). This means that there is a “tipping point” where further treatment participation begins to be associated with an increase in the likelihood of recidivism, rather than the desired decrease. This conclusion fits with the contention made by Andrews, Bonta, and Hoge (1990) that subjecting low risk offenders to more programming than necessary can do more harm than good. However, Bourgon and Armstrong’s (2005) findings were supported when examining high-risk offenders. Makarios, Latessa, and Sperber (2014) found that the recidivism of those offenders in the high-risk category consistently decreased as the amount of time in the treatment intervention increased.

These studies clearly demonstrate the importance and utility of understanding treatment dosage. However, MacKenzie (2006) argues that research has not yet reached the point of being able to clearly indicate the exact appropriate treatment dosage for specific types of offenders with specific problems. While these studies indicate that progress has been made in this area, there is still work to be in done in terms of understanding the appropriate treatment dosage for particular types of offenders.

**Core Correctional Practices.**

The sixth principle is called “Core Correctional Practices” (Gendreau, Smith, and French, 2006, p. 14). These practices include: motivational interviewing; cognitive self-change; the modeling of anti-criminal behavior; problem solving skills; using authority effectively; effective use of reinforcement and disapproval; skill building using structured learning; and relationship building (Gendreau, Smith, and French, 2006).
The importance of core correctional practices has also received support in the literature. Dowden and Andrews’ (2004) meta-analysis was designed to go a step beyond risk, need, and responsivity and look specifically at the role core correctional practices play in reducing recidivism. The first important finding of this analysis was that the programs sampled for this study rarely used core correctional practices. The most commonly used practices (skill factors, problem solving, and advocacy/brokerage) were only utilized by 16% of the programs in this sample. Nonetheless, each of the core correctional practices examined, with the exception of advocacy/brokerage and effective disapproval, had a significant positive effect on recidivism (Dowden and Andrews, 2004).

The meta-analysis of 40 tests relapse prevention treatment conducted by Dowden, Antonowicz, and Andrews (2003) also found support for the core correctional practices principle. Specifically, training significant others in the prevention model along with identifying precursors to criminal behavior and role-playing these situations had a significant impact in reducing future criminal behavior (Dowden, Antonowicz, and Andrews, 2003). These reflect the relationship practices and anti-criminal modeling core correctional practices.

In their study, Robinson et al. (2012) examined the impact of training community supervision officers in core correctional practices. Supervision staff was trained in core correctional skills using Staff Training Aimed at Reducing Rearrest (STARR). The impact of these skills on the recidivism of the 1163 clients participating in the study was also examined (Robinson et al., 2012). When looking at offenders with a moderate risk of reoffending, those in the experimental group had a significantly lower failure rate than those offenders in the control group. Moderate risk offenders who had supervision staff with training in core correctional practices had a failure rate of 16% while those offenders whose supervision staff did not have
additional training had a failure rate of 30% (Robinson et al., 2012). In terms of high-risk offenders, there was not a significant difference between the experimental and control groups. While this difference was not significant, there were decreases in the expected direction. However, Robinson et al. (2012) note that these results may be confounded by additional training received by supervision officers during the timeframe of this study.

**Inter-agency Communication.**

The final principle of effective correctional intervention is called “Inter-Agency Communication” (Gendreau, Smith, and French, 2006, p. 15). In effective programs and services, the agency has set up a system that enables efficient referrals to other agencies that are also able to provide quality services, which address the risks and needs of offenders (Gendreau, Smith, and French, 2006).

This principle has not yet been examined much in the current literature. However, it has been discussed in the literature. Gendreau and Ross (1979) commented that criminal justice agencies often operate with disparate goals and ideologies. These differing viewpoints, in addition to differing organizational principles, can make cooperation difficult (Gendreau and Ross, 1979). Additionally, Gendreau and Ross (1979) contend that, at times, it is often politically beneficial for agencies to remain contentious rather than to work together. Referring to Gendreau and Ross’s (1979) comments, Gendreau, Smith, and French (2006) contended, “In our opinion, this reality still remains the case. The potential gains in effective service delivery will be considerable if this difficult task is ever taken seriously by state, provincial, and county organizations.” (p. 433). Gendreau, Smith, and French (2006) suggest program and treatment accreditation by external auditors as a potential solution to the difficulties between agencies.

**Criticism.**
Several criticisms have been made of the various models of effective correctional intervention. One of these is that the RNR approach ignores personal agency. Rather than examining personal agency, the RNR model tends to focus on causes like criminogenic needs. Ward and Stewart (2003) argue that the “capacity of individuals to seek meaning and to direct their actions in the light of reasons and values constitutes an essential aspect of human functioning” (p. 355). Given this, treatment should include the skills necessary to exercise individual agency. Additionally, they contend offenders should be allowed personal choice in directing their lives in areas such as relationships, work, and recreation (Ward and Stewart, 2003). Maruna and Ward (2007) further contend that offenders should be able to express personal choice in setting treatment goals as well as direct their treatment based on their own needs and interests, which is lacking in the RNR framework.

A second criticism of the RNR approach is that the responsivity principle is not fully explored and developed. Ward and Stewart (2003) suggest that the responsivity principle is not sufficiently addressed or explained in the RNR model. Rather, it is merely mentioned as an important component of treatment (Ward and Stewart, 2003). Similarly, Polaschek (2012) argues that the responsivity principle is “theoretically unsophisticated: a catch-all category” (p. 8). These assertions are problematic because the responsivity principle deals with the actual connection between the offender and the treatment intervention (what treatment is most appropriate for an offender with a given set of traits?). Andrews and Bonta (2010) acknowledge that few of the possible factors that come under the purview of the responsivity principle have been examined in detail. It has not yet been clearly explained why demographic variables, including gender and ethnicity, matter in terms of treatment responsivity (Polaschek, 2012). Lastly, Ward and Stewart (2003) argue that responsivity could be improved by increasing the
attention given to noncriminogenic needs. While Andrews and Bonta (2010) do acknowledge that there is some importance to noncriminogenic needs, there is an overwhelming focus on targeting criminogenic needs. However, some noncriminogenic needs, such as self-esteem, anxiety, and psychological distress may make the treatment process and forming a therapeutic alliance more difficult. As such, addressing noncriminogenic needs may be an essential step to an offender’s responsivity to treatment (Ward and Stewart, 2003).

The central eight risk/need factors have also received some criticism. Polaschek (2012) contends that while the central eight are empirically validated correlates of criminal activity, they are also “a list of broad categories of treatment targets” (p. 8). This cannot be a substitute for understanding current criminal propensity or how risk factors relate and connect to each other (Polaschek, 2012). Lastly, the RNR model has been critiqued for failing to address the role of identity in the change process. As Ward and Maruna (2007) highlight, Maruna’s (2001) work found that offenders, in order to maintain their desistance from crime, created an alternative prosocial identity. Redemption scripts were then used to reinterpret negative events and experiences as steps on the path to their new, prosocial identity (Maruna, 2001). By failing to address the process of identity change in the model, the RNR approach fails to prepare therapists and treatment providers for issues that may arise during this change process (Ward and Maruna, 2007).

**Conclusion.**

These theories of effective correctional intervention indicate that treatment interventions following specific factors or principles may be better able to aid offenders in achieving positive outcomes. Dowden and Andrews’ (1999) meta-analysis concluded that treatment interventions following the human services principle had significantly greater mean effect sizes than those
interventions focused solely on criminal sanctions. Several meta-analyses and primary studies have demonstrated that programs following the general responsivity principle (with cognitive-behavioral methodologies) can reduce recidivism (e.g. Allen et al., 2001; Berman, 2005; Golden, Gatchel, and Cahill, 2006; Hubbard and Latessa, 2004; Hubbard and Pealer, 2009; Landenberger and Lipsey, 2005; Lipsey et al., 2001; Lipsey et al., 2007; Pearson, Lipton, Cleland and Yee, 2002; Polaschek, et al, 2005; Tong and Farrington, 2006). Lowenkamp, Latessa, and Smith (2006) demonstrated the importance of program integrity and program implementation in their examination of offenders on post-release supervision. Similarly, Sperber, Latessa, and Makarios (2013; Makarios, Sperber, and Latessa, 2014) found that matching the appropriate dosage to the offender’s risk level can reduce their recidivism.

However, this does not mean that there is not room for improvement or criticism in these perspectives. Ward and Stewart (2003) argue that the responsivity principle is somewhat vague and undeveloped while Polaschek (2012) contends that the risk/need factors have not been fully explicated. This presents an opportunity for future research to clarify the responsivity principle so that it becomes a more fully formed component in the model. Additionally, an opportunity is presented for the various risk/need factors to be more clearly addressed. What is it, specifically, about these various factors that make an individual at risk for criminal behavior? What needs ought to be addressed by treatment? Ultimately, while there is a great deal of support for the various components of the theories of correctional intervention in the literature, there are weaknesses and criticisms that still should be addressed.
Literature Review: Cognitive-Behavioral Programming

Introduction

Before discussing the use of cognitive-behavioral interventions in a correctional context, it is important to have a more wide-ranging understanding of these programs and their use. As such, this chapter will discuss the history, theoretical background, and principles of cognitive behavioral treatment. In addition, this chapter will explore the various formulations of cognitive behavioral treatment and will also examine how well correctional programs follow the principles of cognitive-behavioral interventions.

History and Background

Cognitive-behavioral treatment can defined as those therapies which “share an emphasis on broad human change, but with a clear emphasis on demonstrable, behavioral outcomes achieved primarily through changes in the way an individual perceives, reflects upon, and, in general, thinks about their life circumstances” (Dobson and Khatri, 2000, p. 908). While a number of treatment approaches and programs fit within the purview of cognitive-behavioral therapy, they all share the same theoretical perspective. As Dobson and Dozios (2010) describe, this perspective is based on the assumption that cognitive processes occur and that these cognitive process can affect behavioral change. The term ‘cognitive-behavioral’ was first used in the 1970s when it began to appear in publications from scholars in the United States and Canada (e.g. Beck, 1970; Mahoney, 1974). Prior to this development, the cognitive and the behavioral traditions had unfolded on rather independent tracks and had generally been discussed separately (McGuire, 2000).

Cognitive-behavioral treatment was formed and has emerged from the independent cognitive and behavioral traditions. In the 1870s, when psychology first emerged as an
independent discipline, the work that was being conducted would be classified as cognitive psychology by today’s standards. Known as structuralism, this early psychology “entailed a focus on the contents and elements of conscious experience and on how different kinds of sensory and perceptual events were related to it” (McGuire, 2000, p. 17). Essentially, this early form of psychology focused on the understanding of perception and sensation. Data collection at this time involved individuals describing their feelings, and thoughts, along with their experiences (McGuire, 2000). By the mid-1900s, a great deal of psychological research attention was directed at cognitive processes, including memory, attention, problem solving, and perception. Another important area of cognitive research at this time was the connection between thinking and language. In particular, researchers aimed to understand how language is acquired, how language is used, the purposes language serves, along with how language affects behavior (McGuire, 2000). Understanding of cognitive processes also came to play a role in psychotherapy. Many practitioners began to recognize the importance of understanding the role of self-belief and internal self-referential thinking processes. These processes and thinking patterns may play an important role in creating, maintaining and ultimately resolving psychological problems (McGuire, 2000).

The behavioral therapy in psychology draws on classical and operant conditioning. Behavior therapy is based in the idea that, since most behavior is learned, psychological problems such fears, phobias, and anxiety may also be learned. As such, treatment should also be based in learning with the patient learning to have a different emotional response to the stimulus (McGuire, 2000). Examples of the behavioral perspective include the work of John B. Watson as well as that of B. F. Skinner (McGuire, 2000). Watson insisted that since others cannot observe the mind, it should not be discussed in terms of scientific study. Watson viewed behavior as
being the result of the effects of the environment, not due to the impact of instinct. As such, behavior was viewed mainly a result of the learning process (McGuire, 2000). Furthermore, B.F. Skinner added to the area of behavioral treatment with his work on operant conditioning in the 1940s. In operant conditioning, behaviors are learned and reinforced through the use of rewards and punishments. Through this active learning process, the subject learns how to get what they want from their environment (Vold and Bernard, 1986). The behavioral perspective had been the dominant view in psychology until a shift began in the 1960s and 1970s (Dobson and Dozios, 2010). This shift began because this nonmediational approach was seen as not being broad enough to account for all human behavior. In contrast, the meditational model contends that cognitive activity mediates between the outside world and the individual’s behavioral responses (Mahoney, 1974). Meaning, the meditational approach argues cognitive processes shape both an individual’s response to their environment as well as the individual’s level of dysfunction (Dobson and Dozios, 2010). Since behavior can be observed and verified, data collection in the behavioral approach involves observing and measuring the behaviors in question (McGuire, 2000).

In the mid-1970s, these ideas were brought together when scholars first began to publish work that integrated the cognitive and behavioral traditions. A number of concepts from both behavioral treatment and from cognitive treatment were merged to create this new integrated form of treatment. Concepts taken from the behavioral field included: the role of the environment in learning; making complex behavioral change into smaller, more comprehensible units; making behavioral change into small, well-defined steps; importance of monitoring change process from the beginning until completion, including follow-ups to ensure the change is being maintained (McGuire, 2000). Ideas taken from cognitive treatment included: the value of self-
reports; importance of language as well as internal dialogue in beginning, maintaining, and ending problematic thoughts and behaviors; recognizing the importance of cognition in self-regulation and perception (McGuire, 2000).

However, it is important to note that not all treatments or therapies with a focus on cognition or behavior are necessarily cognitive-behavioral in nature. As Dobson and Dozios (2010) underscore, “Only in instances where cognitive mediation can be demonstrated, and where cognitive mediation is an important component of the treatment plan, can the label ‘cognitive-behavioral’ be applied. Just as strictly behavioral therapies are not cognitive-behavioral, strictly cognitive therapies also are not cognitive-behavioral” (p. 7). It is the lack of a clear mediational model of change that distinguishes strictly cognitive and strictly behavioral treatments from cognitive-behavioral models (Dobson and Dozios, 2010). The integration of these two areas has led to a group of related treatments rather than a single methodology (McGuire, 2000).

Additionally, cognitive-behavioral interventions are based in three main propositions (Dobson & Dozios, 2010). First, behavior is impacted by cognitive activity. This first proposition is essentially a restatement of the meditational model. The meditational model contends that cognitive activity mediates the relationship between the physical world and the individual’s behavioral responses to the world (Mahoney, 1974). Second, cognitive activity may be observed and changed. This proposition assumes cognitive activity is accessible, knowable, and assessable. Additionally, it suggests that assessing cognitive activity ultimately leads to changes in cognitive activity. However, Dobson and Dozios (2010) argue that having the ability to measure cognitive change doesn’t necessarily aid or assist in the process of cognitive change. Third, behavioral changes may be brought about through the process of cognitive change.
Cognitive-behavioral theorists would agree that while more overt methods of reinforcement may be able to change behavior, cognitive changes are also very capable of producing changes in behavior (Dobson and Dozios, 2010).

**Principles of Cognitive-Behavioral Treatment**

In her work, Beck (2011) outlines ten different principles of cognitive behavior therapy:

1. “Cognitive behavior therapy is based on an ever-evolving formulation of patients’ problems and an individual conceptualization of each patient in cognitive terms” (p. 7).
2. “Cognitive behavior therapy requires a sound therapeutic alliance” (p. 7).
3. “Cognitive behavior therapy emphasizes collaboration and active participation” (p. 8).
4. “Cognitive behavior therapy is goal oriented and problem focused” (p. 8).
5. “Cognitive behavior therapy initially emphasizes the present” (p. 8).
6. “Cognitive behavior therapy is educative, aims to teach the patient to be her own therapist, and emphasizes relapse prevention” (p. 9).
7. “Cognitive behavior therapy aims to be time limited” (p. 9).
8. “Cognitive behavior therapy sessions are structured” (p. 9).
9. “Cognitive behavior therapy teaches patients to identify, evaluate, and respond to their dysfunctional thoughts and beliefs” (p. 10).
10. “Cognitive behavior therapy uses a variety of techniques to change thinking, mood, and behavior” (p. 10).

Beck (2011) argues that while cognitive behavior treatment should be adapted to the individual patient’s needs, this set of principles serve as the framework for all cognitive behavioral therapy.
The first principle argues, “Cognitive behavior therapy is based on an ever-evolving formulation of patients’ problems and an individual conceptualization of each patient in cognitive terms” (Beck, 2011, p. 7). This principle requires practitioners to identify both the current thinking and problematic behaviors associated with the patient’s problems. In addition, the practitioner must also identify precipitating factors associated with the formation of these problematic behaviors. Lastly, hypotheses are made regarding key developmental events and enduring patterns of how of these events are interpreted (Beck, 2011). This is how the practitioner forms a conceptualization of the individual. This conceptualization is continually refined as the practitioner obtains more information about the individual during the course of treatment. Additionally, the practitioner aids the individual in viewing their experiences through the cognitive model (Beck, 2011).

The second principle of cognitive behavioral treatment states highlights the importance of a sound therapeutic alliance (Beck, 2011). This principle refers to the need for patients and practitioners to have a trusting and solid relationship. Beck (2011) suggests this relationship is carefully built through several factors, including: empathy, close and careful listening, caring, competence, maintaining realistically positive outlook, and asking the patient for feedback following each session to ensure they feel understood. In addition, it is important to highlight the individual’s successes, even if they are small victories (Beck, 2011).

The third principle of cognitive behavior treatment is focused on the importance of collaboration and participation in the therapy process (Beck, 2011). In cognitive behavior therapy, patients are encouraged to view the treatment as teamwork between the patient and practitioner. This teamwork dynamic includes discussing the frequency of the sessions, the focus of each session, and the work the patient can do as homework between sessions. As
treatment progresses, the patient can become more involved in deciding which problems they would like to discuss during the sessions, creating their own homework assignments and even identifying distorted thinking patterns (Beck, 2011).

The fourth principle Beck (2011) suggests that it is essential for this form of therapy to be focused on the both patient’s goals and problems. This involves having the patient and practitioner discuss the problems that will be the focus of the treatment as well as setting specific goals to work toward. This includes addressing problematic thoughts or thinking patterns that may arise and interfere with the completion of these goals. Once these thoughts are identified, the individual is able to correct the cognitive distortion and the use problem solving to complete their goal (Beck, 2011).

The fifth principle requires that, in its initial stages, cognitive-behavioral therapy focus on the present (Beck, 2011). For most patients, cognitive behavior treatment focuses strongly on current problems. However, there are two instances in which treatment may focus on past issues (Beck, 2011). Treatment may focus on the past when the patient has expressed a desire to direct attention to past problems. Additionally, treatment may focus on the past when an understanding of past behaviors or beliefs becomes necessary for modifying current behaviors. The evaluation of the validity of past and current beliefs can aid the individual in developing more reasonable beliefs (Beck, 2011).

The sixth principle of cognitive treatment is, “Cognitive behavior therapy is educative, aims to teach the patient to be her own therapist, and emphasizes relapse prevention” (Beck, 2011, p. 9). In the first therapy session, the practitioner explains the disorder to the individual, and also explains the cognitive behavior process as well as how the patient’s thoughts impact their behaviors. In subsequent sessions, patients learn to set goals, as discussed above, along with
learning to recognize and evaluate their thoughts and behaviors. Then, patients learn to plan behavioral changes and how to implement these planned changes (Beck, 2011).

Beck’s (2011) seventh principle focuses on ensuring that the therapy is time limited. Practitioners of cognitive behavior treatment aim to reduce the symptoms from the disorder being treated, aid the individual in addressing their most troubling problems, and teach the individual the skills necessary to avoid relapsing. One of the overarching goals of cognitive-behavioral treatment is teaching patients the skills to resolve and manage their problems. As such, as a patient makes progress, the frequency of sessions is decreased. The time frame in which this occurs will vary based on the individual and their problems (Beck, 2011).

The eighth principle Beck (2011) describes is that sessions involving cognitive-behavioral interventions are structured. Each therapy session follows a set format and schedule in order to make the process efficient, effective, and to also make treatment understandable for patients. The first portion of the session is an introduction that focuses on reviewing the week, conducting a mood check, and outlining the agenda for the session. The next portion of the session involves reviewing any homework, discussion of current problems along with new homework for the next session. The last portion of the session focuses on obtaining and discussing feedback regarding the session (Beck, 2011). This is done so that the process is more understandable and so that the patient is more able to engage in “self-therapy” following completion (Beck, 2011, p. 10).

The ninth principle involves teaching patients to “identify, evaluate, and respond to their dysfunctional thoughts and beliefs” (Beck, 2011, p. 10). In cognitive-behavior treatment, a variety of methods are utilized to help patients identify maladaptive cognitions. Collaborative empiricism is a process used in which the practitioner and patient work together to establish
goals in treatment (Beck, 2011). Methods such as guided discovery and behavioral experiments are then used to achieve these goals. Guided discovery is a method of questioning designed to help the patient evaluate their thinking patterns. In contrast, behavioral experiments are experiences that are created to directly challenge patients’ perceptions and thinking (Beck, 2011).

The last principle Beck (2011) discusses is the idea that many different techniques are used to change thinking, mood, and behavior when a patient is participating in cognitive-behavioral therapy. In addition to the techniques discussed above, behavioral techniques and problem-solving skills are essential elements of cognitive behavioral treatment. The patient, the objectives for the session, as well as the practitioner’s conceptualization of the patient are all factors influencing which technique is selected (Beck, 2011).

**Cognitive-Behavioral Treatment in a Group Setting**

While cognitive-behavioral therapy was originally designed to be administered on an individual basis, it is also frequently conducted in a group setting. Two major reasons for considering cognitive-behavioral treatment in a group setting are efficiency and cost. A group setting may offer as much as 50% greater efficiency in using practitioner’s time to offer cognitive-behavioral treatment in groups as compared to individual treatment. Group treatment also presents a savings to the healthcare system as well (Morrison, 2001). Given this, group therapy presents an opportunity for some individuals to receive therapy from qualified practitioners that may not otherwise be able to. This is particularly true in settings or institutions with limited funding. Many of these settings are rarely able offer therapy on an individual basis but group therapy presents a viable alternative (Bieling, McCabe, and Antony, 2009).
However, the realities of efficiency and cost do not mean that treatment efficacy is sacrificed by utilizing a group setting. Bieling and colleagues (2009) argue that there is little doubt cognitive-behavioral interventions in a group setting are “efficacious and effective” for a number of specific disorders (p. 4). For example, the group treatment protocol for social phobia designed by Heimberg and colleagues (Heimberg et al., 1990; Heimberg et al., 1993) was found to be more successful in reducing the anxiety of participants than the placebo control treatment. Morrison’s (2001) review of the literature found strong support for the effectiveness of group cognitive-behavioral interventions in treating anxiety disorders.

When forming a treatment protocol for group cognitive-behavioral treatment, it is important to do more than just change individual treatment strategies and rename them as a group treatment plan. Rather, it is essential to form methods specific to groups that acknowledge the strengths and weaknesses of a group dynamic (Bieling et al., 2009). For example, patients in the group may be more readily able to see the cognitive errors made by others in the group than their own cognitive errors. As such, group participation enables individuals to help each recognize the cognitive errors and distortions in their thinking, eventually learning to better identify their own problems. Additionally, in a group dynamic, individuals will be able to come up with more examples of connections between thoughts, feelings, and actions than an individual would on their own (Bieling et al., 2009). This presents an opportunity for patients to examine these cognitive processes through the lens of other individuals. While group dynamic are important Bieling and colleagues (2009) point out there are also potential downsides. They argue that often not enough attention is paid to the importance of group dynamics and the reality that treatment is occurring in an “interacting, evolving” group (p.4). There are relatively few cognitive-behavioral group-level protocols that examine, in a meaningful way, the ways in which
the patients interact with each other and with the groups’ therapist. Similarly, it is also important to examine the ways in which the group as a whole interacts with each individual in the group (Bieling et al., 2009). Bieling et al. (2009) argue, “the traditional CBT group approach by and large neither recognizes nor takes advantage of the fact that the group itself can create a milieu that either supports or undermines the overall goals of learning and using cognitive and behavioral strategies” (p. 5).

**Categories of Cognitive-Behavioral Interventions**

As discussed above, cognitive-behavioral programs have the overarching objective of achieving both cognitive and behavioral change through the use of both behavioral strategies and cognitive processes. Despite this overall unifying goal, each class of cognitive-behavioral interventions varies slightly in its change goals and methods utilized (Dobson and Dozios, 2010). Mahoney and Arnkoff (1978) argue cognitive-behavioral approaches can be organized into three broad categories. The first approach, cognitive restructuring interventions, is based in the assumption that dysfunctional thought patterns are the cause of emotional distress. As a result, the goal of these interventions is to examine and challenge these thought patterns, in order to establish more functional and productive patterns (Mahoney and Arnkoff, 1978). Cognitive restructuring treatments are more frequently utilized “when the disturbance is created from within the person him-or herself. Such approaches focus on the long-term beliefs and situation-specific automatic thoughts that engender negative outcomes” (Dobson and Dozios, 2010, p. 7).

The first step in the cognitive restructuring process is to identify problematic thoughts, also referred to as automatic thoughts. These automatic thoughts may include negative conceptions such a dysfunctional view of the self or of others, a negative view of the world or of the future (Hope, Burns, Hayes, Herbert and Warner, 2010). The next step of this process
involves identifying the cognitive distortions within these automatic thoughts (Hope et al., 2010). Cognitive distortions are errors in thinking, which often result in exaggerated or irrational thoughts. Some examples of cognitive distortions include catastrophizing, disqualifying the positive, emotional reasoning, overgeneralization, and all-or-nothing thinking (Beck, 2011). The third step involved in cognitive restructuring is rationally discounting these thinking errors using Socratic questioning. Through the use of this thorough questioning procedure, the flaws and distortions in the individual’s thinking pattern will become apparent. Lastly, a reasonable and rational argument denying these automatic thoughts is developed. This provides the individual with an appropriate response to the distorted thoughts when and if they return (Hope et al., 2010). Cognitive restructuring is ultimately designed to identify, evaluate, and challenge these automatic thoughts and distortions because they are seen as playing an important role in the problematic behavior (Beck, 2011; Hope et al., 2010).

Coping skills therapies, the second form of intervention, have the goal of helping the client develop a variety of skills and strategies to assist in dealing with a range of stressful situations (Mahoney and Arnkoff, 1978). In contrast to cognitive restructuring programs, coping skills treatments are focused on aiding patients in managing stressors and problems that are external to the individual. Treatment may entail teaching patients to identify and change the ways their thoughts and behavior may be exacerbating stressful events. It may also include learning strategies, such as relaxation skills, to decrease the impact of these negative events (Dobson and Dozios, 2010). Dobson and Dozios (2010) argue “the primary markers of success within this form of therapy involve behavioral signs of improved coping abilities, and the concomitant reductions in the consequences of negative events (e.g., less demonstrated anxiety)” (p. 7).
In one coping skills treatment, systematic rational restructuring, a series of five stages is used to train individuals to more accurately perceive and evaluate situational cues. These five stages include: exposure to anxiety-provoking situations; self-evaluation of the patient’s anxiety level; monitoring of anxiety-provoking thoughts and cognitions; reevaluation of thoughts and cognitions; and observing anxiety level following the reevaluation (Goldfried and Davison, 1976). Since this is a coping skills approach, the ultimate goal is to enable patients to cope independently with life stressors (Dobson and Dozios, 2010).

The last category, problem-solving therapies, combine the techniques used in cognitive restructuring interventions and coping skills therapies to aid the client in developing strategies for dealing with a variety of personal problems (Mahoney and Arnkoff, 1978). Developed by D’Zurilla and Goldfried (1971), problem solving is defined as “a behavioral process, whether overt or cognitive in nature, which (a) makes available a variety of potentially effective response alternatives for dealing with the problematic situation and (b) increases the probability of selecting the most effective response from among these various alternatives” (p.108). Problem-solving treatments are based in the assumption that mental or behavioral disorders may be understood and treated if viewed as ineffective, maladaptive or self-defeating coping skills. These various coping mechanisms result in negative consequences including depression, anxiety, impaired interpersonal functioning, and low self-esteem (D’Zurilla and Goldfried, 1971).

D’Zurilla and Goldfield (1971) outlined five stages of the problem solving process. The first aspect of the process is general orientation, which refers to the attitude and mind set the individual brings to the problem solving process. The perspective most conductive to independent problem solving behavior is one in which the individual: accepts that problems are a part of normal life, recognizes problematic situations when they occur, and inhibits the impulse
to either act on their first impulse or do nothing in response to the problem (D’Zurilla and Goldfield, 1971). The second step of the problem solving process is problem definition and orientation. The individual must be able to define all aspects of problematic situation as well as be able to separate information relevant to solving the problem from the irrelevant details (D’Zurilla and Goldfield, 1971).

In the third step, generation of alternatives, the individual must be able to come up with a number of appropriate solutions for the problematic situation. The fourth step of this process, decision making, focuses on both evaluation and selection skills. The individual must evaluate the potential solutions generated in step three and then select the best of these potential resolutions (D’Zurilla and Goldfield, 1971). Lastly, verification is required. This step, after a course of action has been chosen and taken, the individual must assess the outcome to self-evaluate the decision. By implementing this verification process, the individual is able to take corrective action if necessary, rather than continuing to engage in behavior that is not resulting in the conclusion (D’Zurilla and Goldfield, 1971).

Ultimately, problem-solving therapies aim to teach patients a number of key skills. Participants in problem-solving treatment increase their ability to manage problems that occur in their daily lives. This is done using problem-focused coping, which aims to improve to stressful circumstances, as well as emotion-focused coping, in which the individual must adapt and accept conditions that cannot be changed. Additionally, patients are trained in adaptive problem solving skills and attitudes (D’Zurilla and Nezu, 2010). Active collaboration between the patient and practitioner in the planning of a treatment program is stressed and plays a key role in this process (Dobson and Dozios, 2010). Problem-solving therapies have been used for individuals with a variety of behavioral, mental health, and physical problems, including schizophrenia, depression,
Generalized Anxiety Disorder, obesity, headaches, cancer, diabetes, and offender populations (D’Zurilla and Nezu, 2010). One example of a program that utilizes problem-solving therapy is the Think First program. This program aims to help participants acquire and apply social problem solving skills that will help them manage problems in their lives and avoid recidivating (D’Zurilla and Nezu, 2010).

Cognitive-Behavioral Treatment in Correctional Settings

As discussed above, there are several key principles of cognitive-behavioral treatment. Several of these principles are followed, or at least an attempt to follow is made, by correctional cognitive-behavioral interventions. For example, the second principle requires a sound therapeutic alliance. This entails features such as trust, empathy, regard and caring (Beck, 2011). The Thinking for a Change program suggests practitioners be “caring, like to teach, understand group processes and interpersonal interactions, and be able to control an offender group” (Bush, Glick, and Taymans, 1997, p. 6). In addition, it is expected that information shared during the course of the program will be kept confidential, unless it is illegal or will harm the individual or someone else (Bush et al., 1997). The Reasoning and Rehabilitation program also requires that practitioners have the ability to “relate empathetically to offenders while maintaining rules, regulations, and the mission of the correctional agency”, the ability to consider the views of others and also possess strong interpersonal skills (Milkman and Wanberg, 2007, p. 25). This indicates that at least some of the correctional cognitive-behavioral interventions recognize the importance of this relationship.

Another of the principles that correctional cognitive-behavioral interventions are generally able to follow is the third principle, which suggests that cognitive-behavioral treatment should be focused on collaboration and active participation (Beck, 2011). Several of the most
popular and frequently used cognitive-behavioral interventions not only encourage, but require that offenders actively participate and work together in the program. For example, the Thinking for a Change program relies on group discussion and participation in role-playing to learn and reinforce important social skills (Bush et al., 1997; Milkman and Wanberg, 2007). Similarly, the Reasoning and Rehabilitation (R&R) program utilizes role-playing, group discussions, and modeling to teach problem-solving skills, prosocial attitudes, and enhance self-control (Milkman and Wanberg, 2007).

These programs are also often educational and work on relapse prevention, the sixth principle. Much of the work done in correctional cognitive behavioral programs is focused on helping individuals understand their thinking and emotional processes. In the Thinking for a Change program, offenders learn to create “thinking reports” as a way to learn to address and assess their thoughts and beliefs (Bush et al., 2007, p. 74). A thinking report is a “structured objective report of our thoughts and feelings” that includes a description of the situation, a list of the individual’s thoughts, a list of the individual’s feelings, and a list of the individual’s attitudes or beliefs during the situation (Bush et al., 2007, p. 74). By working through their thoughts and feelings objectively as a group, individuals are able to see how these thoughts and feelings impact their behavior. The individual is also able to understand how a different response may result in a different outcome (Beck et al., 1997). In addition, relapse prevention in particular is an element of many correctional cognitive-behavioral programs. One program, Relapse Prevention Therapy, is designed mainly for alcohol and drug offenders. The program is based in the argument that individuals with effective coping mechanisms are less likely to relapse and return to their former behavior. This is done through coping skills training, lifestyle modification,
strategies that teach individuals to both identify and cope with cognitive distortions as well as techniques to learn to anticipate relapses (Milkman and Wanberg, 2007).

Correctional cognitive-behavioral programs are additionally often successful in maintaining structured sessions, the eighth principle. These interventions in correctional settings are often highly structured (Wilson, Bouffard, and MacKenzie, 2005). In the Thinking for a Change Program, each of the lessons in the curriculum is similarly structured. The lesson clearly lays out the objectives for the lesson, the activities for the day, the concepts to be learned, as well as any homework that will be required (Bush et al., 2007). As such, each meeting organized and structured in a similar fashion.

The ninth principle requires that cognitive-behavioral treatment programs teach individuals to identify, evaluate, and respond to dysfunctional thoughts and beliefs. This is present in several correctional cognitive-behavioral programs. In the Thinking for a Change program, the thinking reports discussed above are utilized to work through an individual’s thoughts and beliefs. Over the course of the program, the participants look objectively as a group at their thinking reports and work to identify particular thinking patterns that get them into trouble (Bush et al., 2007).

Correctional cognitive-behavioral interventions also use a variety of techniques to address thinking and behavior, which is the tenth principle. In Moral Reconation Therapy, offenders’ self-control, self-esteem, and identity development are addressed using group discussion, making drawings and writing short essays (Milkman and Wanberg, 2007). The Reasoning and Rehabilitation program utilizes a wide variety of techniques to address offenders’ self-control, problem solving skills, and social skills. These include board games, cognitive
puzzles, role-playing, modeling, audiovisual presentations and group discussion (Milkman and Wanberg, 2007; Robinson and Porporino, 2001).

However, correctional cognitive-behavioral interventions are not able to implement all the principles discussed above. For example, not all cognitive-behavioral interventions that are implemented in correctional settings meet the seventh principle, aiming for therapy to be time limited. Some of these programs, like the Reasoning and Rehabilitation program, have a clear starting and ending time frame. Reasoning and Rehabilitation is intended to last between eight and twelve weeks, with 35 sessions occurring in this timeframe (Milkman and Wanberg, 2007; Robinson and Porporino, 2001). As such, this program is clearly time-limited. However, not all treatment interventions are structured in this manner. The Thinking for a Change program is designed to consist of 22 lessons with 10 additional optional lessons, though it may be extended indefinitely (Bush, et al., 1997; Milkman and Wanberg, 2007). Similarly, Moral Reconciliation Therapy is designed to be conducted in “open-ended” groups (Milkman and Wanberg, 2007, p. 23). Therefore, these programs do not always aim to be time-limited.

Additionally, both the first and fourth principles are more difficult to execute in a group setting. The first principle states “Cognitive behavior therapy is based on an ever-evolving formulation of patients’ problems and an individual conceptualization of each patient in cognitive terms” (Beck, 2011, p. 7). This requirement for an individual conceptualization of each patient becomes difficult when programs include anywhere from 5 to more than 20 participants (Milkman and Wanberg, 2007). The fourth principle is focused on setting specific goals and addressing specific problems. As with the first principle, this becomes more difficult to achieve in a group of people than on an individual basis.
Lastly, the fifth principle argues that treatment should initially address present issues. Cognitive-behavioral interventions in correctional settings are not designed in this manner. Rather, they are intended to address past problematic behavior. This is reflected in the Thinking for a Change curriculum. The lessons frequently ask individuals to think about their past actions and behaviors and subsequently identify the thoughts and feelings that led up to these behaviors (Bush et al., 1997). The Strategies for Self-Improvement and Change program also requires individuals to confront their past behavior, identify areas in need of change, and commit to making these changes (Milkman and Wanberg, 2007).

Conclusion

Cognitive-behavioral interventions are a method of treatment that rapidly gained popularity and appear ready to maintain this popularity due to not only their efficacy but also their efficiency and cost effectiveness at the group level. These programs also implement a number of different methods designed to address and modify a variety of problematic behaviors. In terms of corrections-based programs, examples can be found that address almost all of the key principles laid out by Beck (2011). However, it is important to note that programs are not always run as they should in an ideal world. In reality, the program may not be implemented according to the curriculum, the practitioner may not be qualified or interested in administering the program, and ultimately, the principles may not be followed. Cognitive-behavioral treatment in the correctional context will be in the following chapter.
Literature Review: Cognitive-Behavioral Programming in Correctional Settings

Introduction

In the previous chapter, the essentials of cognitive-behavioral interventions were discussed. In this chapter, the application of cognitive-behavioral treatment to correctional settings will be the focus. The definition of cognitive-behavioral interventions in correctional settings will be explored along with the current focus on evidence-based corrections. Descriptions of several popular programs are also included. Additionally, this chapter includes a discussion of the current literature surrounding cognitive-behavioral interventions in corrections and the impact these programs have on key outcome variables.

Defining Cognitive-Behavioral Programming in Correction Settings

The area of correctional interventions has been receiving a great deal of research attention in recent years (Chamberlain, 2012; Frost and Clear, 2012; Lipsey and Cullen, 2007; MacKenzie, 2006). In particular, there has been a great deal of research attention directed at cognitive-behavioral interventions, especially branded cognitive-behavioral programs. Cognitive-behavioral programs in correctional facilities are based on the premise that criminals may employ different thinking processes than noncriminals. The difference between criminal and noncriminal thinking processes has been attributed to factors such as developmental delays, a lack of critical reasoning skills, a lack of interpersonal cognitive problem solving skills, a lower level of moral development, and distorted cognition, which includes (1) self-justificatory thinking, (2) misinterpretation of social cues, and (3) deficient moral reasoning (Allen et al., 2001; Lipsey et al., 2001; Ross et al., 1988). This is not to suggest these deficiencies are present in all offenders or that all people with cognitive deficiencies will engage in criminal activity. Rather, as Ross et al. (1988) argue, there is evidence to suggest that the presence of cognitive
limitations may put one at risk for a wide range of behavior problems, including alcohol addiction, drug addiction, and potential criminal offending.

As such, the central purpose of these cognitive-behavioral programs is to target inmates that display cognitive deficiencies and to modify flawed thinking patterns that may contribute to criminal behavior (Allen et al., 2001). These programs work to emphasize and enhance individual accountability, impulse control, reasoning skills, awareness of the consequences of behavior, and to improve ability to understand the thoughts and feelings of others, while developing an understanding of the thinking processes and choices that may have led to their criminal activity (Lipsey et al., 2007; Ross et al., 1988). A variety of techniques are employed to achieve these goals, including cognitive skills training, anger management, moral development and social skills development (Lipsey et al., 2007). Cognitive skills training aims to improve general thinking and decision-making skills while social skills training aims to improve capacities in prosocial behaviors, interpretation of social cues, and the consideration for the feelings of others. Moral development training focuses on improving offenders’ ability to reason in terms of right and wrong. Finally, anger management techniques seek to train offenders to identify triggers that cause anger and techniques for managing self-control (Lipsey et al., 2007).

**Evidence-Based Corrections.**

In recent years, there has been increased interest and attention directed towards evidence-based policies. The development of evidence-based policies requires that scientific research be utilized as a tool to guide decision-making, define best practices, and evaluate programs (MacKenzie, 2000; 2006). When applied to corrections, the desire is for correctional practitioners and administrators to use the outcomes from scientific evaluations to guide their decision-making process. However, as MacKenzie (2000) points out, this is not always the case:
“Without help, practitioners do come up with their own ‘facts,’ which often turn out to be wrong” (MacKenzie, 2000, p. 463). Similarly, scientific research can be used as a tool to hold administrators accountable for their decisions. When research is available, administrators can see the results of their policy (either positive or negative) and proceed accordingly based on the outcome of the decision (MacKenzie, 2000).

**Descriptions of Cognitive-Behavioral Programs.**

There are several popular branded cognitive-behavioral interventions. These are interventions with a particular name and specific curriculum for instructors to follow. The Cognitive Skills Training Program is a cognitive skills program created by the Correctional Service of Canada. This program is based on the cognitive model, which argues “that what and how an offender thinks, how he views the world, how well he understands people, what he values, how he reasons, and how he attempts to solve problems plays an important role in his criminal behaviour” (Porporino, Fabiano, and Robinson, 1991, p. 7). This includes teaching competencies such as problem-solving, decision-making, strategies for recognizing problems, strategies for finding non-criminal solutions to problems, calculating consequences for behavior, and improving interpersonal problem solving skills (Porporino, Fabiano, and Robinson, 1991).

The Cognitive Skills Training Program typically lasts 12 weeks and is conducted with groups of six to eight inmates. These courses are conducted in a classroom setting with sessions do not go beyond two hours as offenders may have difficulty with concentration and focus beyond this timeframe (Fabiano, Robinson and Porporino, 1991). Given the potential issues with focus and concentration in this population of offenders, this intervention utilizes a wide variety of teaching methods and materials including games, puzzles, audio visual aids, group discussion, reasoning exercises, seminars, and didactic teaching methods (Fabiano, Robinson and Porporino,
One critical aspect of the program is sequencing: prerequisite skills must be taught, practiced, and mastered before new cognitive skills can be introduced. In order to ensure the skills are taught with fidelity, correctional staff members are trained in a structured, intensive 10-day workshop. Staff members are chosen for the program for their abilities to effectively teach social competence, as well as characteristics such as values, and demeanor, rather than based on professional qualifications (Fabiano, Robinson and Porporino, 1991).

Another popular branded cognitive-behavioral intervention is the Thinking for a Change program. Thinking for a Change was the result of an earlier training seminar offered by the National Institute of Corrections, Cognitive Approaches to Changing Offender Behavior (Bush, Glick, and Taymans, 1997). Experts in the field authored the curriculum, which was focused on cognitive restructuring and cognitive skills. The experience gained as a result of this training program demonstrated that criminal behavior was more amenable to change when offenders were able to utilize the tools from both cognitive restructuring and cognitive skills interventions (Bush, Glick, and Taymans, 1997). As a result, the Thinking for a Change program was created and aims to address this by integrating concepts, tools, and ideas from both cognitive restructuring and cognitive skills interventions and aims to create one “completely integrated, seamless intervention” (Bush, Glick, and Taymans, 1997, p. 4).

The Thinking for a Change curriculum is based 22 lessons. These lessons are based in teaching problem-solving and cognitive restructuring skills as well as social skills. The curriculum can be extended beyond the original 22 depending how many cognitive skills are taught. The concepts taught in this intervention are presented in a systematic nature (Bush, Glick, and Taymans, 1997). The first 11 lessons focus on introducing and building cognitive restructuring skills. Critical social skills are also targeted during this time, as they support the
cognitive restructuring process. Problem solving techniques are the focus of lessons 16 through 21. The teaching of appropriate social skills also supports these techniques. Moreover, problem-solving lessons also rely on the cognitive restructuring and social skills that were taught in earlier lessons (Bush, Glick, and Taymans, 1997). New skills build on ideas and skills learned in previous lessons. In the final lesson, students evaluate their development using a cognitive skills checklist and develop their own cognitive skills curriculum. Students must ask themselves where they still have work to do and where they need to do more learning to finish their self-improvement. This format of self-evaluation allows students to become empowered and invested in their own learning and development. An additional (optional) 10 sessions are recommended to implement the recommendations and changes that students make (Bush, Glick, and Taymans, 1997).

Corrective Thinking is another branded cognitive-behavioral program that is offered to criminal offenders. Also known as Truthought, Corrective Thinking is a cognitive restructuring program based in the work of Yochelson and Samenow (1976, 1977). In Yochelson and Samenow’s work (1976, 1977), 52 common thinking patterns were identified in those that who engage in criminal behavior. These thinking patterns were distilled down to 10 “thinking errors.” While both criminals and non-criminals make thinking errors, prosocial individuals recognize these errors in thinking and adjust their behavior accordingly. However, other individuals, those in need of intervention, amplify or double-down in their thinking errors and engage in criminal activity (Hubbard and Latessa, 2004).

Spohn (1999) originally developed the Corrective Thinking/Truthought curriculum. This curriculum is designed to teach individuals to identify “barriers in thinking”, similar to the thinking errors from Yochelson and Samenow’s (1976, 1977) work. However, instead of
engaging in these harmful thinking barriers, individuals are taught to respond to them with an appropriate “corrective” or action (Hubbard and Latessa, 2004). This curriculum consists of nine common barriers in thinking and nine corresponding corrective actions. Corrective Thinking is taught in a group setting over 110 course hours. The curriculum intends to reinforce cognitive processes that enable responsible decision-making as well as that exercises that enable responsible lifestyles. This is achieved via group discussion and exercises related to that course’s thinking barrier and correction (Hubbard and Latessa, 2004).

The Reasoning and Rehabilitation program is a widely used cognitive-behavioral intervention that was first developed and used in the mid-1980s with Canadian offender populations (Ross, Fabiano, and Ewles, 1988). This intervention takes a structured cognitive-behavioral approach to attempting to change offender behavior, with a specific focus on the thinking skills that guide offenders’ behavior. Reasoning and Rehabilitation aims to replace offenders’ established faulty thinking patterns with new cognitive skills that promote more positive, prosocial choices (Robinson and Porporino, 2001). Offenders are taught to be less reactive to the world around them, to take time to reflect and think about their actions before responding to potential problems. The program aims to make offenders more “generally flexible, open-minded, reasoned, and deliberate in their thinking” (Robinson and Porporino, 2001, p. 64). Overall, the Reasoning and Rehabilitation intervention focuses on teaching offenders how to think, not on what the offenders should think. Once an offender learns the skill of how to think, they are then able to then improve their problem-solving skills and apply them to a wide variety of real-life situations. The ultimate goal is for the offender to use these problem-solving skills in real-world situations to avoid potential antisocial outcomes (Robinson and Porporino, 2001).
The Reasoning and Rehabilitation program typically consists of 36 sessions, each of which runs for approximately 2 hours. Groups consist of 6 to 12 individuals. These sessions target and seek to improve an individual’s self-control, interpersonal problem-solving skills, social perspective-taking, critical reasoning, cognitive style, as well as their values (Robinson and Porporino, 2001). A variety of techniques are used to achieve these goals including role-playing, dilemma games, cognitive puzzles, along with board games designed to examine values. Practice and repetition are emphasized as being key to acquiring the skills desired. Lastly, coaches are told to avoid lecturing and to teach Socratically instead, encouraging offenders to be active participants and learners (Robinson and Porporino, 2001).

Lastly, the Enhanced Thinking Skills (ETS) program has been created as a variation of the Reasoning and Rehabilitation program. Developed by the English and Welsh prison service as a shorter programming option, Enhanced Thinking Skills uses the same structured cognitive-behavioral approach as Reasoning and Rehabilitation (Blud and Travers, 2001; Hollin et al., 2004). As such, key areas targeted by ETS include: self-control, interpersonal problem solving, moral reasoning, critical reasoning, cognitive style, and social perspective taking. As in the Reasoning and Rehabilitation program, Enhanced Thinking Skills teaches offenders how to think rather than what to think (Blud and Travers, 2001).

Since the R&R program is nearly twice as long as the ETS program, there is a greater degree of repetition and a higher dosage of each of the various skills is administered in R&R than occurs in the ETS program (Blud and Travers, 2001). This is an important distinction to note. In contrast to Reasoning and Rehabilitation, Enhanced Thinking Skills is only conducted over 21 2-hour sessions. Offenders are also given homework assignments to complete in between these sessions (Hollin et al., 2004). The ETS curriculum has three different modules: moral
reasoning, social skills, and problem solving. In addition, while they do not have a dedicated module, critical reasoning and perspective taking are discussed in course sessions (Blud and Travers, 2001).

**Outcome Measures**

**Recidivism.**

Much of the existing research on cognitive-behavioral programs in correctional settings focuses on their efficacy in reducing recidivism following release from custody. Several different measures of recidivism are utilized in this literature, including rearrest, and reconviction. One study that explores the effectiveness of cognitive-behavioral programming in terms of rearrest is a report authored by Hubbard and Latessa (2004). This report assesses the cognitive-behavioral program Corrective Thinking at five different treatment sites. These treatment sites include: a halfway house for adult females; a halfway house for adult males; a community-based correctional facility housing adult male felony probationers; a residential drug treatment program for adult females; and a residential treatment center for delinquent juvenile males (Hubbard and Latessa, 2004). The findings regarding the effectiveness of the Corrective Thinking program were mixed. Female offenders from the residential drug treatment center and the juvenile male offenders at the residential treatment center were both *more* likely to be rearrested than offenders in their respective comparison groups. In contrast, male felony probationers were *less* likely to be rearrested than those in the comparison group. However, the authors suggest this finding may be due in part to the more rural location of the treatment site as compared to the control site (Hubbard and Latessa, 2004). Hubbard and Latessa (2004) posit that offenders in the more rural locations may be less likely to be caught violating the law and the terms of their probation than offenders in more urban locations.
Austin, Robinson, Elms and Chan (1997) have also examined the effect of cognitive-behavioral programming on rearrests. In this evaluation, the effectiveness of the Reasoning and Rehabilitation program in addressing the needs of offenders with high rates of drug use and relapse. Reasoning and Rehabilitation was compared with a drug treatment program, the Drug Aftercare Program, which was considered to be treatment-as-usual (Austin et al, 1997). One year following the end of the program, approximately 75% of Reasoning and Rehabilitation participants had not been rearrested while approximately 68% of Drug Aftercare participants had not been rearrested. This difference was not statistically significant though the authors note the small sample sizes likely play a role here (R&R N=71; DAC N=65). In addition, the authors also highlight a series of problems in the implementation of the Reasoning and Rehabilitation program, suggesting proper implementation may affect the capacity of this program to work successfully (Austin et al., 1997).

In contrast to analyses conducted by Austin and his colleagues (1997) and Hubbard and Latessa (2004), Gosse (2013) explored the effectiveness of cognitive-behavioral programming on rearrest using subjects who received their treatment in a prison setting. In her analysis, Gosse (2013) used data from the Serious and Violent Offender Reentry Initiative (SVORI) to explore the effect participation in cognitive-behavioral programming has on offenders’ recidivism. Participation in cognitive-behavioral interventions was examined using four different forms of treatment: interventions designed to alter attitudes toward criminal behavior, life skills programs, anger management programs, and interventions targeted toward improving personal relationships (Gosse, 2013).

The results of Gosse’s (2013) examination indicated respondents who had participated in any one of the four forms of cognitive-behavioral intervention had a lower probability of rearrest
by the 15-month follow-up interview than respondents who had not participated in cognitive-behavioral programming. Furthermore, programs designed to target offenders’ attitudes towards criminal behavior were the most helpful of the four cognitive-behavioral programming measures. Offenders who participated in this form of programming were rearrested at significantly lower rates three, nine, and fifteen months following their incarceration than offenders who did not participate in this particular form of treatment (Gosse, 2013). In order to address selection bias issues, propensity score models were used in a 2009 analysis of the dataset (Lattimore and Steffey, 2009).

In addition to studies using rearrest as a recidivism measure, there are also several studies that utilize reconviction as a measure of recidivism. One study conducted by Polaschek, Wilson, Townsend, and Daly (2005) looked specifically at reconvictions of male offenders who participated in a cognitive-behavioral program in a New Zealand prison. This particular program is specifically targeted for offenders with a history of violent crime and who were at high risk for reoffending (Polaschek et al., 2005). The results of this analysis indicated that while there was not a significant difference between the treatment group and the comparison in terms of reconvictions, the results were in the anticipated direction. There was a significant difference in terms of reconvictions for violent crimes. Only 32% of the treatment group was reconvicted of a violent crime during the follow-up period, which ranged from two years to just over three and a half years. In contrast, 63% of the control group was reconvicted for a violent offense. However, the authors urge that further study is needed as this analysis used a small sample size (treatment N=22; control N=60) (Polaschek et al., 2005).

The findings of Berman’s (2005) investigation are somewhat consistent with the results from Polaschek and colleagues’ (2005) analysis. Berman (2005) studied the reconviction risk of
Swedish male prisoners who had participated in the Reasoning and Rehabilitation program. These offenders were matched to control group participants based on several criminal career elements including age, crime-type, sentence, and the number of prior adjudications (Berman, 2005). As in the Polaschek et al. (2005) study, Berman (2005) found violent offenders who had completed the cognitive-behavioral program had a lower rate of reconviction than those offenders in the matched control group. Specifically, 42% offenders with a violent conviction immediately prior to program participation were reconvicted in the 36-month period following their release while 63% of their control group counterparts were reconvicted during this 36-month follow up period. However, in contrast to the findings in Polaschek et al. (2005), program completers as a whole had significantly lower likelihood of reconviction than offenders in the control group. Survival analysis showed program completers were 25% less likely to be reconvicted rate than those in the control group (Berman, 2005).

Porporino, Fabiano, and Robinson (1991) employed reincarceration for new convictions as a measure of recidivism and program success in their investigation. This pilot study explored the Cognitive Skills Training program and its effect on the recidivism in a small sample of offenders. When examining reincarceration for new convictions, 20% of the treated offenders and 30% of offenders in the control group were reincarcerated during the follow up period (averaging about 19.7 months following release from incarceration). The control group consisted of individuals who volunteered to participate in Cognitive Skills Training but were unable to participate due to a lack of space in the program (Porporino, Fabiano, and Robinson, 1991). In addition, the outcomes of the pilot study were compared with the outcome predicted by the offenders Statistical Information on Recidivism (SIR) scores. For both the treatment and control groups, the likelihood of reconviction was 52% over a period of 2½ years. This is noticeably
higher than the 20% experienced by the treatment group and 30% experienced by the control
group (Porporino, Fabiano, and Robinson, 1991). While the follow-up period in this pilot study
was smaller than the risk prediction tool, Porporino and colleagues (1991) note that most
offenders who are readmitted do so during their first year following release from incarceration.
Porporino and colleagues (1991) also argue the distinction between the predicted and actual
recidivism is an indicator that this program is effective in reducing reconvictions. This may also
suggest that there may be a high number of false positive in the SIR.

The Polaschek et al. (2005) study discussed above also examined reincarceration as a
measure of recidivism and program success. This study did not find any significant differences
between the treatment and control groups in terms of reimprisonment. However, it is difficult to
draw conclusions due to the small sample size here. Ultimately, only five offenders in the
treatment group were reimprisoned during the follow-up period (at least two years) (Polaschek et
al., 2005).

There are several well-constructed meta-analyses that examine studies of cognitive-
behavioral programming in correctional settings (e.g. Landenberger and Lipsey, 2005; Lipsey et
al., 2001; Lipsey et al., 2007; Pearson, Lipton, Cleland and Yee, 2002; Tong and Farrington,
2006). The selection inclusion criteria for these meta-analyses included: the analysis had to be
published after 2000; participants had to be either on probation, incarcerated, or in aftercare/on
parole; the analysis had to examine cognitive-behavioral treatment interventions; and the
analysis had to use recidivism as an outcome measure. These meta-analyses often incorporate
studies with differing definitions of recidivism. As such, the results of some refer to the impact
of the programs on recidivism broadly rather than specifically on rearrest or reconviction. Most
of these evaluations of cognitive-behavioral programs have demonstrated this particular form of correctional programming can be effective in reducing recidivism.

For example, the meta-analysis of fourteen studies performed by Lipsey and his colleagues (2001) indicates cognitive-behavioral programming is an effective intervention. In these studies, offenders participating in cognitive-behavioral programming reoffended at two-thirds the rate of offenders who received treatment-as-usual. In this meta-analysis, the studies identified recidivism, using either rearrest or reconviction (Lipsey et al., 2001). However, it is important to note this analysis examines a relatively small number of studies. Lipsey and his colleagues (2001) point out these studies were selected for inclusion “to provide the best evidence on the effectiveness of cognitive-behavioral programs for reducing the reoffense recidivism of criminal offenders” (p. 144).

Pearson and his colleagues’ (2002) identified 44 studies of cognitive-behavioral programs for their meta-analysis as part of the Correctional Drug Abuse and Treatment Effectiveness (CDATE) project. The results of this meta-analysis showed there was a 14% decrease in recidivism among offenders in the studies’ treatment groups as compared to offenders in the control groups (weighted mean r=0.144) (Pearson et al., 2002). Additionally, this study investigated the efficacy of specific types of cognitive-behavioral treatment. In the seven studies centered on programs that focus on enhancing cognitive skills (i.e. Reasoning and Rehabilitation), the treatment groups had 57.4% success while the control groups had 42.7% successes (weight mean r=0.147) (Pearson et al., 2002). This study does not explain how recidivism is defined and measured in the studies included in the analysis.

Similarly positive results were found in Landenberger and Lipsey’s (2005) study. This meta-analysis investigated 58 studies of both branded (i.e. Thinking for a Change, Reasoning and
Rehabilitation) and non-branded cognitive-behavioral programs. The results indicated a 25% decrease in the mean recidivism rate when comparing the control groups to the treatment groups. The control groups had a mean recidivism rate of 0.40 while the treatment groups in these studies had a mean recidivism rate of 0.30 (Landenberger and Lipsey, 2005). In addition, the meta-analysis investigated the effectiveness of the various types and brands of cognitive-behavioral programming. The results indicated there were not any significant differences in recidivism between the types of programs when controlling for participant characteristics and implementation factors (Landenberger and Lipsey, 2005).

Additionally, Tong and Farrington (2006) conducted an analysis of 16 evaluations of the Reasoning and Rehabilitation program, using rearrest and reconviction as measures of recidivism. Their results indicated an overall significant 14% decrease in offending for program participants compared to the control groups (odds ratio=1.16) when using reconvictions as a measure of recidivism (Tong and Farrington, 2006). However, not all of the findings of this study supported the effectiveness of the Reasoning and Rehabilitation program. Participation in this program was not associated with significant reductions in reincarceration, technical violations, or in revocations of parole (Tong and Farrington, 2006). Overall, the findings of these meta-analyses are supportive of cognitive-behavioral interventions, indicating that cognitive-behavioral programs had a significant impact on the recidivism of the treatment groups in the included studies.

Lattimore and her colleagues (2012) completed a research report examining the results of an analysis of the SVORI data. The report included a study of the adult male sample in terms of their treatment needs, program receipt, criminal history, and substance use. Several recidivism measures were used, including self-reported crime, rearrest, and reincarceration (Lattimore et al.,
Participation in cognitive-behavioral interventions was measured using three forms of programming. These included anger management treatment, assistance with personal relationships, and programming to change criminal behavior attitudes (Lattimore et al., 2012).

Lattimore and her colleagues (2012) found that none of the three forms of programming had a significant impact on self-reported crime. However, there were significant findings in terms of time to rearrest. Anger management, personal relationship programs, and programs to change criminal behavior attitudes were all associated with a significantly longer time between the release from incarceration and the individual’s first arrest. Programs to change criminal behavior attitudes also had a significant effect on the time between the individual’s second and third arrest, with participants having a longer gap. However, personal relationship programs actually significant decreased the gap between the second and third arrest (Lattimore et al., 2012). When examining reincarceration, Lattimore et al., (2012) found that participation in interventions to change criminal behavior had significantly decreased their likelihood of reincarceration six months following their release from incarceration. Anger management programs and personal relationship treatment did not have a significant impact on reincarceration at any of the follow-up time periods (Lattimore et al., 2012).

The present study can be distinguished from Gosse’s (2013) and Lattimore et al.’s (2012) work in that the present work seeks to expand on Gosse (2013) and other studies that have used the SVORI data by exploring how cognitive-behavioral programming may have an impact on the recidivism of participants. As discussed previously, while understanding the effectiveness of a program is important, it is also essential to understand why and how an intervention functions. Additionally, the present study uses different measures as compared to the Lattimore et al. (2012) and Gosse (2013) analyses. For example, the present study utilizes a different measure of
participation in cognitive-behavioral programming. While Lattimore et al. (2012) and Gosse’s (2013) work examines multiple forms of interventions, both individually (Lattimore et al., 2012; Gosse, 2013) and together (Gosse, 2013), as a measure of cognitive-behavioral program participation, the present study focuses on participation in interventions intended to change attitudes towards crime. This measure was specifically designed by the SVORI authors to capture offenders’ participation in cognitive-behavioral programming, particularly those interventions that aim to change attitudes towards criminal activity (Lattimore, Steffey, and Visher, 2010; P. Lattimore, personal communication, October 14, 2014). The topic of additional SVORI studies is examined in greater detail in the SVORI methodology chapter.

**Cognitive Skills and Attitudes.**

While most studies of cognitive-behavioral programming employ recidivism as an outcome measure, there are also a number of studies that explore the effect of these programs on various cognitive skills and attitudes. Blud, Travers, Nugent, and Thornton (2003) argue that it is key to explore more immediate outcomes, such as cognitive skills and attitudes, since these should have an effect on more longitudinal outcomes, such as recidivism.

The study conducted by Blud and her colleagues (2003) assessed the effectiveness of the Reasoning and Rehabilitation and Enhanced Thinking Skills programs using a sample of 5,255 adult male and adult female offenders. This evaluation had the goal of assessing the impact of these programs on a variety of skills and attitudes, including: locus of control; impulsivity; empathy; socialization; social problem solving; low self-esteem; understanding of consequences; and criminal thinking style. Moderate effect sizes were observed for most of these measures. Larger effect sizes were observed for locus of control (mean effect size=0.519), impulsivity (mean effect size=0.594) and cognitive indolence (mean effect size=0.589). Cognitive indolence
is described as a criminal thinking style in which the offender is inclined “toward lazy thinking, short cut problem solving, and uncritical acceptance of personal ideas and plans” (Blud et al., 2003, p. 76). Blud and her colleagues (2003) suggest the higher effect sizes for these measures may suggest a change towards a more thoughtful and responsible manner of solving problems, which is the ultimate target of these programs.

Golden, Gatchel, and Cahill (2006) also found cognitive-behavioral programming to be successful in modifying cognitive skills and attitudes. Their evaluation explored the effectiveness of the Thinking for a Change program in reducing recidivism as well as its effect on problem solving skills in a sample of male and female offenders on probation (Golden, Gatchel, and Cahill, 2006). This analysis utilized a self-report along with an applied problem-solving test to measure the interpersonal problem solving skills of the offenders in the sample. On the applied skills measure, the offenders who completed the Thinking for a Change program scored significantly higher following completion than their pretest scores. Those offenders who did not complete the program and those in the control groups did not display these improvements. On the self-report measure, individuals who completed the program reported using adaptive problem solving skills significantly more often than offenders who failed to complete the program or were from the control group (Golden, Gatchel, and Cahill, 2006).

The findings of Berman (2005) are consistent with both Blud et al.’s (2003) analysis as well as Golden, Gatchel, and Cahill’s (2006) findings. Berman (2005), as previously discussed above, examines the Reasoning and Rehabilitation program in terms of recidivism as well as more immediate measures of success. These measures of success aim to capture whether the cognitive-behavioral program impacted offenders’ attitudes towards the law and the police; coherence; coping capacity; impulsiveness; empathy; prosocial attitudes; and constructive
methods of problem solving (Berman, 2005). Baseline measures are taken from program participants as well as from a volunteer control group of individuals from similar prisons with posttest measures completed following program completion. The findings of this study indicated the offenders who completed the Reasoning and Rehabilitation program display positive changes in impulsiveness, coherence, along with attitudes towards the law, courts and police. However, there were not any significant prosocial changes observed between the program completers and the control group in terms of empathy (Berman, 2005).

Conclusions

The studies outlined here indicate that cognitive-behavioral programming can be effective in reducing recidivism risk. Meta-analyses conducted by Lipsey et al. (2001), Pearson et al. (2002), Landenberger and Lipsey (2005) along with Tong and Farrington (2006) all suggest that cognitive-behavioral programs are successful in reducing offenders’ likelihood of returning to crime. Gosse’s (2008) results suggest this form of programming positively impacts rearrest while Polaschek et al.’s (2005) findings indicate cognitive-behavioral programming has a positive effect on reconviction. Some of the studies that do not find a significant recidivism reduction due to cognitive-behavioral programming have small sample sizes (i.e. Austin et al., 2001; Polaschek et al., 2005), or have examined programs that suffered from numerous implementation issues (i.e. Austin et al., 2001).

The studies also indicate that cognitive-behavioral programs are effective in altering cognitive skills and attitudes. As Blud and colleagues noted (2003), changes in these skills and attitudes may be key to more long-term changes, such as recidivism. Both Berman (2005) and Blud et al.’s (2003) analyses found cognitive-behavioral programming to be effective in reducing impulsivity. Attitudes towards the criminal justice system (Berman, 2005) and locus of control
(Blud et al., 2003) were also positively impacts by program participation. Given the current focus on evidence-based policies and an increased interest in obtaining an understanding of “what works” as the basis for policy decisions (MacKenzie, 2000; 2006), these findings demonstrating the efficacy of cognitive behavioral programming are crucial.
SVORI Methodology

Introduction

A dataset from the Serious and Violent Offender Reentry Initiative’s Multisite Impact Evaluation was utilized for the analyses in the current study (Lattimore and Visher, 2011a). This dataset was the result of an intensive impact evaluation of programs implemented at 16 sites (12 adult programs and 4 juvenile programs) as part of the Serious and Violent Offender Reentry Initiative (SVORI). The impact evaluation consisted of four waves of offender interviews as well as the collection of official criminal record data from three different demographic groups: adult male offenders, adult female offenders, and juvenile male offenders (Lattimore and Visher, 2009). The dataset’s adult male sample was the focus of the present study and was used to test the proposed hypotheses. This chapter will be devoted to a discussion of this dataset including how sites, programs and subjects were selected for inclusion in the dataset along with the data collection procedures used in the creation of this dataset.

What is SVORI?

In 2003, the U.S. Departments of Education, Labor, Justice, Housing and Human Services, and Urban Development began the Serious and Violent Offender Reentry Initiative (SVORI). This collaboration provided more than $100 million in grant funding for states to develop programs that would improve outcomes from both adult and juvenile offenders released from prisons and detention facilities (Lattimore and Visher, 2009; Lattimore and Steffey, 2009). These goals included decreased recidivism rates, increased employment following release, as well as improved offender education, health (in terms of physical and mental health as well as substance abuse), and housing outcomes (Lattimore and Steffey, 2009; Lattimore et al., 2012). SVORI was specifically designed to respond to emerging research, which indicated providing
individuals with “comprehensive, coordinated services based on needs and risk assessments could result in improved post-release outcomes” (Lattimore and Steffey, 2009, p. 1).

As a result of the funding initiative, 69 agencies across all 50 states as well as the District of Columbia and the U.S. Virgin Islands received federal grant money to develop 89 SVORI programs. Grant money received ranged from $500,000 to $2 million over the course of three years. The SVORI funded programs were designed to provide services to offenders over three different phases: during their incarceration, during post-release supervision, and into their post-supervision lives. These three phases of service delivery had the additional goal of creating (and strengthening) connections between correctional agencies, supervision agencies, and community-based organizations. Offenders targeted for participation in SVORI programs were serious and violent offenders who were under the age of 35. Additionally, the federal sponsors of this program specified that needs and risk assessments should guide the provision of services to participating offenders. Ultimately, these programs had the aim of improving offenders’ lives in terms of several different outcomes.

In May 2004, after receiving funding from the federal government, RTI International and the Urban Institute began to conduct a multi-site evaluation of SVORI (Lattimore and Steffey, 2009). This evaluation consisted of three components: an implementation assessment, an impact evaluation, and a cost-benefit evaluation. The implementation assessment was designed to document the program delivery across the various SVORI programs while the impact evaluation was designed to determine the effectiveness of the SVORI programs. Finally, the cost-benefit analysis explored whether the benefits achieved from the programs outweigh the costs of implementation (Lattimore and Visher, 2009). RTI International and the Urban Institute aimed to

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1 However, Lattimore and Visher (2009) note some facilities requested and received exceptions to this requirement. For example, age requirements were lifted for programs specifically targeted to sex offenders.
answer several different questions with their evaluation. These included exploring whether SVORI lead to more coordinated services among partner agencies, whether SVORI offenders received more individualized and comprehensive services than non-SVORI offenders, as well as whether program participants exhibited better outcomes (i.e. recidivism, employment, housing) than non-participants (Lattimore and Visher, 2009; Lattimore and Steffey, 2009).

**Program Selection**

The impact evaluation will be the focus here, as this evaluation is the source of the SVORI dataset. A number of different criteria and steps were used to select from the 89 funded SVORI programs for the impact evaluation. First, as Lattimore and Steffey (2009) point out, it was important to identify which programs would be appropriate for evaluation. Six different criteria were outlined to help guide this process: (1) the goals and elements of the program were clearly defined; (2) the program had been implemented or was likely to be implemented; (3) the target population of the program was accessible and of sufficient size; (4) there was an appropriate, available, and accessible comparison population; (5) good quality administrative data was available for use in the evaluation; (6) the program was available and amenable to participation in the evaluation (Lattimore and Steffey, 2009).

In addition to these criteria, a three-step approach was implemented to identify suitable impact programs. The first step was to gather information on the grantees and their programs. This was accomplished by reviewing the proposals and work plans submitted by the 69 SVORI grantees. Semi-structured telephone interviews were also utilized to collect additional information and confirm the number of programs offered by each grantee. It was during this step it was determined there were 89 distinct SVORI programs (37 juvenile, 45 adult, and 7 targeting adults as well as juveniles) being offered by the 69 grantees (Lattimore and Steffey, 2009). The
information gathered in this step included the implementation status of the program, the offered program’s components and services, characteristics of the program’s target population, whether sufficient treatment and control group populations were available, information regarding the goals and activities of the program, and, finally, whether the grantee was willing and able to participate in the evaluation. Inquiries were also made regarding any plans to conduct local evaluations as well as agency involvement in SVORI (Lattimore and Steffey, 2009). Using this information as well as the six criteria outlined above, the evaluators began to gain a better understanding of how each of these programs was configured as well as which of these SVORI programs would be most suitable for the impact evaluation (Lattimore and Steffey, 2009).

The second step of the program selection process involved making site visits to 29 of the grantees, which operated 39 of the programs. While the six criteria outlined above figured into the decision, two other factors were used primarily to determine which sites and programs to visit. These factors included program enrollment and the status of program implementation. In particular, programs needed to have an enrollment of at least 100 offenders, unless the site housed another SVORI program with an enrollment greater than 100 offenders (Lattimore and Steffey, 2009). There were several goals of these site visits including updating the information from work plans, gathering information regarding the availability and quality of administrative data, assessing the willingness of the site to participate in the project, confirming implementation progress and exploring opportunities to identify control group subjects (Lattimore and Steffey, 2009). This information was obtained in a series of interviews with key stakeholders (i.e. program director, institutional program staff, probation/parole agents), which lasted approximately one hour. In addition, the local evaluation staff was also interviewed in cases
where the site was planning on conducting its own local evaluation (Lattimore and Steffey, 2009).

The final step taken in the program selection process was to review all the collected information and create a list of programs that would be recommended for the impact evaluation. The programs that were not included in the impact evaluation were eliminated from consideration due to exhibiting one of five key factors. These include: (1) having an anticipated case flow that would not meet the needs of the study, (2) the quality of the administrative data, (3) having certain program characteristics (i.e. a highly decentralized program), (4) the targeting of special populations (i.e. offenders in administrative segregation), or (5) if the site was geographically infeasible (i.e. sites in Alaska and Hawaii). Ultimately, 16 programs from 14 different states were selected for inclusion in the impact analysis. Twelve of these programs focused on adult offenders while four served juvenile offenders (Lattimore and Steffey, 2009).

Even though the SVORI programs that were selected for participation in the impact evaluation were not randomly selected, the chosen programs reflect diversity in terms of program type, geographic area, as well as correctional philosophy. The sites chosen for the impact evaluation were also found to be representative of all SVORI sites in terms of several important variables. These variables include basic program characteristics; targeted outcomes; prerelease and post-release service provision; agency involvement; stakeholder support or resistance; as well as prerelease and post-release geographic targeting (Lattimore and Steffey, 2009). However, as would be expected, variation did exist in terms of the various criteria used in the selection process. Specifically, the programs at sites chosen for the impact evaluation had larger enrollments than non-impact sites and the impact sites were further along in implementing their programs than the non-impact sites (Lattimore and Steffey, 2009).
How were inmates selected?

The sites chosen for this impact evaluation utilized two different methods in assigning inmates to participate in the SVORI program or to participate in standard programming: random assignment and site-level quasi-experimental designs. Though random assignment was the most straightforward method, only two sites in the impact evaluation used this method (Lattimore and Steffey, 2009). In the random assignment sites, offenders who were eligible for SVORI programming, had the opportunity to participate in SVORI programming, and were also interested in participating in SVORI programming were randomly assigned to receive either the SVORI treatment or non-SVORI standard programming. If the offender was either not interested in participating in the SVORI programming or was not presented with the opportunity to participate, the individual was ineligible for inclusion in the respondent pool. It is important to note that the probability of being assigned to either the treatment or control group sometimes differed from 0.5 with this procedure (Lattimore and Steffey, 2009).

Most of the sites involved in this impact evaluation implemented a quasi-experimental procedure. These site-level designs aimed to create a pool of individuals who were not asked to participate in the SVORI programs, but were comparable to the inmates who were offered the opportunity to participate in SVORI programming. The inmates in this pool were inmates who met all of the criteria for SVORI participation at the individual level, such as offense-type and age. In many instances, these inmates failed to meet the local program eligibility requirements, such as being housed in an institution that offered SVORI programming or returning to a community with a post-release SVORI program following their release (Lattimore and Steffey, 2009).
As discussed above, these quasi-experimental designs were created and implemented at the site-level, resulting in some degree of variation between the sites in how the designs were implemented. For example, variation tended to occur in regards to how the non-SVORI participants were identified. To ensure appropriate comparison groups were being identified, research teams worked closely with the staff at each site to outline the criteria used determine SVORI program eligibility as well as developing procedures to determine which inmates were eligible for SVORI but had not yet been offered the program (Lattimore and Steffey, 2009).

Several guidance points were given to the researchers who worked alongside the site staff to help direct the development of the comparison groups. First, the comparison subjects had to be similar to SVORI participants in order to reduce selection bias. As Lattimore and Steffey (2009) point out, this involved a straightforward assessment on most factors, such as risk scores and current offense. However, the fact that many of the programs were designed to be voluntary creates an issue in terms of motivation when trying to create a truly similar comparison group and had to be considered (Lattimore and Steffey, 2009). Second, to minimize the effect of unmeasured and unobserved environmental factors (such as employment opportunities and access to treatment resources), offenders in the comparison groups had to be returning to the same or similar communities (Lattimore and Steffey, 2009). Lastly, to minimize the effect of unmeasured and unobserved environmental factors, comparison subjects need to be incarcerated in the same prison or in prisons similar to those holding SVORI participants. If the comparison subjects were selected from a comparison prison, it would be necessary for this facility to have a comparable prison environment, especially in terms of the custody level (Lattimore and Steffey, 2009).
Thus, the ideal comparison group would be a “Similar Subject-SVORI Prison-SVORI Community”, meaning the subjects would share similar individual-level factors, are housed in a SVORI prison facility, and would return to a community utilizing SVORI programming (Lattimore and Steffey, 2009, p. 29). In instances when this ideal was not achievable, using “Different Subjects”, “Different Prisons”, and/or “Different Communities” were all explored variations (Lattimore and Steffey, 2009).

Three different criteria were used to identify which subjects should be considered to be potential respondents for the impact evaluation and asked for their participation. First, the inmate was required to have an expected release date during the Wave 1 data collection period (July 2004 to November 2005) and be within three months of this expected release date. Individuals were targeted at the three-month mark to ensure there was sufficient time to identify potential respondents and to conduct interviews prior to their release (Lattimore and Steffey, 2009). Second, the inmate had to be housed in an institution where Wave 1 interviews were going to be conducted. Finally, researchers had to be allowed access to the inmate. On occasion, researchers would not be able to conduct an interview because of a “lockdown” in the facility, a private space was not available for the interview, or if the individual was not currently in the facility (i.e. had been transported to court or for medical treatment). In these instances, multiple attempts would be made to complete the interview until the inmate was either transferred to a facility that was not part of the evaluation, the inmate was released from custody, or the inmate’s anticipated release date changed, which made them ineligible for the evaluation (Lattimore and Steffey, 2009). A total of 1,697 adult male respondents participated in Wave 1 interviews. There were 984 respondents participating in Wave 2, 1035 offenders in Wave 3, and 1113 respondents participating in the Wave 4 interview (Lattimore and Steffey, 2009).
Table 1: Number of Male Respondents by Interview Wave and Group

<table>
<thead>
<tr>
<th></th>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
<th>Wave 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVORI</td>
<td>863</td>
<td>529</td>
<td>565</td>
<td>582</td>
</tr>
<tr>
<td>Comparison</td>
<td>834</td>
<td>455</td>
<td>470</td>
<td>531</td>
</tr>
<tr>
<td>Total</td>
<td>1697</td>
<td>984</td>
<td>1035</td>
<td>1113</td>
</tr>
</tbody>
</table>

How were the interviews conducted?

As discussed previously, the dataset resulting from this impact evaluation consists of two parts: face-to-face interviews with respondents as well as accessing official criminal record data (Lattimore and Steffey, 2009; Lattimore and Visher, 2009). The data collection process for the interview portion of the dataset consisted of four waves of in-person, face-to-face interviews. These interviews were conducted approximately one month prior to release, then again at three months, nine months, and fifteen months following the respondent’s release from incarceration (Lattimore and Steffey, 2009).2

The pre-release interviews, Wave 1, were conducted over a 16-month period from July 31, 2004 to November 30, 2005. Eligible respondents were identified for both the SVORI group as well as the comparison group during this time period (Lattimore and Steffey, 2009). The Wave 1 interviews were administered in approximately 150 prisons and juvenile detention facilities. In order to arrange the interview, the facility where the potential respondent was housed was contacted and an appointment was requested via the facility’s liaison to the evaluation team. The potential respondent was only told they had a visitor and was not to be provided with any information regarding the evaluation or the interview. This was done to ensure facility staff did not coerce participation in the evaluation and that information pertaining to the

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2 Impact evaluation interviews were carried out by experienced RTI International field interviewers in a private setting, with the use of computer-assisted personal interviewing (CAPI). Interviewers had extensive training in interviewing in correctional settings. They were trained in human subjects rules and regulations, the process for obtaining informed consent, as well as how to identify and properly respond to distressed respondents (Lattimore and Steffey, 2009).
study was presented to potential respondents in a consistent manner. The informed consent was witnessed but was not signed in order to reduce the likelihood of the identity of the study participant being revealed (Lattimore and Steffey, 2009).

Wave 1 interviews lasted approximately 1.5 hours and were conducted roughly one month prior to release from incarceration. The goal of this first wave of interviews was to gather information regarding the respondent’s experiences in terms of the services they received during the course of their incarceration. In addition, this wave also documented the respondent’s immediate plans for their life following release from incarceration (Lattimore and Steffey, 2009). Interview Waves 2, 3, and 4 occurred three months, nine months, and fifteen months after release, respectively. These interviews also were approximately 1.5 hours in length. Housing, employment, education, family and peer relationships, physical and mental health, crime and delinquency, supervision, community involvement, substance use, service needs, as well as services received post-release were the focus of these interviews (Lattimore and Steffey, 2009). Unlike the interviews in Wave 1, the latter interviews were conducted in the community. However, if a respondent had been reincarcerated, their interview was conducted at the prison or jail facility in which they were currently housed (Lattimore and Steffey, 2009).

While there were no incentives for participating in Wave 1 interviews, respondents were given incentives for interviews completed in the community post-release. These incentives included $35 for completing the three-month interview, $40 for completing the nine-month interview, and $50 for completing the fifteen-month interview. Respondents were given an additional $50 if they completed all four waves of the interview process. In addition, a $5 bonus was available at each interview stage if the respondent called a toll-free number to arrange an appointment for their interview (Lattimore and Steffey, 2009).
How were the official records obtained and compiled?

In addition to the respondent interviews, the SVORI dataset also includes official criminal record data. These official records were used to supplement the self-reported data provided by respondents during the interview process. In particular, it was important to have additional sources of information regarding respondents’ criminal history and recidivism, since problems such as exaggeration, underreporting, and memory failure can arise when using a self-report methodology (Thornberry, and Krohn, 2000).

Official criminal justice records were obtained to provide a more complete picture of the respondents’ criminal histories. The source of this data was state-level agencies, such as the department of corrections, department of juvenile justice, along with probation and parole agencies (Lattimore and Steffey, 2009). These state agencies provided data related to the respondents’ behavior and performance during their post-release parole or probation period along with information regarding return to prison following release. Measures of respondents’ criminal history, pre-release measures of the evaluation’s outcome variables, respondents’ demographic characteristics, measures of program and service delivery, and measures of risk factors or treatment needs related to the outcome variables were all collected from state agencies (Lattimore and Steffey, 2009).

In addition to obtaining data for all of the respondents that participated in the pre-release interviews, the evaluation team requested data on a broader sample to determine whether there were significant differences between those individuals who agreed to participate in the evaluation and those individuals who refused to participate (Lattimore and Steffey, 2009).

Studies Utilizing SVORI Data
There are a number of studies that have utilized the SVORI impact evaluation dataset in their analyses. Two categories of studies are examined. First, studies that utilize that adult male sample from the SVORI dataset, use at least one measure that is also used the current study, and employ one or more recidivism measure as an outcome measure are explored. This section of the chapter outlines these studies and then discusses how the current study advances the literature. Second, studies that just use the adult male sample with at least one recidivism outcome measure are examined. These studies are also outlined and the findings are discussed.

In her dissertation using SVORI data, Orrick (2012) examined how offender attitudes impacted recidivism following release from incarceration. Offender attitudes were measured in terms of the individuals’ self-efficacy and the individuals’ readiness to change their behavior. Three research questions were examined in this analysis: (1) Do an offender’s attitudes at the time of their release from incarceration impact their recidivism following their release from prison? (2) Are there within-individual changes in self-efficacy and readiness to change across the various waves of follow-up interviews? If so, are these changes associated with within-individual change in criminal offending across the follow-up interview waves? (3) Are the effects of self-efficacy and readiness to change on recidivism mediated by changes in life circumstances? Life circumstances include changes in circumstance such as drug use, reincarceration, employment, marriage, neighborhood quality and probation or parole supervision status (Orrick, 2012).

The self-efficacy scale was created using questions from the self-efficacy and locus of control scales from the SVORI survey. The readiness to change scale utilized the questions from the readiness to change scale in the SVORI dataset (Orrick, 2012). Recidivism was measured using several measures of rearrest, including time to rearrest, the total number of post-release
arrests, if there were any arrests during the interview wave, and the total number of arrest per interview wave. In addition, self-reported criminal activity was utilized as a measure of criminal offending (Orrick, 2012).

Multiple analytic techniques were employed in this study. First, an event history or survival model was employed. This method was used in order to explore if self-efficacy and readiness to change played a role in impacting offenders’ criminal behavior. If so, this technique also would indicate the extent to which these attitudes influence the respondents’ reoffending. The outcome variable utilized here was the number of days to the first arrest following release from prison (Orrick, 2012). Second, multilevel modeling was conducted using hierarchical generalized linear models. This was used to assess how the outcome variables changed over time. This method permitted an assessment of within-individual change, including changes in the individual’s life circumstances and the individual’s criminal behavior. Also, this method is used to examine whether a relationship exists between the predictors variables and the change patterns (Orrick, 2012). Lastly, the mediating effects of life circumstances were explored using multilevel logistic regression. This enabled the researcher to determine if both attitudes and life circumstances had an effect on recidivism or if attitudes had an indirect effect on recidivism through the offenders’ life circumstances following release from incarceration (Orrick, 2012).

The results of the survival model indicated that self-efficacy had a statistically significant effect on the time to first arrest following release from prison. A one-unit increase in an individual’s self-efficacy score decreased the hazard by 10.6%, which suggested that offenders’ attitudes at the time of release had a significant impact on their time to first arrest following their release (Orrick, 2012). Additionally, Orrick (2012) noted that readiness to change had a
“marginally significant” (p<0.1) impact on time to first arrest, with a one-unit change in readiness to change decreasing the hazard by 8.6% (p. 81).

Separate models were examined for each of the outcome variables in the multilevel models. In the first model, the number of arrests post-release was predicted. The results of this model indicated that there was significant variation in the number of post-release arrests as well as significant variation in the rates of arrest among the offenders in the sample. When examining the role of the attitude variables, the results indicated that self-efficacy had a significant impact on the number of arrests. With each increase in the self-efficacy score, “the reported coefficient (-0.304) corresponds to a decrease in the expected number of arrests by a factor of 0.854” (Orrick, 2012, p. 89). Readiness to change did not have a statistically significant impact on the number of arrests. In terms of the binary arrest measure, self-efficacy had a statistically significant impact on whether or not the offender was rearrested following their release from incarceration. Readiness to change did not have a significant impact on the binary rearrest measure (Orrick, 2012). Neither attitude measure had a statistically significant impact on self-reported criminal activity (Orrick, 2012).

The results of the first of the multilevel logistic regression models indicate that self-efficacy had a statistically significant impact on arrest following release while the effect of readiness to change was not statistically significant. The second model, which examined the effect of employment on arrest independent of the attitudinal variables, found that employment had a significant impact on rearrest. The third model found that self-efficacy significantly predicted employment following release from prison while readiness to change was not a significant predictor of finding employment post-release (Orrick, 2012). In order to test whether employment served as a mediator between attitudes and rearrest, a four-part Baron and Kenny
(1986) test was conducted, followed by a Sobel (1982) test. These results indicated that partial mediation occurred, which meant self-efficacy had a marginally significant effect on rate of arrest through employment (Orrick, 2012).

In her dissertation, Taylor (2012) examined the levels of perceived familial emotional support on offenders’ likelihood of reoffending following their release from incarceration using both the adult male and adult female SVORI groups. Taylor (2012) hypothesized that: (1) Individuals receiving more emotional support from their family would be less likely to reoffend (2) Individuals receiving more instrumental support from their families would be less likely to reoffend. This study is relevant to the current discussion because Taylor’s (2012) analysis utilized the SVORI legal cynicism scale to assess the level of criminogenic thinking present in the individuals’ thinking processes. The present study also makes use of this scale to create the cognitive transformation measure, perceptions of deviance. The legal cynicism scale and its use in the present study are discussed in greater detail in the next chapter.

The legal cynicism scale was one of several measures used in Taylor’s (2012) analysis to create a picture of the respondents’ current life conditions at the time of each interview. All five items from the SVORI legal cynicism scale were utilized in Taylor’s (2012) legal cynicism measure. In addition, Taylor (2012) weighted the legal cynicism scale to account for individuals who had missing data on some of the items in the scale. Recidivism was measured using self-reported criminal activity and rearrest. Measures of self-reported criminal activity included reporting the commission of any criminal offense, reporting committing a violent offense, or reporting committing a drug offense. Rearrest was measured by whether an arrest had occurred since the previous interview (Taylor, 2012). To examine the questions presented, a series of logistic regression models were employed. Multiple techniques were employed to address any
missing data. Both multiple imputation and listwise deletion were utilized, with results presented using each of these techniques (Taylor, 2012).

The results of the analysis indicate that offenders with higher levels of legal cynicism were significantly more likely to report committing a drug offense between three and nine months following release from prison. A statistically significant effect on drug offenses was not found during the other time periods. Also, legal cynicism did not have a statistically significant impact on the other outcome variables (Taylor, 2012).

A research report completed by Lattimore and her colleagues (2012) presented the results of an analysis of the SVORI impact evaluation data. This report included an examination of the adult male, adult female, and juvenile male samples in terms of their background characteristics such as criminal history, substance use, treatment needs, program receipt, and employment history. Several outcome measures including employment, recidivism, housing, victimization, and compliance with supervision requirements were observed as well (Lattimore et al., 2012). Of interest here are the data regarding the programs and services and recidivism outcomes on the male subjects.

Recidivism was measured using self-reported crime, rearrest, and reincarceration. Self-reported crime included whether or not the individual reported engaging in criminal activity at the three-month interview, the nine-month interview, and at the fifteen-month interview. Rearrest and reincarceration from the state administrative records and NCIC data were measured as whether or not the individual was rearrested or reincarcerated during the fixed follow-up period of approximately 56 months (Lattimore et al., 2012). Three different forms of programming were used to examine the effect of cognitive-behavioral programming participation: (1) receiving programming to change criminal behavior attitudes, (2) receiving
assistance with personal relationships, and (3) receiving anger management treatment (Lattimore et al., 2012).

Propensity score methods were used to create weight variables that would be used to study the population average treatment effect. This is the average treatment effect that could be expected if the entire population received the treatment of interest. Propensity score methods were employed to address selection bias issues as a result of the lack of random assignment in all treatment sites (Lattimore et al., 2012). Missing data were addressed using multiple imputation procedures so that observations with missing data would not have to be excluded from the analysis, though Lattimore and colleagues (2012) noted that missingness was relatively infrequent in the data. After applying the propensity score weight, logistic regression models were used to address the research questions posed in this analysis with binary outcome variables. Survival analysis was employed to examine the time to rearrest for multiple arrest events. Negative binomial count models were also utilized to estimate models for individuals that had multiple arrests (Lattimore et al., 2012).

The results of these analyses indicated that none of the three forms of programming had a statistically significant effect on self-reported criminal behavior. Anger management, personal relationship skills programs, and assistance to change attitudes towards criminal behavior were all associated with a significantly longer gap in time between the individual’s release from prison and their first arrest. Treatment designed to change criminal behavior attitudes was also linked to significantly longer times between the second and third arrest (Lattimore et al., 2012). However, personal relationship programming was associated with a significantly shorter gap between the second and third arrest (Lattimore et al., 2012). Participation in anger management programming was significantly linked to fewer arrests following release from prison (p<0.1). Participation in
programs to change criminal behavior attitudes and personal relationship services did not have a significant impact on the number of arrests.

In terms of reincarceration, individuals who participated in programs to change criminal behavior attitudes had a significantly decreased likelihood of reincarceration six months following release from prison. The other two forms of programming did not have a significant effect on reincarceration at any of the time periods. However, participation in anger management programming was associated with a significantly longer time to first reincarceration following release as well as significantly fewer reincarcerations (Lattimore et al., 2012).

In her thesis, Gosse (2013) used the both the adult male and adult female components of the SVORI data to explore whether participation in cognitive-behavioral programming had an impact on offenders’ rearrest following release from incarceration. Specifically, Gosse (2013) aimed to explore three research questions: (1) Do offenders who participate in cognitive-behavioral programs have a lower probability of rearrest than offenders who have not participated in cognitive-behavioral programming? (2) Do offenders who receive a greater number of forms of cognitive-behavioral programming have a lower probability of rearrest than offenders who have participated in fewer forms of programming or offenders who have not received any cognitive-behavioral treatment at all? (3) Does programming designed to change criminal attitudes have the largest effect on rearrest, compared to other forms of cognitive behavioral programming? (Gosse, 2013).

Cognitive-behavioral programming participation was measured by examining participation in four different forms of programming. This included programming designed to affect attitudes towards criminal behavior, life skills programming, anger management programming, and personal relationship programming (Gosse, 2013). The outcome measure
utilized in this analysis was whether or not the offender was rearrested following release from incarceration. Rearrest data was collected approximately three, nine, twelve, and fifteen months following the offenders’ from prison (Gosse, 2013).

This study used discrete time survival analysis to address the three research questions. This method allowed for a set number of survival times when the event of interest, in this case rearrest, can occur. This survival model provided the likelihood that an offender will be rearrest in the particular time period, given that they have not failed prior. Individuals who were never rearrested are still accommodated in the model because they were still at risk for reoffending (Gosse, 2013). Gosse (2013) argued that a survival model is beneficial because it acknowledges that individuals who reoffend immediately following release may differ from individuals who reoffend at a later time.

The results of these analyses indicated that offenders who participated in cognitive-behavioral programming did not have significantly lower likelihood of rearrest than those who did not participate in programming at any of the follow-up points. Participants in more than one form of cognitive-behavioral programming were not significantly less likely to rearrest as compared to individual who received fewer forms of cognitive-behavioral treatment or no cognitive-behavioral treatment at all (Gosse, 2013). When examining the effect of the individual forms of cognitive-behavioral treatment, only programs designed to change attitudes towards crime were statistically significant. Participants in programs to changes attitudes toward crime had a 15.4% decrease in the probability of rearrest at each wave compared to those individuals who did not participate in these programs (Gosse, 2013).

Lattimore and Visher’s (2013) analysis examined the role SVORI participation played in service delivery to adult male SVORI participants and the control group who received treatment
as usual. In addition, this study examined the effect SVORI participation had on a number of reentry outcomes. Along with recidivism, outcome measures included employment, housing, health, and education (Lattimore and Visher, 2013). However, recidivism is the outcome measure of interest here.

In this analysis, a number of types programs were examined to understand individuals’ service receipt. These include coordination of services programs (e.g. receiving a needs assessment, developing a reentry plan), transition services (e.g. programs to prepare for release, assistance finding a place to live, help finding legal assistance), health services (e.g. medical treatment, dental treatment, mental health treatment, or substance abuse treatment), employment/education/skills services (e.g. employment services, education services, other life skills training) along with training to change attitudes toward crime and criminal activity (Lattimore and Visher, 2013). Recidivism was measured using self-reported criminal activity, rearrest, and reincarceration. The outcomes in the analysis were measured at the time of SVORI Wave 2, three months following release from incarceration (Lattimore and Visher, 2013). This analysis uses the essentially the same methodology as Lattimore et al. (2012). However, Lattimore and Visher’s (2013) analysis only included results from logistic regression models. Results from survival analyses and negative binomial models were not included in this article.

There were several interesting results from this analysis. First, with only a few exceptions, SVORI participants were significantly more likely to report receiving services than individuals receiving treatment as usual. For example, there was not a significant difference between SVORI and non-SVORI individuals in terms of medical and dental services, which are services whose provision is required by law. In contrast, SVORI participants were significantly more likely to receive treatment designed to change attitudes related to criminal behavior (e.g.
cognitive-behavioral interventions) than individuals who did not participate in SVORI (Lattimore and Visher, 2013). Approximately 52% of SVORI participants received treatment to change their attitudes towards criminal behavior while only 36% of individuals in the control group received this treatment (Lattimore and Visher, 2013).

In addition, this analysis examined reentry outcomes for the offenders who participated in SVORI as well as the outcomes of those offenders in the control group. In terms of self-reported criminal activity, SVORI participants were significantly more likely to report being crime free than non-participants. Approximately 79% of SVORI participants reported no criminal behavior since their release from prison while 73% of the control group claimed to be remaining crime-free (Lattimore and Visher, 2013). However, there was not a statistically significant difference between the two groups in terms of rearrest or reconviction. Lattimore and Visher (2013) noted that given that this analysis was conducted three months following release from prison, very few individuals had had the opportunity to return to custody at this point. Only 3% of the SVORI sample and 4% of the control group had been removed from the community at the time of this analysis (Lattimore and Visher, 2013).

As in her dissertation (Taylor, 2012), Taylor’s (2015) analysis also utilizes the SVORI adult male and adult female data to examine whether victimization had a significant impact on recidivism following release and if various forms of family support have a moderating effect on this relationship. The SVORI legal cynicism scale was again used in this study as one of the variables creating a picture of the offenders’ life situation at the time of each interview (Taylor, 2012; 2015).

Several measures of current life conditions, including legal cynicism were used to depict the offender’s life at the time of each interview. This measure was created in the same manner
as the legal cynicism measure in Taylor (2012). All five of the items from the SVORI legal cynicism scale were utilized and a weighting technique was employed to address individuals who had missing data on some of the questions in the scale (Taylor, 2012; 2015). Recidivism was measured using self-reported criminal activity. The self-report variables included a measure of whether any criminal activity occurred since the last interview and whether any violent activity occurred since the last interview (Taylor, 2015). The research questions in this study were addressed using a series of logistic regression models. Missing data was addressed using both listwise deletion and multiple imputation, with results from both methods presented (Taylor, 2015). Mean centered interaction terms were created to examine the moderating effects of family support and victimization on recidivism. Versions of these using listwise deletion and multiple imputation were both presented (Taylor, 2015).

The results of the analysis indicated that individuals with higher levels of legal cynicism were significantly more likely to report engaging in any form of crime three to nine months following release from prison (Taylor, 2015). Individuals with higher levels of legal cynicism were also significantly more likely to report committing any type of crime nine to fifteen months following release from prison. Additionally, higher levels of legal cynicism were significantly associated with reporting engaging in violent crime nine to fifteen months after release from prison. Each of these findings was from one of the models created using multiple imputation (Taylor, 2015).

Legal cynicism was also explored in Taylor and Becker’s (2015) analysis of the effect of peer instrumental support on recidivism. Using the adult male SVORI sample, Taylor and Becker (2015) hypothesized individuals with higher levels of peer instrumental support would have lower levels of recidivism, when controlling for other predictors of recidivism, such as legal
cynicism. Self-reported crime was measured by asking individuals to report if they committed any crime during each interview wave. Rearrest data was obtained from state agencies and the NCIC database (Taylor and Becker, 2015). The legal cynicism scale was constructed using the same method outlined in Taylor (2012).

Logistic regression models were utilized to examine these research questions. Legal cynicism did not have a statistically significant impact on self-reported crimes at any of the three follow-up waves. In addition, legal cynicism also did not have a statistically significant effect on rearrest at any of the follow-up waves. Peer instrumental support did not have a significant effect on self-reported crime or rearrest in any of the multivariate models (Taylor and Becker, 2015).

Visher and her colleagues (2016) utilized SVORI data to explore the effect male subjects’ participation in various pre-release programs and services had on recidivism following release from incarceration. The methodology utilized here was the same as that described above in Lattimore et al. (2012). Recidivism was measured using the number of post-release arrests and the individuals’ time to rearrest. The independent variables included receipt of twelve different programs and services (Visher et al., 2016). The service of interest here is whether an individual participated in programming designed to change attitudes toward criminal behavior. This is the variable used as the cognitive-behavioral programming measure in the current study.

The results of Visher et al.’s (2016) analysis indicate that receiving training to change one’s attitudes towards criminal behavior was associated with significantly longer time between release from prison and the first arrest. However, this effect did not last and there was not a significant effect on the time between the first and second arrest (Visher et al., 2016). Participating in a program to change criminal attitudes did not have a significant effect on the number of arrests following release from prison (Visher et al., 2016).
Mowen, Wodahl, Brent, and Garland (2018) used the adult male SVORI sample to explore the ability of incentives and sanctions to impact offenders’ criminal behavior while on community supervision. They hypothesized that the use of incentives would be associated with lower levels of offending behavior and that the use of sanctions would be associated with higher levels of offending behavior (Mowen et al., 2018). In addition, Mowen et al. (2018) expected that utilizing both sanctions and incentives would be linked with reduced criminal behavior.

A sample of 962 adult men from the SVORI dataset was utilized in this study. Criminal behavior was measured using a self-reported criminal activity scale. This scale was created from survey questions. These included: whether the respondent had assaulted another person; whether they had used a weapon on another person; whether they had committed a property crime; whether they had threatened another person with physical harm; and whether the respondents sold drugs (Mowen et al., 2018). Respondents were asked whether these events had occurred since the previous interview wave. In addition, whether or not the individual received treatment to change criminal behavior attitudes was used as a control variable in this study to account for treatment receipt (Mowen, et al., 2018). As mentioned previously, this variable was used as the measure of cognitive-behavioral programming in the current study. A cross-lagged dynamic panel model was utilized to examine the research questions presented here (Mowen et al., 2018). The study authors argue that this is an appropriate methodology because it “(a) allows for estimation of fixed-effects coefficients for time varying constructs, (b) allows for time-invariant predictors to be directly estimated, and (c) enables us to lag Wave 1 measures (preincarceration) of the dependent variables as controls” (Mowen et al., 2018, p. 1298).

Results of this analysis indicated that receiving praise from the parole officer was linked with significantly decreased criminal behavior over time. An individual who received praise
from their parole officer experienced a 0.088-point decrease in the criminal offending scale over the time period examined here. In contrast, receiving sanctions from the parole officer was linked to having a 0.207-point increase in criminal offending over time (Mowen et al., 2018). An interaction of sanctions and incentives was significant and positive, indicating that using both sanctions and incentives together results in an increase in criminal behavior. The interaction of praise and reprimands was not statistically significant. Receiving treatment to change criminal behavior attitudes did not have a statistically significant impact on criminal behavior (Mowen et al., 2018).

There are several ways in which the current study differs from the analyses outlined above and advances the literature. First, the sample utilized in the current study is limited to the states that used branded cognitive-behavioral programming. Thus, the men in the present study came from one of five different states. In contrast, Lattimore and Visher (2013) and Visher et al. (2016) utilized all twelve adult male programs, which come from twelve different states. Lattimore and her colleagues (2012) as well as Gosse (2013) examined all twelve adult male sites as well as all the states with adult female programs. While there is not any evidence in the literature that branded programs are more effective than nonbranded programs (Landenberger and Lipsey, 2005), different results may nonetheless be expected in the current study since a smaller, more focused sample is being utilized.

A second key difference is the analytic strategy being used to examine the research questions. Many of the existing studies examining the SVORI data employ either survival analysis methods (Orrick, 2012; Lattimore et al., 2012; Gosse, 2013; Lattimore and Visher, 2013; Visher et al., 2016) and/or logistic regression models (Lattimore et al., 2012; Taylor, 2012; Lattimore and Visher, 2013; Taylor, 2015; Taylor and Becker, 2015; Visher et al., 2016). Orrick
(2012) conducted mediation analyses in her study, examining whether offender attitudes (self-efficacy and readiness to change) have an indirect effect on recidivism through life circumstances. Additionally, Mowen et al. (2018) utilized a cross-lagged dynamic panel model. The current study advanced this literature by utilizing multiple mediation analyses using the PROCESS macro (Hayes, 2013). Multiple mediation analysis allows for the examination of how the treatment variable impacts an outcome variable in a situation in which one or more mediating variables are located causally between the treatment and outcome (Hayes, 2013). Conducting multiple mediation analyses using the PROCESS macro advances the current literature because it allows for testing the effect of multiple mediator variables in the same model simultaneously. In addition, the PROCESS macro allows for bootstrapping to be utilized (Hayes, 2013). Bootstrapping is a nonparametric resampling method that provides confidence intervals for the indirect effects in a mediation model (Preacher and Hayes, 2008). Bootstrapping is an improvement over the Sobel (1982) test used in Orrick’s (2012) mediation analyses due to the Sobel (1982) test’s “relatively low power combined with the unrealistic normality assumption” (Hayes, 2013, p. 105). Mediation analyses and bootstrapping are discussed in greater detail in the next chapter.

Additionally, the current study and some of the existing studies in the literature differ in the way in which key variables are measured. For example, Orrick (2012) also created her self-efficacy measure using the self-efficacy and locus of control scales present in the SVORI dataset. However, Orrick’s (2012) measure and the current study’s self-efficacy measure ultimately use several different questions. Orrick (2012) utilizes the readiness to change scale from the SVORI dataset in her analysis, which is used to measure motivation to change in the current study. Orrick (2012) uses fewer survey questions in her version of the scale than are used in the current
study. In addition, Taylor (2012; 2015) and Taylor and Becker (2015) used the SVORI legal cynicism scale in her analyses. This scale is used in the current analysis to create the perceptions of crime and deviance scale. While Taylor (2012; 2015) and Taylor and Becker (2015) used the original SVORI version of the scale, the current study uses fewer items in order to make the scale more internally consistent. In addition, Taylor (2012; 2015) and Taylor and Becker (2015) used a weighting procedure on this scale to address cases with missing data on some items. This weighting procedure was not employed in the current study, as there was little missing data on this scale using the present study’s sample. These scales and measurements are discussed in more detail in the methodology chapter.

In addition, the measures of self-efficacy, readiness to change, and legal cynicism are used differently in the present study than they were in previous analyses. As discussed above, the present study utilizes multiple mediation analysis to address the research questions. The three measures serve as the mediator variables in the multiple mediation models. In contrast, self-efficacy and readiness to change were the independent variables in Orrick’s (2012) analysis. Legal cynicism was used as a control variable in Taylor’s (2012; 2015) and Taylor and Becker’s (2015) analyses.

Ultimately, while some of the studies in the existing literature examined the effect of cognitive-behavioral treatment on recidivism and others explored the effect self-efficacy, readiness to change, or legal cynicism on recidivism, this present study advances the literature by considering the importance of both. Specifically, the current study looks at the direct effect of cognitive-behavioral on self-efficacy, motivation (readiness) to change, and on perceptions of deviance (legal cynicism). The effect of self-efficacy, motivation to change, and perceptions of deviance on recidivism is also explored. Lastly, the indirect effect of cognitive-behavioral
program participation on recidivism through self-efficacy, motivation to change, and perceptions of deviance is considered. These indirect effects are examined using multiple mediation analyses. Other SVORI studies in the literature have not yet asked these questions and have not yet examined this data using these techniques.

Next, the studies utilizing SVORI adult males and at least one recidivism outcome are examined. In the research report conducted by Lattimore, Steffey and Visher (2010), presented some of the findings from the SVORI adult male impact evaluation. Specifically, this report examined the receipt of programs and services for SVORI participants and for the control group participants. In addition to recidivism, outcomes including housing, employment, and substance use were examined. The impact evaluation was conducted using a sample of 1,697 men at Wave 1 (863 men in the experimental group and 834 in the control group) (Lattimore et al., 2010).

Propensity score methods were used to develop weight variables that could be used to examine the population average treatment effect, using the same method as Lattimore et al., (2012). Recidivism was measured using self-reported crime, rearrest, and reincarceration. Self-reported crime was measured as whether the individual reported perpetrating violence and whether they reported engaging in any criminal behavior. Rearrest and reincarceration were measured using NCIC and state administrative data (Lattimore et al., 2010).

The results of analysis indicated that the SVORI men received “substantially” higher levels of services compared to the control group of individuals who received treatment as usual (Lattimore et al., 2010, p. 100). Men who participated in SVORI receive significantly more coordination services (e.g. needs assessment, reentry planning, case manager), employment/education/skills services (e.g. employment, education, training to change criminal behavior), transition services (e.g. legal assistance, financial assistance, class for release), health
services (e.g. medical treatment, dental treatment, mental health treatment), domestic violence (e.g. batterer intervention group), and child services (e.g. parenting classes, help modifying child support) than men who participated in treatment as usual in the prerelease time period. In addition, most SVORI participants reported receiving treatment or classes to prepare for their release and were significantly more likely to receive transition services. SVORI participants were also significantly more likely to report participating in programming designed to change their criminal behavior attitudes (Lattimore et al., 2010).

In terms of recidivism and criminal behavior, SVORI participants were significantly less likely to report perpetrating violence and engaging in criminal behavior three months following release from incarceration. SVORI participants and control participants did not have significantly different likelihoods of rearrest during the first 24 months following release. Lastly, about 40% of both the treatment and control groups were reincarcerated 24 months following release from prison (Lattimore et al., 2010).

Wikoff’s (2015) analysis looked to explain why employment programs displayed such weak treatment effects in the reduction of crime despite criminological theories and observational studies that indicate employment reduces crime. Unobserved heterogeneity was examined to determine if it contributed to the weaker than expected treatment effects of employment programs. In addition, the study explored whether financial problems mediate the relationship between employment and recidivism (Wikoff, 2015).

In order to address the unobserved heterogeneity in the model, both group-based trajectory modeling and propensity score matching were employed. These two techniques used Wave 1 interviews and criminal history records to control for characteristics that impact which individuals were selected into the treatment group and which individuals were selected into the
control group (Wikoff, 2015). Duration models used measures of program experience, work experience, and predicted probability of participation to examine the time to rearrest for any offense. Time to rearrest was explored in a timeframe of three years. Lastly, longitudinal structural equation models examine time periods ranging from the prerelease period until 21 months following release from prison. LSEM measures include labor force participation, job quality, financial needs, self-reported criminal activity, and rearrest. Self-report data was obtained from the offender interviews and consisted of offenses committed during each interview period. Rearrest measures were taken from NCIC data and included both rearrest for any offense and rearrest for a specific offense (Wikoff, 2015).

Once the matching procedures were conducted, the results of this study’s duration models demonstrated that participants in education and employment programs had significantly lower rates of rearrest than nonparticipants. However, this effect was not long lasting and the significant difference disappeared by one year after release. There was not a significant difference in terms of number of arrests. Additionally, there was not a significant difference between program participants and nonparticipants in terms of time to rearrest (Wikoff, 2015). The results of the longitudinal structural equation models indicate that maintaining stable employment during Wave 2 was not significantly associated with Wave 3 or Wave 4 criminal activity. Indeed, as Wikoff (2015) highlights, “consistent employment during the third wave even appeared to increase men’s risk of engaging in crime during the fourth wave” (p. 105).

Zweig, Yahner, Visher, and Lattimore (2015) used general strain theory to examine whether physical victimization during incarceration increases an individual’s risk of recidivism following their release from incarceration. They hypothesized that feelings of anger and hostility or depression may mediate the relationship between victimization and recidivism following
release. This issue was examined with a sample of 543 men and 168 women from the SVORI impact evaluation. The individuals in this sample completed all four waves of the impact evaluation and had complete data in terms of victimization, negative affect scales, criminal behavior, and substance use (Zweig et al., 2015)

Recidivism was measured using self-reported offending and self-reported drug use. Self-reported offending was measured as whether the individual committed any criminal behavior or whether the individual committed any violent behavior. Individuals also reported if they illegally used at least one of number of different drugs in the past 30 days (e.g. cocaine, heroin, marijuana, amphetamines). Recidivism was measured at each of the follow-up waves (Zweig et al., 2015). Structural equation modeling was used to assess the direct and indirect effects and it also allowed for the testing for possible moderation effects of gender (Zweig et al., 2015).

Victimization during incarceration had a significant positive effect on any self-reported crime both three and nine months following release from prison. Victimization in prison also resulted in significantly higher hostility following release. This was then associated with a higher likelihood of crime at the nine and fifteen month interview (Zweig et al., 2015). Additionally, victimization while in prison was also associated with higher a higher likelihood of violent crime indirectly through post-release hostility. However, this association did not last beyond the nine-month interview. Lastly, respondents who were victimized during their incarceration noted experiencing higher levels of depression following their release from prison. This was associated with a higher likelihood of drug use at Wave 3 and Wave 4. When examining difference by gender, no statistically significant improvements in the violent criminal behavior model or drug use model were detected. Zweig et al. (2015) note that while there technically was a significant
difference between the genders when examining any criminal behavior, in reality it was a “substantively trivial improvement in model fit” (p. 105).

Link and Roman’s (2017) study explores the effect of child support debt on both employment and recidivism. Specifically, the study looked to understand three main questions. First, it aimed to answer whether increasing child support debt impacted the employment and recidivism of returning prisoners. Second, the analysis examined if these relationships between child support debt, employment, and recidivism varied over the course of fifteen months. Third, the effect of family instrumental support on recidivism was examined (Link and Roman, 2017).

The sample utilized for this analysis consists of 1,011 adult male participants in the SVORI impact analysis who also have minor children. Recidivism was measured using official arrest data from NCIC that indicated whether or not the individual was rearrested during the follow-up period. However, incarceration was used as a proxy measure for the small percentage (4%) of individuals who did not have rearrest data available (Link and Roman, 2017). A cross-lagged path model was estimated using generalized structural equation modeling. Missing data was addressed in two different ways. First, a Heckman selection model was employed to address selection bias due to attrition over the course of the three follow-up waves. Second, equation-wise deletion was utilized during the GSEM process. This means that individuals were only include in equations for which they had no missing data (Link and Roman, 2017).

Child support debt had did not have statistically significant effect on rearrest at any of the three follow-ups, though traditional significant levels were barely missed at Wave 2 (p=0.06) (Link and Roman, 2017). Legitimate employment did significantly reduce rearrest at the three-month (62%) and fifteen-month (61%) follow-ups. Employment did not have a significant impact on rearrest at the nine-month follow-up. Lastly, family instrumental support did not have
a statistically significant impact on rearrest at any of the follow-up waves (Link and Roman, 2017).

The study conducted by Chamberlain, Gricius, Wallace, Borjas, and Ware (2018) examined whether the relationship between offenders and their parole officers impacted recidivism following release from prison. This was addressed using two main research questions. First, the study examined whether offenders’ perceptions of their relationship with their parole officer impacted their recidivism. Second, it examined if the relationship between the type of contact, amount of contact, and recidivism was affected by whether or not the relationship between the offender and parole officer was supportive (Chamberlain et al., 2018).

This study uses the adult males from the SVORI study who were on parole following their release from incarceration. Recidivism was measured as whether or not the individual was reincarcerated using NCIC and state administrative data. Reincarceration was measured six months, twelve months, and eighteen months following release. A discrete hazard model with a random intercept was employed to predict the likelihood of reincarceration (Chamberlain et al., 2018).

Respondents who had a supportive relationship with their parole officer had significantly lower recidivism rates, with a 1-unit increase in supportive rapport resulting in a 34% decrease in likelihood of reincarceration. In contrast, individuals who believed their relationship with their parole officer to be unsupportive were significantly more likely to be reincarcerated. A one-unit increase in unsupportive rapport resulted in a 35% increase in the likelihood of being reincarcerated (Chamberlain et al., 2018). Individuals who met with their parole officer at least once a month were about 47% less likely to recidivate than individuals who had less frequent meetings. This was a statistically significant relationship. However, the type of parole officer
contact did not have a statistically significant impact on the offenders’ recidivism (Chamberlain et al., 2018).

Mowen and Boman (2018) examined the relationship between peer criminality, peer support, and post-release offending. Three research questions were posed to address this topic: (1) Does peer criminality affect recidivism following release from prison?; (2) Does peer support affect recidivism following release from prison, when controlling for peer criminality?; (3) Do high levels of peer support reduce the negative effect of peer criminality on recidivism use following release from prison? (Mowen and Boman, 2018).

This study employed a sample of 1,118 adult men from the SVORI dataset. Recidivism and substance use were both measured using self-report data. Self-reported crime consisted of a measure that indicated whether or not the individual had engaged in criminal behavior during the follow-up period (Mowen and Boman, 2018). A hierarchical generalized linear mixed model was used because it allows for the examination of both within-individual changes and between-individual changes over time, capturing both time varying and time invariant variables (Mowen and Boman, 2018).

The results of the analysis demonstrated that peer criminality had a statistically significant impact on self-reported offending. Respondents with a higher proportion of criminal peers had greater odds of self-reported criminal offending those with a lower proportion of criminal peers. This finding was stable across the various follow-up waves (Mowen and Boman, 2018). In addition, increases in peer support were significantly associated with decreases in the likelihood of self-reported crime. The combined interaction of peer criminality and peer support did not have a statistically significant impact on self-reported offending. This indicates that the two factors operate independent effects on recidivism (Mowen and Boman, 2018).
Stansfield, Mowen, and O'Connor (2018) examined the relationship between religion, spiritual support, and offending following release from prison. Specifically, the study aimed to understand whether religion and spiritual support could aid offenders in desisting after release from incarceration. In addition, the study examined whether this relationship between religion, spiritual support, and recidivism was moderated by the offender’s risk of reoffending (Stansfield et al., 2018).

A sample of 1,040 adult men from the SVORI dataset was used for these analyses. Criminal behavior was measured using self-reported offending. Individuals reported the criminal behavior they engaged in since the last interview wave, including whether they engaged in a violent crime, any form of crime against another individual, carried a weapon, possessed drugs, sold drugs, committed a property crime, committed a DWI or DUI, or were involved in any other crimes not listed (Stansfield et al., 2018). These responses were then used to create a summated scale, with larger values representing more criminal behavior. The analysis plan for this study involved employing a series of random-effects count regression models (Stansfield et al., 2018).

The results of these models indicate the religious assistance and support was not significantly linked with criminal behavior. When examining the sample by risk level, the results indicate that, for the low risk portion of the sample, religious assistance and support was not significantly associated with criminal activity. The same held true for the sample of high-risk individuals (Stansfield et al., 2018).

Workman’s (2018) thesis examined whether mentoring was effective in reducing offending following release from incarceration. Specifically, the analysis looked at whether having a mentor as part of a prison program impacted an individual’s likelihood of recidivism compared to individuals who do not receive any mentoring services. A sample of approximately
1,000 adult male respondents from the SVORI dataset who have completed the criminal offending survey questions was utilized for this analysis (Workman, 2018).

Criminal offending was measured using the self-reported criminal activity that occurred since the previous interview. Individuals were asked if they committed “a violent crime, any type of crime against another individual, possessed drugs, sold drugs to others, any other kind of drug crime, a DWI or DUI, a property crime, or another crime not included in the previously listed crimes” (Workman, 2018, p. 15). The responses to these survey questions were then used to create a summated scale. The analyses were conducted using negative binomial regression (Workman, 2018).

The findings of this study indicate that individuals who received mentoring services actually committed 9% more crime than those individuals who did not receive mentoring services. However, this difference was not statistically significant (Workman, 2018). This lack of a significant difference was maintained even after adding a number of additional control variables to the model, such as age, ethnicity, education level, need for mentoring services, marital status, Wave 1 offense, employment status prior to Wave 1 and prior criminal history variables. As such, there was not any evidence that mentoring reduced criminal offending following release from incarceration (Workman, 2018).

The results of the studies examined above are decidedly mixed. While there are a number of studies that found interventions or other conditions that had a statistically significant impact on recidivism, other analyses found no significant difference between their treatment and control groups. For example, many of the studies here (e.g. Lattimore et al., 2010; Wikoff, 2015; Link and Roman, 2017) did not find a significant difference between the treatment and the control group in terms of rearrest. In contrast, Link and Roman (2017), were able to conclude that
legitimate employment was able to significantly reduce rearrest during the three month and fifteen month follow-up periods. Stansfield and colleagues (2018) found that religious or spiritual programs did not have a significant effect on self-reported criminal behavior while Lattimore and her colleagues (2010) concluded that SVORI participants were significantly less likely to report engaging in violence and other criminal behavior three months after release. In terms of reincarceration, Chamberlain et al. (2018) found that individuals with a supportive parole officer relationship had a significantly lower risk of reincarceration than those with an unsupportive relationship. Conversely, there was not a significant difference in terms of reincarceration between SVORI and non-SVORI participants (Lattimore et al., 2010).

**Conclusion**

In this chapter, the dataset utilized for the present study was outlined and discussed. The adult male component of the Serious and Violent Offender Reentry Initiative (SVORI) impact evaluation dataset, which consists of four waves of offender interviews as well as official offending data, was utilized for the current study. Twelve adult offender programs were selected for participation in the evaluation based on factors such as program quality and anticipated case flow. Offenders were selected for participation using both random assignment and quasi-experimental procedures, depending on the location. Trained field interviewers conducted offender interviews approximately 30 days prior to the respondents’ release from prison, about three months post-release, about nine-months post-release, and about fifteen months post-release. Official criminal record data was obtained from state-level agencies. Lastly, other studies utilizing SVORI adult male data were examined along with a discussion of how the current study advances the existing literature. In the next chapter, the research design and methods of the current study are outlined.
Present Study Research Design and Methods

Introduction

In this chapter, the sample utilized in the present study is described along with the key measures that were used in the analyses. In addition, this chapter outlines the analytic strategy of the current study. Specifically, the use of propensity score matching procedures and mediation analysis methods is discussed.

Sample

As discussed in the previous chapter, the present study utilizes the dataset created as part of the SVORI study to test the hypotheses. Specifically, this study targets adult male respondents from SVORI sites that state they employed a specific, branded cognitive-behavioral program. Five states (Indiana, Kansas, Nevada, Oklahoma, and Pennsylvania) indicated that they utilized branded cognitive-behavioral interventions, such as the Thinking for a Change program or the Criminal Thinking Errors program, at the time of data collection. Although the full SVORI dataset includes adult male, adult female, and juvenile male components, the adult male sample is the most advantageous for the present study for two reasons. First, the adult male sample is sizeable, even with the attrition that occurred over the course of four waves of respondent interviews. There are 1,697 adult male respondents in the SVORI dataset. Ultimately, 602 male respondents were incarcerated in one of the states that were targeted. There were 473 of these respondents who completed at least one of the SVORI follow-up interviews (Table 2). In contrast, the female sample in its entirety consists of only 357 respondents and the juvenile male in its entirety sample consists of only 337 respondents at Wave 1 (Lattimore et al., 2012).

In addition, the adult male component of the dataset includes more information than either the adult female or juvenile male components. Due to the relatively small sample sizes of
the adult female and juvenile male samples, some data is masked and not made available to secondary researchers. This includes data related to the respondents’ geographic location (Lattimore and Visher, 2011b). Furthermore, adult males are the largest demographic group in the U.S. correctional system and as a result, are the largest consumers of correctional programming (Carson, 2014). The present study examines adult males because adult males are, ultimately, the group most impacted by correctional programs.

The current study also utilizes respondents from select states using branded programs as a method of addressing a lack of information on specific programs in the dataset. As Lattimore and her colleagues (2012) underscore, their research was not designed as a process evaluation and, as such, detailed information on specific programs is not available. Nonetheless, five states (Indiana, Kansas, Nevada, Oklahoma, and Pennsylvania) do provide information regarding which branded cognitive-behavioral program they implemented (Table 3). While the literature does not indicate that branded programs are more effective in reducing recidivism than nonbranded programs when controlling for participant characteristics and implementation factors (Landenberger and Lipsey, 2005), there are benefits to examining these branded programs. With branded cognitive-behavioral programs, it is possible to obtain information regarding the programs’ curricula as well as the targeted goals and skills of the programs. However, while this type of information is attainable, this does not allow for the assessment of how the institutions in these five states actually implemented the branded cognitive-behavioral programs or how closely the curricula were followed.

**Description of Key Measures**

There are a number of concepts that are explored in the present analysis. In the following section, these concepts are detailed, with further information available in Table 4 and Table 5.
One of the key areas explored here is participation in cognitive-behavioral programming. The use of cognitive-behavioral programs in a correctional context is based in the suggestion that criminals may utilize different thinking processes than noncriminals. These flawed thinking patterns are seen as contributing, in part, to their criminal behavior and must be addressed (Allen et al., 2001). As discussed previously, the present sample includes only the five adult male impact sites that confirm specific cognitive-behavioral interventions are being used. Indiana, Kansas, Oklahoma, and Pennsylvania all use the Thinking for a Change (TFAC) program while Nevada uses the Criminal Thinking Errors (CTE) program (Lattimore and Steffey, 2009).

In the offender surveys, respondents were asked several questions regarding their program experiences, including questions about their program needs, exposure to programs and services, as well as the usefulness of programs. These questions are posed during all four waves of the interview process. For the current study, the independent variable or treatment variable is the respondents’ participation in cognitive-behavioral programming. This is measured using an interview question that asks respondents: “Since you have been incarcerated this time, have you received training on how to change your attitudes related to criminal behavior?” (Lattimore and Visher, 2011b, p. 74). This interview item was intended to capture offenders’ participation in cognitive-behavioral programs, specifically those cognitive-behavior programs aiming to change attitudes regarding criminal behavior (Lattimore, Steffey, and Visher, 2010; P. Lattimore, personal communication, October 14, 2014). Approximately 53% of the adult males in this sample said they participated in cognitive-behavioral programming while 44% said they did not (M=0.53, SD=0.50). Previous analyses using these data have utilized additional forms of programming to create a broader measure of cognitive-behavioral interventions. For example, the original analyses of the SVORI data utilized programs that help with offenders’ personal
relationships and anger management programs along with programs targeted to changing criminal attitudes in one measure of cognitive-behavioral programming (Lattimore et al., 2012). In addition, Gosse (2013) used programs that help with offenders’ personal relationships, anger management programs, and life skills programs along with programs targeted to changing criminal attitudes in her measure of cognitive-behavioral interventions.

There are a number of concepts that are explored related to the cognitive transformation view of desistance in the present study. These serve as the mediator variables in the current study (Figure 4). The first of these concepts is self-efficacy. Self-efficacy is described as the ability to organize and carry out the actions that are necessary to achieve a given task (Bandura, 1997). Bandura (1997) also argues that self-efficacy is a key aspect of agency, suggesting that if an individual does not believe that they have the ability to achieve a given result, then no attempt will ever be made.

To explore the concept of self-efficacy, a self-efficacy score was created for each offender. This score was calculated by averaging offenders’ responses to six questions from the existing ‘self-efficacy’ and ‘locus of control’ scales from the SVORI dataset. In these questions, offenders were asked the extent to which they agreed with statements regarding their current attitudes toward themselves and their own lives: (1) “There is really no way you can solve some of the problems you have”; (2) “Sometimes you feel like you’re being pushed around in your life”; (3) “You often feel helpless dealing with the problems of life”; (4) “You have little control over the things that happen to you”; (5) “There is little you can do to change many of the important things in your life”; (6) “Your life has gone out of control” (Lattimore and Visher, 2011b, p. 147). These interview items have four Likert-scale response options (Strongly Agree, Agree, Disagree, Strongly Disagree), with higher scores indicating higher levels of self-efficacy.
(Wave 1: M=2.90, SD=0.53; Wave 2: M=2.96, SD=0.51; Wave 3: M=2.91, SD=0.54). Based on the standard of alpha=0.70 established by Nunnally (1978), the internal consistency of this scale (calculated using the present sample) is above acceptable levels (Wave 1 alpha=0.72; Wave 2 alpha=0.75; Wave 3 alpha=0.78).

While Orrick (2012) also combined elements of these two scales to create a single self-efficacy scale, her analysis utilized a total of eight items. These two additional items (“What happens to you in the future mostly depends on you”; “You can do just about anything you really set your mind to” [Lattimore and Steffey, 2011b, p. 147]) are not included in the present analysis because confirmatory factor analysis indicates they do not load on the same factor as the other six survey items. Confirmatory factor analysis indicates that the six survey items used in the current study all load on one factor (Wave 1: eigenvalue=2.517, factor loadings > 0.582; Wave 2: eigenvalue=2.754, factor loadings > 0.599; Wave 3: eigenvalue=2.914, factor loadings > 0.630).

Motivation to change one’s criminal offending behavior is the second aspect of cognitive transformation that is explored in this study. Motivation has been defined as an individual’s readiness of desire to change their behavior (Miller and Rolnick, 1991). Motivation to change plays a key role in the process of ending one’s criminal career. The desistance paradigm puts great weight on the experiences of offenders who have successfully changed their behavior and takes the opinions and views of correctional clients seriously (Maruna and LeBel, 2010). Given this, Maruna and his colleagues (2004a) argue that correctional treatment interventions should focus on aiding or complementing offenders’ own desires and motivations to change.

Motivation to change is measured in the present study using the items from the ‘readiness for change’ scale in the SVORI dataset. As in the previous cognitive transformation measure
discussed above, the offender’s responses to a series of statements are averaged to create their motivation score. However, the motivation scale includes two sets of statements: the first was used in pre-release interviews and if the respondent was reincarcerated during any of the follow up interviews while the second was used in post-release interviews if the respondent was not reincarcerated.

For the present analysis, three interview statements were utilized in the Wave 1 interviews. These include: (1) “You want to get your life straightened out”; (2) “You will give up friends & hangouts that get you into trouble after you are released”; (3) “You think you will be able to stop committing crimes when you are released from incarceration” (Lattimore and Visher, 2011b, p. 147-148). In the post-release interviews, the four questions that were asked of both reincarcerated and non-incarcerated individuals are utilized. These include: (1) “You want to get your life straightened out”/ “You are working to get your life straightened out”; (2) “You think you will need help in staying straight”/ “You are willing to accept help in dealing with staying straight”; (3) “You will give up friends & hangouts that get you into trouble after you are released”/ “You are trying to give up friends & hangouts that get you into trouble”; (4) “You think you will be able to stop committing crimes when you are released from incarceration”/ “You are trying to stop committing crimes” (Lattimore and Visher, 2011b, p. 147-148). The statement “You think you will need help in staying straight” was excluded from the Wave 1 interviews as confirmatory factor analysis indicated that this item loaded on a separate factor from the other items in the scale in this interview wave. Following its removal, all interview items loaded on the same factor (Wave 1: eigenvalue=1.601, factor loadings > 0.700; Wave 2: eigenvalue=2.404, factor loadings > 0.710; Wave 3: eigenvalue=1.922, factor loadings > 0.629; Wave 4: eigenvalue=2.045, factor loadings > 0.616).
This is similar to the approach taken by Orrick (2012) in her analysis. However, Orrick (2012) only utilized three of these pairs of questions to measure motivation in her study. The questions directed at needing or accepting help staying straight were eliminated from her analysis (Orrick, 2012). These questions use a four-item Likert scale (Strongly Agree, Agree, Disagree, Strongly Disagree), with higher scores indicating higher levels of motivation to change one’s behavior (Wave 1: M=3.65, SD=0.41; Wave 2: M=3.53, SD=0.43; Wave 3: M=3.41, SD=0.45; Wave 4 M=3.40, SD=0.43). After calculations using the present sample, this scale has acceptable internal consistency for Wave 2 (alpha=0.77). However, the internal consistency is below acceptable levels for Wave 1 (alpha=0.55) and Wave 3 (alpha=0.63).

The respondents’ perception of deviance and crime is the third form of cognitive transformation explored in the current study. The change in perceptions of crime and deviance is a key component of Giordano and colleagues’ model (2002). Giordano and her colleagues (2002) contend that law-violating behaviors begin to seem irrelevant, negative, and undesirable once the offender has adopted a more law-abiding identity. The desistance process can be viewed as fairly complete once this law-abiding identity has been adopted and law-violating beliefs are rejected (Giordano et al., 2002).

The change in perceptions of criminal or deviant behavior is measured using four offender interview items from the ‘legal cynicism’ scale from the SVORI dataset. This is the same legal cynicism scale originally created by Sampson and Bartusch (1998). These items include: (1) “Laws are made to be broken”; (2) “It’s okay to do anything you want as long as you don’t hurt anyone”; (3) “To make money, there are no right & wrong ways, only easy & hard ways”; (4) “Fighting with friends & family is nobody else’s business” (Lattimore and Visher, 2011b, p. 149). A fifth item from the original legal cynicism scale (“These days a person has to
live pretty much for today & let tomorrow take care of itself” [Lattimore and Visher, 2011b, p. 149]) is not utilized in the present analysis, as this item decreases the internal consistency of the scale in Waves 2 and 3. This item does not impact the internal consistency of the scale in Wave 1. In addition, confirmatory factor analysis indicated that this question loads on a different factor from the other perception of deviance items in Wave 1. The SVORI legal cynicism scale was also utilized in Taylor’s (2012) examination of the SVORI data. However, this analysis used all five items from the original SVORI legal cynicism scale.

As in the other scales, offenders were asked to share their beliefs and attitudes regarding these statements using a four-item Likert scale (Strongly Agree, Agree, Disagree, Strongly Disagree). The respondents’ scores for each of these items were averaged to create their perception of deviance score, with higher scores indicating more negative perceptions of deviance (Wave 1: M=3.04, SD=0.56; Wave 2: M=3.07, SD=0.58; Wave 3: M=3.02, SD=0.58). The perception of deviance scale for the present study has acceptable internal consistency using the proposed sample for Waves 2 and 3 (Wave 2 alpha=0.74; Wave 3 alpha=0.74). However, the internal consistency of the Wave 1 scale is slightly below acceptable levels (Wave 1 alpha=0.67). Confirmatory factor analysis demonstrates these four questions all load on the same factor (Wave 1: eigenvalue=2.035, factor loadings > 0.595; Wave 2: eigenvalue=2.287, factor loadings > 0.625; Wave 3: eigenvalue=2.285, factor loadings > 0.646).

In addition to the cognitive transformation concepts, there are a number of measures that are used in the propensity score matching process. As Caliendo and Kopeining (2005) highlight, variables included in the propensity score model should influence both the decision to participate in treatment as well as the outcome variable. In the present study, a variety of covariates were examined, including covariates addressing demographic traits, offense characteristics, criminal
history, drug and alcohol history, mental health, as well as participation in prison programming. Age is used as one of the covariates in for the propensity score matching due to its overall importance in the process of desistance from crime (e.g. Moffitt, 1993; Sampson and Laub, 1993). In addition, age was found to be a significant predictor of program participation in both drug treatment (Belenko and Houser, 2012) and post-secondary education programs (Knepper, 1990). In both instances, older offenders were more likely to be participants than younger offenders (Belenko and Houser 2012; Knepper, 1990). In the current study, age is measured using a variable from the original SVORI dataset that indicates the offender’s age at the time of their Wave 1 interview. In the subsample being utilized for the current analysis, the respondents range in age from 18 to 57 years old, with a mean age of approximately 29 years (M=28.82, SD=7.22).

Race is included in the model because it is an immutable trait and it also has been shown to influence treatment participation in some analyses. In terms of drug treatment interventions, Belenko and Houser (2012) found that race did significantly impact the likely of participation, with other races being significantly more likely to participate than whites. In contrast, Pelissier (2004) did not find a significant relationship between race and drug treatment participation in her study. In addition, Knepper (1990) found that white male inmates were significantly more likely to participate in college level programming than black inmates or inmates belonging to other racial groups. Race is measured using a variable from the SVORI dataset. In the interview, respondents were asked to identify which racial or ethnic group they felt best described themselves. Respondents were able to choose from one or more of the following six racial categories: White; Black or African American; American Indian or Alaska Native; Asian or East Indian; Hispanic, Latino, or Spanish; Native Hawaiian or other Pacific Islander. This was then
collapsed into a series of dichotomous variables (Lattimore and Visher 2011b). For the present study, the variable measuring race in terms of white and non-white offenders is utilized. The sample of respondents for the current study is approximately 33% white and approximately 66.7% non-white.

An offender’s current offense can also have an impact on their likelihood of participating in programming and their likelihood of recidivism. Pelissier (2004) concluded that offenders whose current offense was of “moderate-severity” were significantly more likely to participate in drug treatment programming than those incarcerated for “high-severity” offenses (p. 1420). The type of crime an individual is currently incarcerated for is also relevant when considering their recidivism potential, as the likelihood of varies depending of the type of crime. In their analysis, Durose, Cooper and Snyder (2014) demonstrated that about 82% of individuals that were convicted of a property crime were rearrested for a new crime within five years while about 71% of violent offenders were rearrested within five years. In the present study, current offense was examined with a series of dichotomous variables from the SVORI dataset that measured whether or not the offense was: a person or violent crime; a property crime; a drug crime; a public order or other crime; or a parole violation. This is the same measurement technique as was used in the SVORI study’s propensity score model (Lattimore and Steffey, 2009).

Measuring the amount of time respondents have served on their current sentence is also important to understanding both treatment participation and recidivism after release. Jackson and Innes (2000) found that offenders who had served longer sentences were more likely to have participated in self-development programs. Self-development programs include “vocational training classes, college courses, continuing education, anger/stress management and/or values programs” (Jackson and Innes, 2000, p. 7). Additionally, time served has an important effect on
recidivism. In their meta-analysis, Gendreau, Cullen, and Goggin (1999) determined that, in both low and high risk samples, individuals who were incarcerated for a longer period of time recidivated at a higher rate. In the current study, time served is measured using the raw number of days the respondent has served in prison at the time of their Wave 1 interview. The original SVORI study did not include a measure of time served in their propensity score model (Lattimore and Steffey, 2009).

The presence of minor children may have an additional impact on the decision to participate in a treatment program. Pelissier (2004) found that individuals who were planning to live with minor children following their release were more likely to enter drug treatment. In addition, Rose and Rose, (2014) found that receiving visits from minor children was a significant predictor of college program participation for both male and female offenders. Parenting may also affect an individual’s likelihood of recidivating. A study conducted by Zoutewelle-Terovan, van der Geest, Liefbroer, and Bijleveld (2014) found that parenthood was played a significant role in male offending, with males in the study experiencing a 33% decrease in their conviction rate while being a parent. The current study examined this issue by utilizing a survey question that asked the respondent whether they (and their partner, if applicable) have the primary care responsibilities for any of their own children under the age of 18. Primary care responsibilities mean that the child lives with the respondent most of the time and that the respondent feeds and clothes the child without being paid to do so (Lattimore and Visher, 2011b). The issue of the respondents’ children was not addressed in the original SVORI propensity score model (Lattimore and Steffey, 2009).

Since the present study utilizes measures of recidivism as the outcome variable, it is also important to match respondents’ based on their risk of criminal behavior. Risk assessment is
important in predicting an offender’s potential involvement in criminal behavior. In addition, risk assessment is useful in determining an individual’s likelihood and even their eligibility for treatment participation (Taxman, Cropsey, Young, and Wexler, 2007). In the current study, risk of reoffending is measured using a different procedure from the original SVORI study. First, it is important to note that the original SVORI study did not use a measure of risk in their propensity score model, though one does exist in the SVORI data. However, some of the variables and measures used in the construction of the risk scale do appear in their propensity score model (Lattimore and Steffey, 2009). In the SVORI study, the risk of reoffending was measured using a scale consisting of eight different indicator variables, which were designed to approximate the eight items in the Level of Service Inventory-Revised: Screening Version (LSI-R: SV). These are: (1) having two or more prior convictions; (2) being arrested prior to age 16; (3) being unemployed; (4) having criminal friends; (5) having an alcohol or drug problem; (6) having psychological or mental health issues; (7) having a ‘nonrewarding’ family; (8) attitudes or orientations supportive of crime (Lattimore et al., 2012, p. 32-33). Rather than utilizing this risk scale, the current study uses separate measures that aim to address these core areas of risk from the LSI-R: SV.

Research has demonstrated that the LSI-R is a good tool for measuring offender risk. One example of this is a meta-analysis conducted by Gendreau, Goggin, and Smith (2002). In this examination, the results indicated the LSI-R was significantly correlated with both general recidivism ($r = 0.42$) as well as violent recidivism ($r = .29$) (Gendreau, Goggin and Smith, 2002). In another analysis, the LSI-R had a stronger correlation with recidivism ($r = 0.35$) than other risk scales examined (Gendreau, Little, and Goggin, 1996). The current study used a series of individual variables and scales to examine these eight areas of the LSI-R: SV.
The first aspect of risk from the LSI-R: SV that is examined in the current study is the individual’s prior criminal history. In their analysis, Belenko and Houser (2012) found that those individuals with more prior arrests were more likely to engage in drug treatment. In contrast, Knepper (1990) found that post-secondary students were more likely to not have any prior conviction history. In the current analysis, criminal history was examined using each individual’s arrest rate, conviction rate, and incarceration rate. These rates were calculated by dividing the number of arrests, convictions, or incarcerations by the individual’s age at the time of their Wave 1 interview. The same calculation method for arrest, conviction, and incarceration rate is utilized in the original SVORI propensity score model (Lattimore and Steffey, 2009).

Criminal history is additionally examined using a survey question that asks the respondent whether or not they have engaged in violent activity in the 6 months prior to their current incarceration. Respondents are asked if they: threatened to hit someone with something that could hurt them; threw anything at someone; pushed, grabbed or shoved someone; slapped, kicked, bit, or hit someone; or used or threatened to use a weapon on someone (Lattimore and Visher, 2011b). These variables were combined into a single dichotomous covariate that indicates whether or not the respondent perpetrated any violent behavior. This was included in the original SVORI propensity score model but it was not part of the risk measure (Lattimore et al., 2012; Lattimore and Steffey, 2009).

The second risk-related area is focused on whether the individual was arrested prior to age 16. This is measured using the respondent’s age at first arrest and their juvenile correctional history. Offenders were asked to report how old they were at the time of their first arrest. Additionally, they were asked if they have ever spent time in a juvenile correctional facility. In the SVORI risk measure, only age at first arrest was used to address arrest before the age of 16.
(Lattimore et al., 2012). However, juvenile correctional history was included in the SVORI propensity score model (Lattimore and Steffey, 2009). Both of these survey questions clearly highlight the respondents’ early official criminal history.

Pelissier (2004) found that pre-incarceration employment was not significantly linked to participation in a drug treatment program. However, Jackson and Innes’ (2000) study suggested that offenders who had employment prior to their incarceration were significantly more likely to participate in self-development programs. Unemployment was addressed with a survey question that asked whether the respondent was employed during the 30 days prior to their current incarceration. This differs from how employment is calculated in the original SVORI risk measure. In the original SVORI risk measure, employment was calculated using both pre-release employment and work release jobs. Respondents were treated as employed if they had a work release job. If the offender did not have work release and had been incarcerated for one year or more, they were treated as unemployed. The pre-incarceration job status was used for offenders without work release who had been incarcerated for less than one year (Lattimore et al., 2012). However, the current study does measure employment in the same manner as in the SVORI propensity score model (Lattimore and Steffey, 2009).

The presence of criminal friends, the fourth risk component, was measured with a variable that was calculated using two survey questions. The first question asked respondents if any of the friends they had prior to their current incarceration had ever been convicted of a crime. The second question asked if any of these same friends has ever done time in a correctional facility. These two variables were merged together to create one variable that examined the presence of criminal friends. An individual was considered to have criminal friends if they answered “yes” or “I don’t know” to either of the two questions. They were considered to
not have criminal friends if they answered “no” to either of the above questions. The coding used in the present study was also used in the original SVORI risk measure. However, the SVORI risk measure also included a measure of gang membership in their examination of criminal peers (Lattimore et al., 2012). This measure of gang membership is not an acceptable covariate for propensity score matching since it asks the individual about the current gang status, not their status prior to their program participation (Lattimore et al., 2012). The SVORI propensity score model did not use a measure of peer criminality for the adult male sample (Lattimore and Steffey, 2009).

The criminality of family members is also examined as part of the fourth component of risk. Using the same coding scheme as peer criminality, survey questions asked respondents if anyone in their family had ever been convicted of a crime or if their family members had ever done time in a correctional facility. These questions were used to examine the criminality of the respondents’ family (Lattimore et al., 2011b). Neither the SVORI risk measure nor the propensity score model included a measure of family criminality (Lattimore et al., 2012; Lattimore and Steffey, 2009).

Several variables were utilized in the current study to explore the presence of an alcohol or drug problem, the fifth concept from the LSI-R: SV. First, a survey question that examined whether the respondent had ever received professional alcohol or drug treatment (prior to their incarceration) was used. In addition, a series of three dichotomous variables were used. These variables asked whether the respondent used, in the 30 days prior to their incarceration, alcohol, marijuana, or other drugs, respectively (Lattimore and Visher, 2011b). These four variables were used to address drug and alcohol use in the SVORI propensity score model as well (Lattimore and Steffey, 2009). However, the SVORI risk measure, respondents were asked whether or not
they used alcohol, marijuana, or a number of other drugs in the 30 days prior to incarceration. Those who did engage in alcohol and drug use were also asked how often they engaged in this behavior for each form of drug (Lattimore et al., 2012).

The presence of mental health or psychological problems, the sixth component, is measured using a single variable. A survey question asked respondents if they had ever received treatment for a mental health problem prior to their current incarceration (Lattimore and Visher, 2011b). This measure is also included in the SVORI propensity score model (Lattimore and Steffey, 2009). In the SVORI risk measure, mental health and psychological issues are measured using a number of indicators. These indicators include: perpetration of violence in the 6 months prior to incarceration, the presence of a high school diploma or GED, whether the individual believes they need a batterer intervention program, the self-efficacy scale score, and the individual’s score on the SA-45 scale. These measures are then all collapsed down to a single dichotomous indicator (Lattimore et al., 2012).

The seventh component of the LSI-R: SV examines whether the offender has a nonrewarding family. A family support scale was created using a series of ten statements. These include: “I feel close to my family”; “I want my family to be involved in my life”; “I consider myself a source of support for my family”; “I fight a lot with my family members”; “I often feel like I disappoint my family”; “I am criticized a lot by my family”; “I have someone in my family to talk to about myself or my problems”; “I have someone in my family to turn to for suggestions about how to deal with a personal problem”; “I have someone in my family who understands my problems”; “I have someone in my family to love me and make me feel wanted” (Lattimore and Visher, 2011b, p. 37).
The answers to each of the statements are dichotomized and the values are added together to create a scale with a maximum value of 10 (alpha=0.71). An individual is excluded and counted as missing if he has missing values for more than one of these statements. This is similar to the method used in the SVORI risk measure. However, the SVORI risk measure differed in that it required two missing values for the individual to be considered missing from the scale. If one item was missing, the mean of the scale was imputed to replace the missing value (Lattimore et al., 2012). The SVORI propensity score model does not include a measure of family support for the adult male sample (Lattimore and Steffey, 2009).

In addition to this measure of a supportive family, the current study also utilized a measure of a steady romantic relationship to address this component. The respondent is asked to report whether or not they were in a steady romantic relationship in the 6 months prior to their current incarceration. The SVORI propensity score also measures steady romantic relationships using this variable (Lattimore and Steffey, 2009). The SVORI risk measure does not make use of any measures of romantic relationships (Lattimore et al., 2012).

The eighth and final aspect of the LSI-R: SV focuses on the respondent’s attitudes and orientations towards crime. While the SVORI dataset does include measures of the offenders’ attitudes and opinions towards crime and deviance, none of these measures are appropriate for use in a propensity score model. These measures are not appropriate because the survey questions asked the offender to report how they currently feel about various issues related to crime and deviance. Propensity score models require that measures influence the decision to participate in treatment (Caliendo and Kopeining, 2005). These measures cannot influence the participation decision if they occurred after the individual participated in treatment. Given this, the current study’s propensity score model does not include a measure of attitudes and
orientations towards crime. The original SVORI study did not include a measure of these attitudes either (Lattimore and Steffey, 2009).

Both outcome variables for the current study involve the respondents’ recidivism. This is an outcome measure whose importance cannot be understated, especially for most corrections officials, policymakers, victims and other stakeholders. As discussed previously, the SVORI dataset provides several different measures of respondent recidivism. This includes the official records data provided by respondents’ state-level records. In addition, offenders were asked to self-report their criminal activities following their release (Lattimore and Steffey, 2009; Lattimore and Visher, 2009). Self-report measures have been demonstrated to be acceptably valid and reliable (see Thornberry and Krohn, 2000). Nonetheless, it is important to keep in mind that offenders may possibly view interviewers as being associated with the prison and the criminal justice system and thus be hesitant to discuss their offending. However, as Table 4 indicates, a sizeable portion of the sample reported engaging in criminal behavior since their release from incarceration.

In earlier analyses using these data, recidivism was calculated using multiple measures. The self-report data was categorized using four yes/no items: no perpetration of violence; complied with conditions of supervision; no criminal behavior; and not reincarcerated at follow-up. The official measures utilized included rearrests (from the NCIC data) and reincarcerations (from state agency data) at each of the follow-ups. The official recidivism data are then categorized by crime-type (e.g. property, drug, violent) (Lattimore et al., 2010). However, the NCIC rearrest data is no longer available to researchers.

The current analysis employs two measures of recidivism. The first measure of recidivism is reincarceration. This measure utilizes the official state level data in the SVORI
dataset and indicates whether or not the offender has been reincarcerated by the time of their 3-month, 9-month, and 15-month interviews. The 9-month variable is calculated by adding together the individuals who were reincarcerated in Wave 2 and Wave 3, ensuring that each individual is only counted once. The same method is used to create the 15-month variable, instead using reincarceration from Wave 2, Wave 3, and Wave 4. Approximately 10% of the current sample was reincarcerated at the time of their 3-month interview (M=.09, SD=.29). Furthermore, about 25% of offenders had been reincarcerated by the time of their 9-month interview (M=0.25, SD=0.43) and about 34% had been reincarcerated by the time of their 15-month interview (M=0.34, SD=0.47).

The second recidivism measure is a self-report measure of criminal behavior. Self-reported criminal activity was calculated using questions from the offender interviews in the SVORI dataset. In the SVORI dataset, offenders were asked a series of nine questions regarding their criminal behavior since their release. These nine questions are outlined in Table 5. These responses are then collapsed into one dichotomous variable for each interview wave that indicates whether or not the respondent has engaged in criminal activity since their release from incarceration (Lattimore and Visher, 2011b). Cumulative self-report measures are created in the same manner as is done with the recidivism measure. For the 9-month measure, the results from the Wave 2 and Wave 3 interview are combined, only counting each individual once. For the 15-month interview, the Wave 2, Wave, 3, and Wave 4 interview responses are tallied to determine how many individuals report reoffending over the course of the study.

For the current analysis, these dichotomous variables are used to indicate whether the offender had reported engaging in criminal activity since their release. Three months following release from incarceration, approximately 23% of offenders in the present sample reported
engaging in criminal behavior following their release from incarceration (M= 0.23, SD=0.42). At the time of the nine month interview, about 40% of respondents reported engaging criminal activities since their release from incarceration (M=0.40, SD=0.49). At the time of the 15 month interview, about 49% of respondents reported criminal behavior since their release from incarceration (M=0.49, SD=0.50).

By using multiple sources of recidivism data, the aim is to provide a more accurate and complete picture of the offender’s activities following their release from custody. These two forms of recidivism data can be further explored and broken down by crime type (e.g. committed violent crime, drug possession crime, any property crimes) as well as the amount of time from the offender’s initial release until their return to crime.

**Analytic Strategy**

The present study employs a post-test only research design with matched treatment and control groups. As mentioned previously, the SVORI dataset does not include pretest measures for program participation. Propensity score matching is utilized to create the matched treatment and control groups while mediation analysis is used to explore the relationship between the treatment, mediators, and outcome variables.

**Missing Data Analysis.**

Missing data procedures are implemented to address missing values within the dataset because both the propensity score matching and PROCESS mediation analysis require complete data. As discussed above, the sample utilized for the current study consists of the 473 adult males who completed at least one follow-up wave of the SVORI study (Table 4). However, because some of these individuals did not complete all three of the follow-up interviews, there is some data missing. Across the initial interview and the three follow-up waves, 67.2% of the cases are
missing some data, with a total of 12.3% of the values missing. The missing completely at random assumption (MCAR) is tested using Little’s test in SPSS version 24. Data are determined to be MCAR if the likelihood of encountering missing data on one variable is unconnected to the value of the variable itself or to the value of any of the other variables in the data (Allison, 2001). The results of Little’s (1988) test in the current study indicate that the data is missing completely at random (Chi-Square = 225.22, df =221, p=0.409).

Given the results of the MCAR test, a multiple imputation procedure was then undertaken using SPSS to address the missing data in this dataset. The multiple imputation procedure utilized within SPSS is fully condition specification. Fully conditional specification (FCS) is an iterative Markov chain Monte Carlo (MCMC) method. The FCS method fits a univariate model using all other available covariates as predictors and imputes the missing values for the variable being fit. This is done for each iteration and each variable, in the order of the variable list (IBM Corp., n.d.). For the current study, this procedure was replicated for 10 iterations. This results in the creation of five additional datasets, each with a different set of estimates for the missing values. These five sets of imputed missing values were then aggregated to create an average for each value. The default multiple imputation method in SPSS is based in linear regression. However, the predictive mean matching option was utilized instead for the current study. With predictive mean matching, each incomplete case is completed by imputing values from randomly selected complete cases that have predictive means close to that of the incomplete case. This is advantageous because this method imputes realistic values to replace the missing values. The values are considered to be realistic since they have already been observed in the data (Schenker and Taylor, 1996). However, as Allison (2015) highlights, predictive mean matching has not yet been fully studied and its effectiveness has not yet been fully compared with other methods.
Propensity Score Matching Procedure.

While randomized controlled trials are considered to be the ideal experimental design, these methods are not always an option in the social sciences. When a study is randomized there should not be systematic differences between individuals assigned to the treatment group and individuals assigned to the control group, in terms of both observed and unobserved covariates (D’Agostino, 1998). However, true experimental designs are often not “possible, practical, or even desirable” in social science research (Guo and Fraser, 2015, p. 1). As a result, the quasi-experimental designs or observational studies that are implemented can often experience confounding bias and selection bias (Cochran and Rubin, 1973; Guo and Fraser, 2015). Confounding bias can occur when variables that may impact the relationship between the treatment and the control variable are not properly addressed and controlled for (Cochran and Rubin, 1973). Selection bias refers to the lack of randomization when individuals are assigned to the treatment or control groups. This means that unmeasured factors may play a role in whether or not the individual receives the treatment of interest (Guo and Fraser, 2015).

One method for addressing the issues that arise in observational studies is propensity score analysis. Propensity score analysis refers to a category of statistical methods that allows researchers to estimate the effect of a given treatment when using observational or even nonexperimental data. This category of analyses is particularly useful when dealing with situations in which randomized experiments would not be practical or ethical or when certain forms of data are required, such as census, survey, or administrative data (Guo and Fraser, 2015). Rosenbaum and Rubin (1983) define a propensity score as “the conditional probability of assignment to a particular treatment given a vector of observed covariates” (p. 41). Meaning, an individual’s propensity score reflects the likelihood of that individual receiving the treatment of
interest based on their observed values of the chosen covariates. The propensity score is a balancing score, \( b(x) \), which is defined as “a function of the observed covariates \( x \) such that the conditional distribution of \( x \) given \( b(x) \) is the same for treated \((z = 1)\) and control \((z = 0)\) units” (Rosenbaum and Rubin, 1983, p. 42). Thus, propensity scores are used as a method of creating balance between the treatment and control groups based on the observed covariates included in the model. This ultimately makes comparisons between the treatment and control groups more meaningful (Rosenbaum and Rubin, 1983). Given a particular propensity score value, an unbiased estimate of the average treatment effect for individuals with that propensity score can be calculated by obtaining the difference between the treatment and control means for all of the individuals with that particular propensity score (D’Agostino, 1998). This holds true if the treatment assignment is strongly ignorable, given the covariates (D’Agostino, 1998). The strongly ignorable treatment assignment assumption states that treatment assignment is ignorable when, given the covariates, assignment to treatment conditions is independent of the outcome of either treatment or nontreatment (Guo and Fraser, 2015; Rosenbaum and Rubin, 1983).

It may seem odd to estimate an individual’s probability of receiving treatment since the researcher knows with certainty which individuals were in the treatment group and which individuals were part of the control. However, this estimation process allows the researcher to create conditions similar to those of a randomized experiment. The estimate of the treatment effect can be adjusted utilizing the probability a subject would have received treatment, creating a ‘quasi-randomized’ experiment (D’Agostino, 1998, p. 2267). As D’Agostino (1998) explains, if an individual in the treatment group and an individual in the control group each have the same propensity score, one could envision that they were randomly assigned to these groups in a sense, as they have the same probability of being in the treatment or control group.
In the present study, propensity score matching is used to create matched treatment and control groups. This method was chosen for two primary reasons. First, the SVORI dataset is lacking pretest measures. While the dataset does include some information and measures about the respondents prior to their program participation, these measures are not obtained prior to program participation. Rather, respondents are asked to reflect and recall when answering these questions. In addition, respondents were not randomly assigned to participation in the targeted treatment. For example, in Kansas, SVORI participants were assigned to cognitive-behavioral treatment on an as-needed basis while Nevada required cognitive-behavioral programming for all of their SVORI participants. In each state of the five states examined here, individuals who were in the SVORI control group were assigned to interventions based on each state’s standard treatment practices (Lattimore et al., 2004). Therefore, it is difficult to determine whether an individual was randomly assigned to cognitive-behavioral treatment, participated as a treatment requirement, or if they chose to participate in the program simply because they desired to do so. While propensity score weighting, the process of using propensity scores as sampling weights (Guo and Fraser, 2013), would also address these issues, the PROCESS macro used in the mediation analysis discussed below cannot utilize sampling weight variables (Hayes, 2013). As such, propensity score matching was implemented to address both the lack of pretest measures as well as the lack of random assignment in this dataset. The matching process creates a new, matched dataset rather than the sampling weight variable that is created in the propensity score weighting process (Guo and Fraser, 2013).

The treatment group for the current study is composed of adult male respondents who answered that they had participated in cognitive-behavioral programming during their incarceration. The control group for this analysis is composed of the remaining adult male
respondents who said they did not receive cognitive-behavioral services during their incarceration. Approximately 53% (n=249) of the 473 adult males in the present sample said they were exposed to cognitive-behavioral programming during their incarceration. In contrast, about 47% (n=224) of these adult male offenders did not (Lattimore and Visher, 2011a). The details of the treatment variable (both prior to and following the matching procedure) are outlined in Table 7.

The covariates included in the propensity score model are listed in Table 6. The measurement and specifics of these variables are described above in the measurement section of this chapter. The variables included in the propensity score model should be covariates that influence both the treatment decision as well as the outcome variable (Caliendo and Koepening, 2005). In the current study, this means covariates should influence the decision to participate in cognitive-behavioral interventions as well as an individual’s recidivism following release from incarceration. In addition, the covariates must be unaffected by participation in the treatment or even by the anticipation of the treatment. As such, these variables should be either stable traits or factors that are fixed over time or items measured before program participation (Caliendo and Koepining, 2005). Discussion of how and why these covariates were selected is also included in the measurements section of this chapter.

The present study utilizes nearest neighbor matching within a caliper, with a 1-to-1 matching scheme without replacement. This method combines nearest neighbor matching with the caliper matching method. Nearest neighbor matching involves matching a member of the treatment group to the member of the control group with the closest propensity score. Matching within a caliper ensures that the propensity scores of these matches occur within a predetermined range (Guo and Fraser, 2015). In order to conduct the matching process first, both the treated and
nontreated individuals are ordered randomly. Treated and control individuals are then paired if the absolute difference of their propensity scores is within the chosen caliper (Guo and Fraser, 2015). The caliper size utilized here was one quarter the standard deviation of the estimated propensity scores, as suggested by Rosenbaum and Rubin (1985). The 1-1 matching without replacement scheme means that once an individual has been successfully matched to another individual, they are both removed from the pool and cannot be considered as potential matches for other individuals (Guo and Fraser, 2015). The present sample consisted of 473 cases and 306 of these cases (64.7%) were successfully matched following this procedure. Post-match sample characteristics are outlined in Table 6.

Post-match tests were conducted to examine the balance between the matched treatment and control groups. The first method involves using a two-sample \( t \)-test to check for differences in the means in between the treatment and control group for each covariate. Independent group \( t \)-tests (or Chi-square, as appropriate) are conducted prior to propensity score matching to demonstrate how well balanced these groups are prior to the matching process. These \( t \)-tests are then repeated following the matching process (Caliendo and Kopeining, 2005; Guo and Fraser, 2015). Well-balanced covariates should not have a significant difference between the treatment and the control group. This method is beneficial if the researcher is concerned with statistical significance. However, this method does not clearly demonstrate the reduction in bias before and after the matching process is not clearly visible (Caliendo and Kopeining, 2005). As illustrated in Table 6, none of the covariates in the propensity score model demonstrated a significant difference between the treatment and control groups following the matching procedure.

Another method employed in the current study is the standardized bias or standardized mean difference method. First suggested by Rosenbaum and Rubin (1985), the standardized bias
is defined as, “For each covariate X it is defined as the difference of sample means in the treated and matched control subsamples as a percentage of the square root of the average of sample variances in both groups” (Caliendo and Kopeining, 2005, p. 15). A key limitation to the use of standardized mean differences is the lack of agreement regarding what value demotes a lack of balance between the treatment and control groups. However, 0.1 and 0.25 are both commonly suggested cutoff points for determining balance between the groups (Austin, 2009; Stuart, Lee, and Leacy, 2013). The standardized mean differences for this sample are described in Table 6. All of the covariates in the current propensity score model have standard mean differences below 0.1. As such, the current model meets the requirements of both cutoff points (Table 6).

**Multiple Mediation Analysis.**

Following the propensity score matching procedure, multiple mediation analysis was conducted to examine the impact of the treatment (cognitive-behavioral programming participation) and the three mediators (self-efficacy, perceptions of deviance, and motivation to change) on the outcome (recidivism) (Figure 4). This analysis is conducted using the technique outlined in Preacher and Hayes (2008). This technique involves examining the simultaneous mediation of multiple covariates or multiple mediation. Mediation analysis involves examining how the treatment variable (X) affects an outcome variable (Y) in a scenario in which one or more intervening variables are situated causally in between the treatment and outcome (Hayes, 2013). In a parallel multiple mediator model, as is being examined in the current study, the treatment variable (X) is believed to directly impact the outcome variable (Y). In addition, the X variable is also believed to indirectly impact the Y variable through two or more mediator variables (M) (Figure 3). This occurs under the condition that the mediators do not causally influence one another (Hayes, 2013). The effects of the X variable on the each of the individual
mediators are depicted as the $a$ paths in Figure 3. The effects of the mediators on the $Y$ variable when controlling for $X$ are the $b$ paths. The indirect effect of $X$ on $Y$ through a particular mediator is the product of the $a$ and $b$ paths associated with that mediator. The $c'$ path is designed to estimate the direct effect of $X$ on $Y$ while the mediator variables are held constant (Hayes, 2013). The current study examines the direct effect of cognitive-behavioral programming on recidivism, with self-efficacy, perceptions of deviance, and motivation to change are held constant. Additionally, the present study explores the indirect effects of cognitive-behavioral programming on recidivism through self-efficacy, through perceptions of deviance, and through motivation to change.

Bootstrapping, a nonparametric resampling method, is also recommended to provide confidence intervals for the indirect effects (Preacher and Hayes, 2008). In bootstrapping, the original sample is viewed as a smaller depiction of the population from which it was originally sampled. Then, as Hayes (2013) describes, “Observations in this sample are then ‘resampled’ with replacement, and some statistic of interest is calculated in the new sample of size $n$ constructed through this resampling process” (p. 106). In mediation analysis, the statistic of interest is the indirect effect. This process is repeated thousands of times, with 5,000 to 10,000 samples being satisfactory for most purposes (Hayes, 2013). In the example of mediation analysis, the bootstrapping process creates “an empirically derived representation of the sampling distribution of the indirect effect, and this empirical representation is used for the construction of a confidence interval for the true value of the indirect effect” (Hayes, 2013, p. 106). If a 95% confidence interval is calculated, this means that the lower and upper boundaries of the interval consist of the bootstrap values of the indirect effect that make up the 2.5th and 97.5th percentiles in the distribution of thousands of values of the indirect effect (Hayes, 2013).
Preacher and Hayes’ (2008) technique is advantageous in several ways. First, it enables researchers to test two or more mediator variables in the same model simultaneously, rather than requiring multiple simple mediator models. When several simple mediation models are examined instead, these individual models may have an omitted variable problem that can result in biased parameter estimates. Second, this method allows for the combined effect of mediator variables to be calculated and it also allows researchers to determine if this combined effect eliminates the effect of the treatment variable on the outcome (Preacher and Hayes, 2008; Wu and Pyrooz, 2016). Third, this model identifies which (if any) mediator variables actually mediate the bivariate effect of the treatment variable. Finally, this method is advantageous in that it allows the comparison of the magnitude of the indirect effects of the mediator variables (Preacher and Hayes, 2008; Wu and Pyrooz, 2016). Bootstrapping is recommended because the distribution of the total indirect effect is rarely normal in samples that are not very large (Preacher and Hayes, 2008). Specifically, Preacher and Hayes (2008) contend that bootstrapping, particularly bias-corrected bootstrapping, is the “most powerful and reasonable method” of calculating the confidence intervals for specific indirect effects in most conditions (p. 886). Bias-corrected bootstrapping is designed to address any bias that may appear in the original sample. This differs from traditional or percentile bootstrapping in that the boundaries of the confidence intervals are adjusted based on the proportion of the indirect effect values in the bootstrapped sample that are less than the value of the indirect effect calculated from the original data (Hayes, 2013).

These mediation analyses are conducted using the PROCESS macro for SPSS (Hayes, 2013). The PROCESS macro is a path and mediation analysis modeling tool that uses both ordinary least squares and logistic regression to examine observed variables. Both direct and indirect effects can be estimated in single and multiple mediator models. This macro is also
capable of calculating the bootstrap confidence intervals for all conditional indirect effects in the chosen model (Hayes, 2013). Importantly, PROCESS is able to conduct analyses for models using dichotomous outcome variables. However, effect size cannot be calculated in models with binary outcome variables (Hayes, 2013). PROCESS was chosen for use with this data for several different reasons. First, this is an observed variable model without any latent variables. The PROCESS macro is designed for use with observed variable models (Hayes, 2013). In addition, Hayes, Montoya, and Rockwood (2017) found that for observed variable models using larger samples, as is the case in the present study, the differences between SEM and PROCESS are trivial and will rarely impact the substantive conclusions. Lastly, the model being investigated in the current study corresponds to Model 4 in PROCESS (Hayes, 2013). This makes the analyses of the current model relatively straightforward.

The current study utilizes bias-corrected bootstrap confidence intervals, which are based on 5000 bootstrap samples. Since the mediator variables asked the individual about their views at the time of the interview and the recidivism variables measured criminal activity that occurred prior to the interview, the mediators are used to examine recidivism from the following wave to ensure proper time ordering. For example, the mediator variables measured at Wave 1 are used to examine the offenders’ recidivism at Wave 2 while the mediator variables measured at Wave 2 examine the recidivism of offenders at Wave 3 and so on.

**Conclusion**

In this chapter, the sample, measures, and analytic strategy of the current study were explored. A sample of individuals who have completed at least one follow-up interview wave was selected. Propensity score matching was conducted to address issues related to the lack of random assignment as well as the lack of pretest measures. Mediation analysis was conducted
using the PROCESS macro for SPSS (Hayes, 2013) to examine whether self-efficacy, perceptions, of deviance and motivation impact the effect cognitive-behavioral treatment has on an individual’s recidivism following release from prison. Results from these analyses are discussed in the next chapter.

**Table 2: Participation by Wave**

<table>
<thead>
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<th>Wave</th>
<th>#</th>
<th>%</th>
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<tbody>
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<td>All 3 Follow-Ups</td>
<td>279</td>
<td>46.3</td>
</tr>
<tr>
<td>Any Follow Up</td>
<td>473</td>
<td>78.6</td>
</tr>
<tr>
<td>Total</td>
<td>602</td>
<td>100.0</td>
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</table>

**Table 3: Present Sample by State (Pre-Match)**

<table>
<thead>
<tr>
<th>State</th>
<th>Program</th>
<th>State Sample Size</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana</td>
<td>Thinking for a Change (TFAC)</td>
<td>124</td>
<td>26.2</td>
</tr>
<tr>
<td>Kansas</td>
<td>Thinking for a Change (TFAC)</td>
<td>48</td>
<td>10.1</td>
</tr>
<tr>
<td>Nevada</td>
<td>Criminal Thinking Errors (CTE)</td>
<td>128</td>
<td>27.1</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>Thinking for a Change (TFAC)</td>
<td>64</td>
<td>13.5</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Thinking for a Change (TFAC)</td>
<td>109</td>
<td>23</td>
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</table>
Table 4: Variable Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Freq.</th>
<th>Range</th>
<th>Mean</th>
<th>SD</th>
<th>Alpha</th>
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</thead>
<tbody>
<tr>
<td>Wave 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT Participation</td>
<td>473</td>
<td>Yes: 249 (52.6%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 224 (47.4%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>473</td>
<td></td>
<td>18-57</td>
<td>28.82</td>
<td>7.22</td>
<td>-</td>
</tr>
<tr>
<td>Race</td>
<td>471</td>
<td>White: 156 (33.1%)</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-White: 315 (66.9%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conviction Offense: Person/Violent Crime</td>
<td>473</td>
<td>Yes: 246 (52.0%)</td>
<td>0-1</td>
<td>0.52</td>
<td>0.50</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 227 (48%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conviction Offense: Property Crime</td>
<td>473</td>
<td>Yes: 106 (22.4%)</td>
<td>0-1</td>
<td>0.22</td>
<td>0.42</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 367 (77.6%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conviction Offense: Drug Crime</td>
<td>473</td>
<td>Yes: 91 (19.2%)</td>
<td>0-1</td>
<td>0.19</td>
<td>0.39</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 382 (80.8%)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Conviction Offense: Public Order or Other Crime</td>
<td>473</td>
<td>Yes: 123 (26%)</td>
<td>0-1</td>
<td>0.26</td>
<td>0.44</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 350 (74%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Offense: Parole Violation</td>
<td>473</td>
<td>Yes: 120 (25.4%)</td>
<td>0-1</td>
<td>0.25</td>
<td>0.44</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 353 (74.6%)</td>
<td></td>
<td></td>
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<tr>
<td>Total Days Incarcerated (W1)</td>
<td>473</td>
<td>58-9491</td>
<td>1018.02</td>
<td>1051.17</td>
<td></td>
<td></td>
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<tr>
<td>Primary Childcare</td>
<td>473</td>
<td>Yes: 139 (29.4%)</td>
<td>0-1</td>
<td>0.29</td>
<td>0.46</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 334 (70.6%)</td>
<td></td>
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<tr>
<td>Arrest Rate</td>
<td>438</td>
<td>.03-2.50</td>
<td>0.47</td>
<td>0.45</td>
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<td></td>
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<tr>
<td>Conviction Rate</td>
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<td>.02-1.58</td>
<td>0.20</td>
<td>0.22</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Incarceration Rate</td>
<td>471</td>
<td>0.00-0.48</td>
<td>0.04</td>
<td>0.06</td>
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</tr>
<tr>
<td>Perpetrated Violence</td>
<td>473</td>
<td>Yes: 330 (69.8%)</td>
<td>0-1</td>
<td>0.70</td>
<td>0.46</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 143 (30.2%)</td>
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<td></td>
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</tr>
<tr>
<td>Age at First Arrest</td>
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<td>7-38</td>
<td>15.54</td>
<td>4.73</td>
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<td></td>
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<tr>
<td>Ever in Juvenile Corr. Facility</td>
<td>473</td>
<td>Yes: 279 (59%)</td>
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<td>0.59</td>
<td>0.49</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 194 (41%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>473</td>
<td>Yes: 319 (67.4%)</td>
<td>0-1</td>
<td>0.67</td>
<td>0.47</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 154 (32.6%)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Friends Convicted of a Crime and/or Incarcerated</td>
<td>472</td>
<td>Yes: 434 (91.9%)</td>
<td>0-1</td>
<td>0.92</td>
<td>0.27</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 38 (8.1%)</td>
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<td></td>
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<tr>
<td>Family Convicted of a Crime and/or Incarcerated</td>
<td>458</td>
<td>Yes: 332 (72.5%)</td>
<td>0-1</td>
<td>0.72</td>
<td>0.45</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 126 (27.5%)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol or Drug Treatment</td>
<td>473</td>
<td>Yes: 189 (40%)</td>
<td>0-1</td>
<td>0.40</td>
<td>0.49</td>
<td>-</td>
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<tr>
<td></td>
<td></td>
<td>No: 284 (60%)</td>
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</tr>
<tr>
<td>Drank Alcohol</td>
<td>463</td>
<td>Yes: 315 (68%)</td>
<td>0-1</td>
<td>0.68</td>
<td>0.47</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No: 148 (32%)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Used Marijuana</td>
<td>443</td>
<td>Yes: 237 (53.5%)</td>
<td>0-1</td>
<td>0.54</td>
<td>0.50</td>
<td>-</td>
</tr>
<tr>
<td>---------------</td>
<td>-----</td>
<td>------------------</td>
<td>-----</td>
<td>------</td>
<td>------</td>
<td>---</td>
</tr>
<tr>
<td>No: 206 (46.5%)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used Other Drugs</td>
<td>473</td>
<td>Yes: 196 (41.4%)</td>
<td>0-1</td>
<td>0.41</td>
<td>0.49</td>
<td>-</td>
</tr>
<tr>
<td>No: 277 (58.6%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health Treatment</td>
<td>471</td>
<td>Yes: 106 (22.4%)</td>
<td>0-1</td>
<td>0.23</td>
<td>0.42</td>
<td>-</td>
</tr>
<tr>
<td>No: 365 (77.2%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Emotional Support</td>
<td>447</td>
<td></td>
<td>0-10</td>
<td>7.92</td>
<td>1.92</td>
<td>0.71</td>
</tr>
<tr>
<td>Steady Intimate Relationship</td>
<td>472</td>
<td>Yes: 328 (69.5%)</td>
<td>0-1</td>
<td>0.69</td>
<td>0.46</td>
<td>-</td>
</tr>
<tr>
<td>No: 144 (30.5%)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Self-Efficacy Scale</td>
<td>467</td>
<td></td>
<td>0-4</td>
<td>2.90</td>
<td>0.53</td>
<td>0.72</td>
</tr>
<tr>
<td>Perceptions of Deviance Scale</td>
<td>459</td>
<td></td>
<td>0-4</td>
<td>3.04</td>
<td>0.56</td>
<td>0.67</td>
</tr>
<tr>
<td>Motivation Scale</td>
<td>467</td>
<td></td>
<td>0-4</td>
<td>3.65</td>
<td>0.41</td>
<td>0.55</td>
</tr>
</tbody>
</table>

**Wave 2**

| Self-Efficacy | 363 | 0-4 | 2.96 | 0.51 | 0.75 |
| Perceptions of Deviance | 358 | 0-4 | 3.07 | 0.58 | 0.74 |
| Motivation | 363 | 0-4 | 3.53 | 0.46 | 0.77 |
| Reincarceration | 367 | Yes: 34 (9.3%) | 0-1 | 0.09 | 0.29 | - |
| No: 333 (90.7%) | | |
| Self-Reported Crime | 367 | No: 282 (76.8%) | 0-1 | 0.23 | 0.42 | - |

**Wave 3**

| Self-Efficacy | 371 | 0-4 | 2.91 | 0.54 | 0.78 |
| Perceptions of Deviance | 365 | 0-4 | 3.02 | 0.58 | 0.74 |
| Motivation | 368 | 0-4 | 3.40 | 0.46 | 0.63 |
| Reincarceration | 311 | Yes: 78 (25.1%) | 0-1 | 0.25 | 0.43 | - |
| No: 233 (74.9%) | | |
| Self-Reported Crime | 311 | Yes: 123 (39.5%) | 0-1 | 0.40 | 0.49 | - |
| No: 188 (60.5%) | | |

**Wave 4**

| Self-Efficacy | 279 | Yes: 94 (33.7%) | 0-1 | 0.34 | 0.47 | - |
| Perceptions of Deviance | 279 | Yes: 136 (48.7%) | 0-1 | 0.49 | 0.50 | - |
| Self-Reported Crime | 279 | No: 143 (51.3%) | 0-1 | 0.49 | 0.50 | - |
**Table 5: Key Variable Descriptions**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CBT Participation</strong></td>
<td>Since you have been incarcerated this time, have you received training on how to change your attitudes related to criminal behavior?</td>
</tr>
<tr>
<td><strong>Cognitive Transformation</strong></td>
<td></td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>There is really no way you can solve some of the problems you have.</td>
</tr>
<tr>
<td></td>
<td>Sometimes you feel like you’re being pushed around in your life.</td>
</tr>
<tr>
<td></td>
<td>You often feel helpless dealing with the problems of life.</td>
</tr>
<tr>
<td></td>
<td>What happens to you in the future mostly depends on you.</td>
</tr>
<tr>
<td></td>
<td>There is little you can do to change many of the important things in your life.</td>
</tr>
<tr>
<td></td>
<td>Your life has gone out of control.</td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td>You want to get your life straightened out. / You are working to get your life straightened out.</td>
</tr>
<tr>
<td></td>
<td>You think you will need help in staying straight. / You are willing to accept help in dealing with staying straight.</td>
</tr>
<tr>
<td></td>
<td>You will give up friends &amp; hangouts that get you into trouble after you are released./ You are trying to give up friends &amp; hangouts that get you into trouble.</td>
</tr>
<tr>
<td></td>
<td>You think you will be able to stop committing crimes when you are released from incarceration./ You are trying to stop committing crimes.</td>
</tr>
<tr>
<td><strong>Perceptions of Deviance</strong></td>
<td>Laws are made to be broken.</td>
</tr>
<tr>
<td></td>
<td>It’s okay to do anything you want as long as you don’t hurt anyone.</td>
</tr>
<tr>
<td></td>
<td>To make money, there are no right and wrong ways, only easy and hard ways.</td>
</tr>
<tr>
<td></td>
<td>Fighting with friends and family is nobody else’s business.</td>
</tr>
<tr>
<td><strong>Reincarceration</strong></td>
<td>Reincarcerated within 15 months of release</td>
</tr>
<tr>
<td><strong>Self-Report Crime</strong></td>
<td>Have you committed any violent crimes, regardless of whether or not you were caught?</td>
</tr>
<tr>
<td></td>
<td>Have you committed any other crimes against people, regardless of whether or not you were caught?</td>
</tr>
<tr>
<td></td>
<td>Have you carried a gun, knife, or other weapon, regardless of whether or not you were caught?</td>
</tr>
<tr>
<td></td>
<td>Have you committed any drug possession crimes, including possession of either drugs or drug paraphernalia, regardless of whether or not you were caught?</td>
</tr>
<tr>
<td></td>
<td>Have you committed any drug sales crimes, regardless of whether or not you were caught?</td>
</tr>
<tr>
<td></td>
<td>Have you committed any other drug crimes, such as manufacturing, trafficking, or prescription fraud, regardless of whether or not you were caught?</td>
</tr>
<tr>
<td></td>
<td>Have you committed any DWI or DUI crimes, regardless of whether or not you were caught?</td>
</tr>
<tr>
<td></td>
<td>Have you committed any property crimes, regardless of whether or not you were caught?</td>
</tr>
<tr>
<td></td>
<td>Have you committed any other crimes such as prostitution, soliciting, shoplifting, or disorderly conduct, regardless of whether or not you were caught?</td>
</tr>
</tbody>
</table>
Figure 3: Parallel Multiple Mediation Model

\[ X \rightarrow M_1 \rightarrow Y, \quad X \rightarrow M_2 \rightarrow Y, \quad X \rightarrow M_3 \rightarrow Y \]

\[ a_1, b_1, c', b_2, b_3 \]
Figure 4: Current Model

- CBT Treatment
- Self-Efficacy
- Perceptions of Deviance
- Motivation
- Recidivism
### Table 6: Propensity Score Model

<table>
<thead>
<tr>
<th></th>
<th>Pre-Match</th>
<th>Post-Match</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Age</td>
<td>473</td>
<td>28.82</td>
</tr>
<tr>
<td>Race</td>
<td>471</td>
<td>0.33</td>
</tr>
<tr>
<td>Conviction Offense: Person/Violent</td>
<td>473</td>
<td>0.52</td>
</tr>
<tr>
<td>Conviction Offense: Property</td>
<td>473</td>
<td>0.22</td>
</tr>
<tr>
<td>Conviction Offense: Drug</td>
<td>473</td>
<td>0.19</td>
</tr>
<tr>
<td>Conviction Offense: Public Order or Other Crime</td>
<td>473</td>
<td>0.26</td>
</tr>
<tr>
<td>Current Offense: Parole Violation</td>
<td>473</td>
<td>0.25</td>
</tr>
<tr>
<td>Total Days Incarcerated (W1)</td>
<td>473</td>
<td>1018.02</td>
</tr>
<tr>
<td>Primary Childcare</td>
<td>473</td>
<td>0.29</td>
</tr>
<tr>
<td>Arrest Rate</td>
<td>438</td>
<td>0.47</td>
</tr>
<tr>
<td>Conviction Rate</td>
<td>462</td>
<td>0.20</td>
</tr>
<tr>
<td>Incarceration Rate</td>
<td>471</td>
<td>0.04</td>
</tr>
<tr>
<td>Perpetrated Violence</td>
<td>473</td>
<td>0.70</td>
</tr>
<tr>
<td>Age at First Arrest</td>
<td>470</td>
<td>15.54</td>
</tr>
<tr>
<td>Ever in Juvenile Corr. Facility</td>
<td>473</td>
<td>0.59</td>
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<tr>
<td>Employed Friends</td>
<td>473</td>
<td>0.67</td>
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<tr>
<td>Friends Convicted of a Crime and/or Incarcerated Family</td>
<td>472</td>
<td>0.92</td>
</tr>
<tr>
<td>Alcohol or Drug Treatment</td>
<td>458</td>
<td>0.72</td>
</tr>
<tr>
<td>Drank Alcohol (30 Days Pre-Inc)</td>
<td>473</td>
<td>0.40</td>
</tr>
<tr>
<td>Used Marijuana (30 Days Pre-Inc)</td>
<td>463</td>
<td>0.68</td>
</tr>
<tr>
<td>Used Other Drugs (30 Days Pre-Inc)</td>
<td>443</td>
<td>0.54</td>
</tr>
<tr>
<td>Mental Health Treatment</td>
<td>473</td>
<td>0.41</td>
</tr>
<tr>
<td><strong>Employed Friends Convicted of a Crime and/or Incarcerated Family</strong></td>
<td>471</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>Family Support</td>
<td>Steady Intimate Relationship</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td>447</td>
<td>472</td>
</tr>
<tr>
<td></td>
<td>1.92</td>
<td>0.46</td>
</tr>
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<td>-0.22956</td>
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</table>

Table 7: The Treatment Variable

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<tr>
<th>CBT Participation</th>
<th>Pre-Match</th>
<th>Post-Match</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Yes</td>
<td>249 (52.6%)</td>
<td>0.53</td>
</tr>
<tr>
<td>No</td>
<td>224 (47.4%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>473 (100%)</td>
<td></td>
</tr>
</tbody>
</table>
Results

Introduction

As discussed in the previous chapter, males from the SVORI sample who participated in a branded cognitive-behavioral program and completed at least one follow-up interview make up the sample in the present study. Multiple imputation procedures are utilized to address missing data while propensity score matching is used to address a lack of random assignment of individuals to cognitive-behavioral programming. Multiple mediation analyses are then conducted to examine the relationships between the key variables. In this chapter, the results of these analyses are discussed.

Analysis Results

The first step of a mediation analysis is to examine the relationship between the treatment and the outcome variables. This has traditionally been considered to be a necessary first step as it was viewed as unnecessary to carry out further mediation analyses if a clear association between the treatment and outcome could not be established (Hayes, 2013). In the current study, bivariate correlations and logistic regression analyses are conducted to examine the relationship between cognitive-behavioral program participation and the measures of recidivism. The results of these analyses are displayed in Table 8 and Table 9. These analyses indicated that participation in cognitive-behavioral programming does not have a statistically significant relationship with reincarceration or with self-reported criminal activity.
<table>
<thead>
<tr>
<th></th>
<th>CBT</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>CBT Pearson Correlation</td>
<td>1</td>
<td>0.095</td>
<td>0.037</td>
<td>0.115</td>
<td>0.017</td>
<td>-0.012</td>
<td>0.068</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.146</td>
<td>0.603</td>
<td>0.125</td>
<td>0.794</td>
<td>0.867</td>
<td>0.369</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>306</td>
<td>237</td>
<td>202</td>
<td>178</td>
<td>237</td>
<td>202</td>
<td>178</td>
</tr>
<tr>
<td>(2)</td>
<td>W2-Reincarceration Pearson Correlation</td>
<td>0.095</td>
<td>1</td>
<td>.585**</td>
<td>.415**</td>
<td>.329**</td>
<td>.225**</td>
<td>.170*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.146</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.001</td>
<td>0.023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>237</td>
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<td>178</td>
<td>237</td>
<td>202</td>
<td>178</td>
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<tr>
<td>(3)</td>
<td>W3-Reincarceration Pearson Correlation</td>
<td>0.037</td>
<td>.585**</td>
<td>1</td>
<td>.765**</td>
<td>.324**</td>
<td>.488**</td>
<td>.410**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.603</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
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<td>202</td>
<td>178</td>
</tr>
<tr>
<td>(4)</td>
<td>W4-Reincarceration Pearson Correlation</td>
<td>0.115</td>
<td>.415**</td>
<td>.765**</td>
<td>1</td>
<td>.222**</td>
<td>.438**</td>
<td>.450**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.125</td>
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<td>0.003</td>
<td>0</td>
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</tr>
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<td>N</td>
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<td>178</td>
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<td>178</td>
<td>178</td>
</tr>
<tr>
<td>(5)</td>
<td>W2-Self-Report Pearson Correlation</td>
<td>0.017</td>
<td>.329**</td>
<td>.324**</td>
<td>.222**</td>
<td>1</td>
<td>.633**</td>
<td>.500**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.794</td>
<td>0</td>
<td>0</td>
<td>0.003</td>
<td>0</td>
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<td>178</td>
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<td>(6)</td>
<td>W3-Self-Report Pearson Correlation</td>
<td>0.012</td>
<td>.225**</td>
<td>.488**</td>
<td>.438**</td>
<td>.633**</td>
<td>1</td>
<td>.786**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.867</td>
<td>0.001</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
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<td>202</td>
<td>178</td>
</tr>
<tr>
<td>(7)</td>
<td>W4-Self-Report Pearson Correlation</td>
<td>0.068</td>
<td>.170*</td>
<td>.410**</td>
<td>.450**</td>
<td>.500**</td>
<td>.786**</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.369</td>
<td>0.023</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td></td>
<td>N</td>
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<td>178</td>
<td>178</td>
<td>178</td>
<td>178</td>
<td>178</td>
<td>178</td>
</tr>
</tbody>
</table>

* Correlation is significant at 0.05 level (2-tailed)
** Correlation is significant at 0.01 level (2-tailed)
Table 9: Logistic Regression Results-CBT and Recidivism Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>$\beta$</th>
<th>SE</th>
<th>$\text{Exp}(\beta)$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave 2 Reincarceration</td>
<td>0.693</td>
<td>0.482</td>
<td>2.000</td>
<td>0.151</td>
</tr>
<tr>
<td>Wave 2 Self-Reported Crime</td>
<td>0.086</td>
<td>0.326</td>
<td>1.090</td>
<td>0.793</td>
</tr>
<tr>
<td>Wave 3 Reincarceration</td>
<td>0.175</td>
<td>0.335</td>
<td>1.191</td>
<td>0.601</td>
</tr>
<tr>
<td>Wave 3 Self-Reported Crime</td>
<td>-0.048</td>
<td>0.288</td>
<td>0.866</td>
<td>0.953</td>
</tr>
<tr>
<td>Wave 4 Reincarceration</td>
<td>0.495</td>
<td>0.322</td>
<td>1.641</td>
<td>0.125</td>
</tr>
<tr>
<td>Wave 4 Self-Reported Crime</td>
<td>0.271</td>
<td>0.301</td>
<td>1.312</td>
<td>0.367</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level
** Significant at 0.01 level

Hayes (2013) argues, however, that approaching mediation analysis in the manner described above may be misguided. While it makes sense to require an association between the treatment and outcome as a prerequisite to mediation analysis, a “lack of correlation does not disprove causation” and “correlation is neither a necessary nor a sufficient condition of causality” (Bollen, 1989, p. 52). This perspective suggests that important relationships between treatments, mediators, and outcomes may exist even if there is not a significant relationship between the $X$ and $Y$ variables. This has become the popular perspective among the majority of scholars in the field of mediation analysis (Hayes, 2013). Ultimately, “Mediation analysis as practiced in the 21st century no longer imposes evidence of simple association between $X$ and $Y$ as a precondition (Hayes, 2013, p. 88). Given the current view of mediation analysis, the present study continues with additional mediation analyses despite not finding significant relationships between the treatment and outcome variables.

As outlined in the previous chapter, the PROCESS macro for SPSS (Hayes, 2013) is used to conduct the multiple mediation analyses is this study. The PROCESS macro utilizes regression equations for each model to determine the effects of the treatment and mediator variables on the outcome. The first set of regression equations examines the effect of the
treatment variable on the mediator variables. These effects are the $a$ paths in Figure 5. Ordinary least squares regression is used to conduct this analysis (Hayes, 2013). The second set of regression equations examines the impact of the mediator variables on the outcome. These are the $b$ paths in Figure 5. The second set of regression equations also measures the direct effect of the treatment variable on the outcome when controlling for the mediator variables. This is the $c'$ path in Figure 5. Since both outcome variables utilized in this study are dichotomous, logistic regression is used by the PROCESS macro (Hayes, 2013). In addition to these equations, bias-corrected bootstrap confidence intervals for the indirect effects are also calculated. This indirect effect of $X$ on $Y$ is the product of the $a$ and $b$ paths for each mediator. The indirect effect through each of the mediator variables is calculated in addition to the cumulative indirect effect of all three mediator variables (Hayes, 2013).
A number of different models are examined as part of the current study. The treatment variable, participation in cognitive-behavioral programming, remains the same in all of the models discussed here. Only the mediator and outcome variables differ. In this first model, the mediator variables consist of cognitive transformation variables (self-efficacy, perceptions of deviance, and motivation) from Wave 1 while the outcome consists of whether the respondent is reincarcerated at the time of the Wave 2 interview (Figure 6).
In Model 1, the PROCESS multiple mediation analysis is examining whether the effect of cognitive-behavioral participation on reincarceration three months after release from prison works indirectly through the offender’s self-efficacy, perceptions of deviance, and motivation to change their behavior three months prior to release from incarceration. The results of the ordinary least squares regression indicate that cognitive-behavioral programming significantly impacted respondents’ perceptions of deviance ($\beta=0.173$, SE=0.069, $p=0.013$, 95% CI=0.037, 0.309). This shows that offenders who took part in cognitive-behavioral interventions had
significantly more negative views of crime and deviant behavior than offenders who did not take part in this form of treatment. Participation in cognitive behavioral programming did not have a significant impact on self-efficacy ($\beta=-0.127$, SE=0.066, $p=0.055$, 95% CI=-0.257, 0.003) or on respondents’ motivation to change ($\beta=0.078$, SE=0.048, $p=0.105$, 95% CI=-0.017, 0.173). While it is not a statistically significant finding, it is worth noting that cognitive-behavioral programming had a negative impact on self-efficacy. This means that individuals who participated in treatment had lower levels of self-efficacy than those who did not.

The results of the logistic regression indicate that neither self-efficacy ($\beta=-0.253$, SE=0.490, $p=0.605$, 95% CI=-1.213, 0.706), nor perceptions of deviance ($\beta=-0.611$, SE=0.490, $p=0.212$, 95% CI=-1.571, 0.349), nor motivation to change ($\beta=0.197$, SE=0.641, $p=0.759$, 95% CI=-1.059, 1.453) have a significant impact on reincarceration three months after release from prison. Lastly, the direct effect of cognitive-behavioral intervention while controlling for the three mediators is measured. The logistic regression results show that the direct effect of cognitive-behavioral treatment on reincarceration is not statistically significant when controlling for these mediators ($\beta=0.762$, SE=0.502, $p=0.129$, 95% CI=-0.221, 1.746). Bias-corrected bootstrap confidence intervals derived from 5000 samples signified that none of the indirect effect coefficients are significant (Total: $\beta=-0.059$, Bootstrap SE=0.163, Bootstrap 95% CI=-0.390, 0.251; Self-Efficacy: $\beta=0.032$, Bootstrap SE=0.058, Bootstrap 95% CI=-0.052, 0.200; Perceptions of Deviance: $\beta=-0.106$, Bootstrap SE=0.117, Bootstrap 95% CI=-0.426, 0.061; Motivation: $\beta=0.014$, Bootstrap SE=0.065, Bootstrap 95% CI=-0.066, 0.238) (Table 10). This demonstrates that cognitive-behavioral treatment did not have a significant effect on reincarceration 3 months following release indirectly through self-efficacy, perceptions of deviance, motivation, or all three variables combined together.
Table 10: Model 1 Indirect Effects of CBT on Reincarceration

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Bootstrap SE</th>
<th>Bootstrap Lower CI</th>
<th>Bootstrap Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-0.059</td>
<td>0.163</td>
<td>-0.390</td>
<td>0.251</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.032</td>
<td>0.058</td>
<td>-0.052</td>
<td>0.200</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.106</td>
<td>0.117</td>
<td>-0.426</td>
<td>0.061</td>
</tr>
<tr>
<td>Motivation</td>
<td>0.014</td>
<td>0.065</td>
<td>-0.066</td>
<td>0.238</td>
</tr>
</tbody>
</table>

In the second model, the mediator variables consist of cognitive transformation measures from Wave 1 interviews while the outcome is focused on whether the respondent has engaged in any self-reported criminal activity between their release from prison and their Wave 2 interview (Figure 7). The left side of this model is the same as Model 1, meaning the same treatment and mediator variables are used. However, the right side of the model uses the same mediator variables as Model 1 but with a different outcome variable.
In Model 2, since the left side of the model is the same as Model 1, the ordinary least squares regression results are the same as in Model 1. As such, only the relationship between cognitive-behavioral programming and the offender’s perceptions of deviance is statistically significant, with program participants having significantly more negative perceptions of deviance than nonparticipants ($\beta=0.173$, $SE=0.069$, $p=0.013$, 95% CI=0.037, 0.309). The logistic
regression results are distinct from Model 1. These results demonstrate that none of the three mediator variables have a statistically significant effect on self-reported criminal activity in Wave 2 (Self-Efficacy: $\beta=-0.335$, SE=0.352, $p=0.342$, 95% CI=-1.025, 0.356; Perceptions of Deviance: $\beta=-0.098$, SE=0.343, $p=0.776$, 95% CI=-0.771, 0.575; Motivation: $\beta=0.079$, SE=0.444, $p=0.859$, 95% CI=-0.792, 0.950). The direct effect of cognitive-behavioral interventions on self-reported crime when considering the mediators is not statistically significant ($\beta=0.053$, SE=0.339, $p=0.875$, 95% CI=-0.612, 0.719). The bias-corrected bootstrap confidence intervals, which were drawn from 5000 samples demonstrated that the indirect effect coefficients are not significant (Total: $\beta=0.031$, Bootstrap SE=0.110, Bootstrap 95% CI=-0.181, 0.264; Self-Efficacy: $\beta=0.043$, Bootstrap SE=0.061, Bootstrap 95% CI=-0.027, 0.234; Perceptions of Deviance: $\beta=-0.017$, Bootstrap SE=0.067, Bootstrap 95% CI=-0.165, 0.101; Motivation: $\beta=0.006$, Bootstrap SE= 0.041, Bootstrap 95% CI=-0.054, 0.128) (Table 11). These results demonstrate that cognitive-behavioral treatment, indirectly though self-efficacy, perceptions of deviance, and motivation to change, does not have a significant effect on self-reported criminal activity 3 months following release.

**Table 11: Model 2 Indirect Effects of CBT on Self-Reported Crime**

<table>
<thead>
<tr>
<th></th>
<th>$B$</th>
<th>Bootstrap SE</th>
<th>Bootstrap Lower CI</th>
<th>Bootstrap Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0.031</td>
<td>0.110</td>
<td>-0.181</td>
<td>0.264</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.043</td>
<td>0.061</td>
<td>-0.027</td>
<td>0.234</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.017</td>
<td>0.067</td>
<td>-0.165</td>
<td>0.101</td>
</tr>
<tr>
<td>Motivation</td>
<td>0.006</td>
<td>0.041</td>
<td>-0.054</td>
<td>0.128</td>
</tr>
</tbody>
</table>

The third model used in the current study utilized mediator variables from the second wave of offender interviews along with an outcome variable that measures whether the offender
was reincarcerated by the time of the third wave of offender interviews nine months following their release from prison (Figure 8).

The results of the ordinary least squares regression indicate that cognitive-behavioral programming participation has a statistically significant impact on an offender’s perceptions of deviance ($\beta=0.266$, SE=0.082, $p<0.001$, 95% CI=0.103, 0.428). Respondents who have engaged
in cognitive-behavioral treatment have significantly more negative perceptions of crime and deviance than respondents who did not participate in the treatment. However, cognitive-behavioral programming did not have a statistically significant effect on self-efficacy ($\beta=0.015$, SE=0.070, $p=0.828$, 95% CI=-0.123, 0.153) or on motivation to change behavior ($\beta=0.114$, SE=0.064, $p=0.074$, 95% CI=-0.011, 0.240). The results of the logistic regression indicate that perceptions of deviance ($\beta=-0.737$, SE=0.364, $p=0.043$, 95% CI=-1.451, -0.023) had a statistically significant impact on reincarceration. Self-efficacy ($\beta=-0.601$, SE=0.385, $p=0.118$, 95% CI=-1.356, 0.153) and motivation to change did not have a statistically significant effect on reincarceration ($\beta=-0.295$, SE=0.424, $p=0.487$, 95% CI=-1.126, 0.537). The direct effect of cognitive-behavioral treatment on reincarceration is not statistically significant ($\beta=0.440$, SE=0.361, $p=0.223$, 95% CI=-0.267, 1.147).

The bias-corrected bootstrap confidence interval, which was created from 5000 samples, does not include zero and thus shows that the total indirect effect coefficient is statistically significant ($\beta=-0.239$, Bootstrap SE=0.136, Bootstrap 95% CI=-0.543, -0.005). This is the total indirect effect of cognitive-behavioral programming on reincarceration summed across all mediators. These results show that cognitive-behavioral treatment has a negative effect on reincarceration indirectly through the three mediators. This means that individuals who participated in cognitive-behavioral treatment had lower reincarceration by the nine-month interview, which occurred indirectly through self-efficacy, perceptions of deviance, and motivation (Table 12).

The perception of deviance indirect effect coefficient also has a confidence interval that does not include zero and is statistically significant ($\beta=-0.196$, Bootstrap SE=0.125, Bootstrap 95% CI=-0.498, -0.014). Cognitive-behavioral interventions had a negative effect on
reincarceration indirectly through perceptions of deviance, holding the other mediators in the model constant. Meaning, with self-efficacy and motivation held constant, individuals who participated in cognitive-behavioral treatment had lower reincarceration at the time of the nine-month interview than non-participants, which occurred indirectly through their perceptions of deviance. The effect of cognitive-behavioral treatment on reincarceration indirectly through self-efficacy ($\beta=-0.009$, Bootstrap SE=0.053, Bootstrap 95% CI=-0.157, 0.072) and the effect of cognitive-behavioral programming on reincarceration indirectly through motivation are not statistically significant ($\beta=-0.034$, Bootstrap SE=0.063, Bootstrap 95% CI=-0.233, 0.047) (Table 12).

### Table 12: Model 3 Indirect Effects of CBT on Reincarceration

<table>
<thead>
<tr>
<th></th>
<th>$\beta$</th>
<th>Bootstrap SE</th>
<th>Bootstrap Lower CI</th>
<th>Bootstrap Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-0.239</td>
<td>0.136</td>
<td>-0.543</td>
<td>-0.005</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-0.009</td>
<td>0.053</td>
<td>-0.157</td>
<td>0.072</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.196</td>
<td>0.125</td>
<td>-0.498</td>
<td>-0.014</td>
</tr>
<tr>
<td>Motivation</td>
<td>-0.034</td>
<td>0.063</td>
<td>-0.233</td>
<td>0.047</td>
</tr>
</tbody>
</table>

The mediators used in the fourth model are self-efficacy, perceptions of deviance, and motivation from the Wave 2 interviews. The outcome variable in this model is self-reported criminal activity reported during the Wave 3 interview. This variable addresses whether or not any criminal activity has occurred between the offenders’ release from prison and the third offender interview (Figure 9).
The left side of Model 4 is the same as the left side as Model 3, meaning that the ordinary least squares regression results are the same for these two models. As such, the relationship between participation in cognitive-behavioral programming and the respondent’s perceptions of deviance is statistically significant, with offenders in cognitive-behavioral treatment having significantly more negative perceptions of deviance than those offenders that are not in these programs ($\beta=0.266$, SE=0.082, $p<0.001$, 95% CI=0.103, 0.428). The effect of cognitive-behavioral programming on self-efficacy ($\beta=0.015$, SE=0.070, $p=0.828$, 95% CI=-0.123, 0.153)
and on motivation ($\beta=0.114$, SE=$0.064$, $p=0.074$, 95% CI=$-0.011$, 0.240) is not statistically significant.

The results of the logistic regression show that none of the three mediator variables have a statistically significant impact on self-reported crime at the time of the Wave 3 interview (Self-Efficacy: $\beta=0.377$, SE=$0.326$, $p=0.247$, 95% CI=$-0.262$, 1.016; Perceptions of Deviance: $\beta=-0.378$, SE=$0.312$, $p=0.226$, 95% CI=$-0.989$, 0.234; Motivation: $\beta=-0.625$, SE=$0.398$, $p=0.116$, 95% CI=$-1.404$, 0.154). The direct effect of cognitive-behavioral interventions on self-reported crime is not statistically significant ($\beta=0.118$, SE=$0.302$, $p=0.695$, 95% CI=$-0.474$, 0.710).

The bias-corrected bootstrap confidence intervals, calculated with 5000 samples, indicate that the total indirect effect coefficient is statistically significant ($\beta=-0.166$, Bootstrap SE=$0.105$, Bootstrap 95% CI=$-0.415$, -0.001). This coefficient shows the total indirect effect of cognitive-behavioral interventions on self-reported criminal activity summed across all three of the mediators. These results indicate that cognitive-behavioral treatment has a negative effect on self-reported crime indirectly through the mediator variables. Meaning, individuals who report participating in cognitive behavioral programming reported engaging in less criminal activity by the nine-month interview, which occurred indirectly through self-efficacy, perceptions of deviance, and motivation (Table 13). None of the other indirect effect coefficients in this model were statistically significant (Self-Efficacy: $\beta=0.006$, Bootstrap SE=$0.037$, Bootstrap 95% CI=$-0.048$, 0.117; Perceptions of Deviance: $\beta=-0.100$, Bootstrap SE=$0.097$, Bootstrap 95% CI=$-0.337$, 0.055; Motivation: $\beta=-0.071$, Bootstrap SE=$0.069$, Bootstrap 95% CI=$-0.279$, 0.011) (Table 13).
Table 13: Model 4 Indirect Effects of CBT on Self-Reported Crime

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>Bootstrap SE</th>
<th>Bootstrap Lower CI</th>
<th>Bootstrap Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-0.166</td>
<td>0.105</td>
<td>-0.415</td>
<td>-0.001</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.006</td>
<td>0.037</td>
<td>-0.048</td>
<td>0.117</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.100</td>
<td>0.097</td>
<td>-0.337</td>
<td>0.055</td>
</tr>
<tr>
<td>Motivation</td>
<td>-0.071</td>
<td>0.069</td>
<td>-0.279</td>
<td>0.011</td>
</tr>
</tbody>
</table>

In the fifth model, the mediator variables are taken from Wave 3 of the offender interviews. The outcome variable is taken from Wave 4 and reflects whether the offender had been reincarcerated by the time this interview was conducted fifteen months after release from prison (Figure 10).
While all of the previous models demonstrated that cognitive-behavioral programming had a statistically significant impact on offenders’ perceptions of deviance, the results of the ordinary least squares regression for Model 5 indicated that this relationship was not statistically significant ($\beta=0.097$, SE=0.089, $p=0.278$, 95% CI=−0.079, 0.272). The impact cognitive-behavioral programming has on self-efficacy ($\beta=-0.012$, SE=0.077, $p=0.877$, 95% CI=−0.164, 0.140) and on motivation to change ($\beta=0.026$, SE=0.068, $p=0.706$, 95% CI=−0.109, 0.161) is also not statistically significant in this model. In the logistic regression portion of the analysis, self-efficacy ($\beta=-1.059$, SE=0.362, $p=0.003$, 95% CI=−1.768, -0.350) had a statistically significant
effect on the respondents’ reincarceration at their Wave 4 interview. This is a negative effect, meaning that greater self-efficacy is associated with lower reincarceration. Perceptions of deviance ($\beta=-0.174$, SE=0.321, $p=0.587$, 95% CI=-0.804, 0.455) and motivation to change ($\beta=-0.205$, SE=0.393, $p=0.602$, 95% CI=-0.974, 0.565) did not have significant effects on Wave 4 reincarceration. The direct effect of participation in cognitive-behavioral treatment on reincarceration was not statistically significant ($\beta=0.527$, SE=0.335, $p=0.115$, 95% CI=-0.129, 1.184). Bias-corrected bootstrap confidence intervals derived from 5000 samples indicated that none of the indirect effect coefficients in this model were statistically significant (Total: $\beta=-0.009$, Bootstrap SE=0.109, Bootstrap 95% CI=-0.240, 0.204; Self-Efficacy: $\beta=0.013$, Bootstrap SE=0.089, Bootstrap 95% CI=-0.172, 0.196; Perceptions of Deviance: $\beta=-0.017$, Bootstrap SE=0.046, Bootstrap 95% CI=-0.182, 0.035; Motivation: $\beta=-0.005$, Bootstrap SE=0.034, Bootstrap 95% CI=-0.129, 0.036) (Table 14).

**Table 14: Model 5 Indirect Effects of CBT on Reincarceration**

<table>
<thead>
<tr>
<th></th>
<th>$\beta$</th>
<th>Bootstrap SE</th>
<th>Bootstrap Lower CI</th>
<th>Bootstrap Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-0.009</td>
<td>0.109</td>
<td>-0.240</td>
<td>0.204</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.013</td>
<td>0.089</td>
<td>-0.172</td>
<td>0.196</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.017</td>
<td>0.046</td>
<td>-0.182</td>
<td>0.035</td>
</tr>
<tr>
<td>Motivation</td>
<td>-0.005</td>
<td>0.034</td>
<td>-0.129</td>
<td>0.036</td>
</tr>
</tbody>
</table>

The sixth and final model utilizes measures of self-efficacy, perceptions of deviance, and motivation to change from Wave 3 offender interviews. The outcome measure, self-reported criminal activity examines criminal activity that occurred between the offenders’ release from prison and the Wave 4 offender interview fifteen months following release (Figure 11).
As was the case in Model 5, which utilized the same mediator variables, participation in cognitive-behavioral programming did not have a statistically significant effect on self-efficacy ($\beta$=-0.012, SE=0.077, $p$=0.877, 95% CI=-0.164, 0.140), perceptions of deviance ($\beta$=0.097, SE=0.089, $p$=0.278, 95% CI=-0.079, 0.272), or motivation to change ($\beta$=0.026, SE=0.068, $p$=0.706, 95% CI=-0.109, 0.161). In addition, the logistic regression results demonstrate that neither self-efficacy ($\beta$=-0.343, SE=0.313, $p$=0.273, 95% CI=-0.957, 0.270) nor perceptions of deviance ($\beta$=-0.248, SE=0.285, $p$=0.385, 95% CI=-0.807, 0.311), nor motivation ($\beta$=-0.134, SE=0.354, $p$=0.705, 95% CI=-0.828, 0.559) have a statistically significant impact on self-
reported criminal activity. The direct effect of cognitive-behavioral program participation on self-reported crime is not statistically significant ($\beta=0.300$, SE=0.305, $p=0.325$, 95% CI=-0.298, 0.898). Bias-corrected bootstrap confidence intervals, obtained from 5000 samples, indicated that none of the indirect effect coefficients were statistically significant (Total: $\beta=-0.023$, Bootstrap SE=0.068, Bootstrap 95% CI=-0.189, 0.093; Self-Efficacy: $\beta=0.004$, Bootstrap SE=0.037, Bootstrap 95% CI=-0.055, 0.108; Perceptions of Deviance: $\beta=-0.024$, Bootstrap SE=0.046, Bootstrap 95% CI=-0.181, 0.025; Motivation: $\beta=-0.003$, Bootstrap SE=0.029, Bootstrap 95% CI=-0.105, 0.032) (Table 15).

Table 15: Model 6 Indirect Effects of CBT on Self-Reported Crime

<table>
<thead>
<tr>
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<th>Bootstrap SE</th>
<th>Bootstrap Lower CI</th>
<th>Bootstrap Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-0.023</td>
<td>0.068</td>
<td>-0.189</td>
<td>0.093</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.004</td>
<td>0.037</td>
<td>-0.055</td>
<td>0.108</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.024</td>
<td>0.046</td>
<td>-0.181</td>
<td>0.025</td>
</tr>
<tr>
<td>Motivation</td>
<td>-0.003</td>
<td>0.029</td>
<td>-0.105</td>
<td>0.032</td>
</tr>
</tbody>
</table>

Conclusion

There are several statistically significant findings from these models. In Models 1 through 4, the $a$ path between cognitive-behavioral programming and perceptions of deviance is statistically significant. This indicates that participants in cognitive-behavioral treatment have more negative views of deviance than non-participants. The $b$ path between self-efficacy and reincarceration is significant in Model 5. This shows that higher levels of self-efficacy are associated with lower reincarceration. Additionally, the $b$ path between perceptions of deviance and reincarceration is significant in Model 3. This shows that more negative perceptions of deviance are associated with lower reincarceration. None of the paths in Model 6 are statistically significant.
However, while reporting the hypothesis tests and confidence intervals for the various paths that make up each model and define the indirect effect (the $a$ and $b$ paths) can help paint a clearer picture, the statistical significance of these effects is not necessary when making the case for the existence for this indirect effect between $X$ and $Y$ (Hayes, 2013). As mentioned at the beginning of the chapter, the indirect effects are the product of these $a$ and $b$ paths, which means that the statistical significance of the $a$ and $b$ paths is not relevant to determining whether or not the indirect effect differs statistically from zero (Hayes, 2013). Given this, it is most important to note the existence of the significant indirect effects found in Model 3 and in Model 4. In Model 3, both the total indirect effect and the indirect effect through perceptions of deviance were found to be statistically significant. In Model 4, the total indirect effect coefficient was statistically significant. Ultimately, it can be concluded that cognitive-behavioral programming significantly reduces reincarceration nine-months post-release indirectly through all three mediators as well as indirectly through perceptions of deviance individually, when holding the other mediators constant. Cognitive-behavioral programming also significantly reduced self-reported crime nine-months post-release indirectly through the three mediators. However, programming did not have a significant effect in the other models. The implications of these findings are discussed in the next chapter.
Table 16: OLS and Logistic Regression Results (All Models)

<table>
<thead>
<tr>
<th>Model 1</th>
<th>$\beta$</th>
<th>SE</th>
<th>$p$</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>$a_1$: CBT-Self-Efficacy</td>
<td>-0.127</td>
<td>0.066</td>
<td>0.055</td>
<td>-0.257</td>
<td>0.003</td>
</tr>
<tr>
<td>$a_2$: CBT-Perceptions of Deviance</td>
<td>0.173</td>
<td>0.069</td>
<td>0.013</td>
<td>0.037</td>
<td>0.309</td>
</tr>
<tr>
<td>$a_3$: CBT-Motivation</td>
<td>0.072</td>
<td>0.051</td>
<td>0.157</td>
<td>-0.028</td>
<td>0.172</td>
</tr>
<tr>
<td>$b_1$: Self-Efficacy-Reincarceration</td>
<td>-0.253</td>
<td>0.490</td>
<td>0.605</td>
<td>-1.213</td>
<td>0.706</td>
</tr>
<tr>
<td>$b_2$: Perceptions of Deviance-Reincarceration</td>
<td>-0.611</td>
<td>0.490</td>
<td>0.212</td>
<td>-1.571</td>
<td>0.349</td>
</tr>
<tr>
<td>$b_3$: Motivation-Reincarceration</td>
<td>0.197</td>
<td>0.641</td>
<td>0.759</td>
<td>-1.059</td>
<td>1.453</td>
</tr>
<tr>
<td>$c'$: CBT-Reincarceration</td>
<td>0.762</td>
<td>0.502</td>
<td>0.129</td>
<td>-0.221</td>
<td>1.746</td>
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<table>
<thead>
<tr>
<th>Model 2</th>
<th>$\beta$</th>
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<th>Lower CI</th>
<th>Upper CI</th>
</tr>
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<tbody>
<tr>
<td>$a_1$: CBT-Self-Efficacy</td>
<td>-0.127</td>
<td>0.066</td>
<td>0.055</td>
<td>-0.257</td>
<td>0.003</td>
</tr>
<tr>
<td>$a_2$: CBT-Perceptions of Deviance</td>
<td>0.173</td>
<td>0.069</td>
<td>0.013</td>
<td>0.037</td>
<td>0.309</td>
</tr>
<tr>
<td>$a_3$: CBT-Motivation</td>
<td>0.072</td>
<td>0.051</td>
<td>0.157</td>
<td>-0.028</td>
<td>0.172</td>
</tr>
<tr>
<td>$b_1$: Self-Efficacy-Reincarceration</td>
<td>-0.335</td>
<td>0.352</td>
<td>0.342</td>
<td>-1.025</td>
<td>0.356</td>
</tr>
<tr>
<td>$b_2$: Perceptions of Deviance-Reincarceration</td>
<td>-0.098</td>
<td>0.343</td>
<td>0.776</td>
<td>-0.771</td>
<td>0.575</td>
</tr>
<tr>
<td>$b_3$: Motivation-Reincarceration</td>
<td>0.079</td>
<td>0.444</td>
<td>0.859</td>
<td>-0.792</td>
<td>0.950</td>
</tr>
<tr>
<td>$c'$: CBT-Reincarceration</td>
<td>0.053</td>
<td>0.339</td>
<td>0.875</td>
<td>-0.612</td>
<td>0.719</td>
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<table>
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<tr>
<th>Model 3</th>
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<th>Upper CI</th>
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<tbody>
<tr>
<td>$a_1$: CBT-Self-Efficacy</td>
<td>0.015</td>
<td>0.070</td>
<td>0.828</td>
<td>-0.123</td>
<td>0.153</td>
</tr>
<tr>
<td>$a_2$: CBT-Perceptions of Deviance</td>
<td>0.266</td>
<td>0.082</td>
<td>&lt;0.001</td>
<td>0.103</td>
<td>0.428</td>
</tr>
<tr>
<td>$a_3$: CBT-Motivation</td>
<td>0.114</td>
<td>0.064</td>
<td>0.074</td>
<td>-0.011</td>
<td>0.240</td>
</tr>
<tr>
<td>$b_1$: Self-Efficacy-Reincarceration</td>
<td>-0.601</td>
<td>0.385</td>
<td>0.118</td>
<td>-1.356</td>
<td>0.153</td>
</tr>
<tr>
<td>$b_2$: Perceptions of Deviance-Reincarceration</td>
<td>-0.737</td>
<td>0.364</td>
<td>0.043</td>
<td>-1.451</td>
<td>-0.023</td>
</tr>
<tr>
<td>$b_3$: Motivation-Reincarceration</td>
<td>-0.295</td>
<td>0.424</td>
<td>0.487</td>
<td>-1.126</td>
<td>0.537</td>
</tr>
<tr>
<td>$c'$: CBT-Reincarceration</td>
<td>0.440</td>
<td>0.361</td>
<td>0.223</td>
<td>-0.267</td>
<td>1.147</td>
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</table>

<table>
<thead>
<tr>
<th>Model 4</th>
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<tr>
<td>$a_1$: CBT-Self-Efficacy</td>
<td>0.015</td>
<td>0.070</td>
<td>0.828</td>
<td>-0.123</td>
<td>0.153</td>
</tr>
<tr>
<td>$a_2$: CBT-Perceptions of Deviance</td>
<td>0.266</td>
<td>0.082</td>
<td>&lt;0.001</td>
<td>0.103</td>
<td>0.428</td>
</tr>
<tr>
<td>$a_3$: CBT-Motivation</td>
<td>0.114</td>
<td>0.064</td>
<td>0.074</td>
<td>-0.011</td>
<td>0.240</td>
</tr>
<tr>
<td>$b_1$: Self-Efficacy-Reincarceration</td>
<td>0.377</td>
<td>0.326</td>
<td>0.247</td>
<td>-0.262</td>
<td>1.016</td>
</tr>
<tr>
<td>$b_2$: Perceptions of Deviance-Reincarceration</td>
<td>-0.378</td>
<td>0.312</td>
<td>0.226</td>
<td>-0.989</td>
<td>0.234</td>
</tr>
<tr>
<td>$b_3$: Motivation-Reincarceration</td>
<td>-0.625</td>
<td>0.398</td>
<td>0.116</td>
<td>-1.404</td>
<td>0.154</td>
</tr>
<tr>
<td>$c'$: CBT-Reincarceration</td>
<td>0.118</td>
<td>0.302</td>
<td>0.695</td>
<td>-0.474</td>
<td>0.710</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Model 5</th>
<th>$\beta$</th>
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<tr>
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<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>a_1: CBT-Self-Efficacy</td>
<td>-0.012</td>
<td>0.077</td>
<td>0.877</td>
<td>-0.164</td>
<td>0.140</td>
</tr>
<tr>
<td>a_2: CBT-Perceptions of Deviance</td>
<td>0.097</td>
<td>0.089</td>
<td>0.278</td>
<td>-0.079</td>
<td>0.272</td>
</tr>
<tr>
<td>a_3: CBT-Motivation</td>
<td>0.026</td>
<td>0.068</td>
<td>0.706</td>
<td>-0.109</td>
<td>0.161</td>
</tr>
<tr>
<td>b_1: Self-Efficacy-Reincarceration</td>
<td>-1.059</td>
<td>0.362</td>
<td>0.003(^{**})</td>
<td>-1.768</td>
<td>-0.350</td>
</tr>
<tr>
<td>b_2: Perceptions of Deviance-Reincarceration</td>
<td>-0.174</td>
<td>0.321</td>
<td>0.587</td>
<td>-0.804</td>
<td>0.455</td>
</tr>
<tr>
<td>b_3: Motivation-Reincarceration</td>
<td>-0.205</td>
<td>0.393</td>
<td>0.602</td>
<td>-0.974</td>
<td>0.565</td>
</tr>
<tr>
<td>c': CBT-Reincarceration</td>
<td>0.527</td>
<td>0.335</td>
<td>0.115</td>
<td>-0.129</td>
<td>1.184</td>
</tr>
</tbody>
</table>

**Model 6**

<p>| | | | | | |</p>
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</tr>
</thead>
<tbody>
<tr>
<td>a_1: CBT-Self-Efficacy</td>
<td>-0.012</td>
<td>0.077</td>
<td>0.877</td>
<td>-0.164</td>
<td>0.140</td>
</tr>
<tr>
<td>a_2: CBT-Perceptions of Deviance</td>
<td>0.097</td>
<td>0.089</td>
<td>0.278</td>
<td>-0.079</td>
<td>0.272</td>
</tr>
<tr>
<td>a_3: CBT-Motivation</td>
<td>0.026</td>
<td>0.068</td>
<td>0.706</td>
<td>-0.109</td>
<td>0.161</td>
</tr>
<tr>
<td>b_1: Self-Efficacy-Reincarceration</td>
<td>-0.343</td>
<td>0.313</td>
<td>0.273</td>
<td>-0.957</td>
<td>0.270</td>
</tr>
<tr>
<td>b_2: Perceptions of Deviance-Reincarceration</td>
<td>-0.248</td>
<td>0.285</td>
<td>0.385</td>
<td>-0.807</td>
<td>0.311</td>
</tr>
<tr>
<td>b_3: Motivation-Reincarceration</td>
<td>-0.134</td>
<td>0.354</td>
<td>0.705</td>
<td>-0.828</td>
<td>0.559</td>
</tr>
<tr>
<td>c': CBT-Reincarceration</td>
<td>0.300</td>
<td>0.305</td>
<td>0.325</td>
<td>-0.298</td>
<td>0.898</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level
** Significant at 0.01 level
Table 17: Indirect Effects of CBT on Recidivism (All Models)

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>Bootstrap SE</th>
<th>Bootstrap Lower CI</th>
<th>Bootstrap Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-0.059</td>
<td>0.163</td>
<td>-0.390</td>
<td>0.251</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.032</td>
<td>0.058</td>
<td>-0.052</td>
<td>0.200</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.106</td>
<td>0.117</td>
<td>-0.426</td>
<td>0.061</td>
</tr>
<tr>
<td>Motivation</td>
<td>0.014</td>
<td>0.065</td>
<td>-0.066</td>
<td>0.238</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.031</td>
<td>0.110</td>
<td>-0.181</td>
<td>0.264</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.043</td>
<td>0.061</td>
<td>-0.027</td>
<td>0.234</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.017</td>
<td>0.067</td>
<td>-0.165</td>
<td>0.101</td>
</tr>
<tr>
<td>Motivation</td>
<td>0.006</td>
<td>0.041</td>
<td>-0.054</td>
<td>0.128</td>
</tr>
<tr>
<td><strong>Model 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-0.239</td>
<td>0.136</td>
<td>-0.543</td>
<td>-0.005</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-0.009</td>
<td>0.053</td>
<td>-0.157</td>
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</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.196</td>
<td>0.125</td>
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<td>-0.014</td>
</tr>
<tr>
<td>Motivation</td>
<td>-0.034</td>
<td>0.063</td>
<td>-0.233</td>
<td>0.047</td>
</tr>
<tr>
<td><strong>Model 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-0.166</td>
<td>0.105</td>
<td>-0.415</td>
<td>-0.001</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.006</td>
<td>0.037</td>
<td>-0.048</td>
<td>0.117</td>
</tr>
<tr>
<td>Perceptions of Deviance</td>
<td>-0.100</td>
<td>0.097</td>
<td>-0.337</td>
<td>0.055</td>
</tr>
<tr>
<td>Motivation</td>
<td>-0.071</td>
<td>0.069</td>
<td>-0.279</td>
<td>0.011</td>
</tr>
<tr>
<td><strong>Model 5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-0.009</td>
<td>0.109</td>
<td>-0.240</td>
<td>0.204</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.013</td>
<td>0.089</td>
<td>-0.172</td>
<td>0.196</td>
</tr>
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<td>-0.129</td>
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<tr>
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Discussion and Conclusion

Introduction

The results of mediation analyses conducted over six different models are presented in the previous chapter. In the present chapter, these results and their ability to explain the current study’s hypotheses are discussed. Additionally, this chapter addresses the implications of these findings along with the limitations of the current study. Lastly, the ultimate conclusions of this current study are outlined.

Discussion

There are a number of interesting findings from the mediation analyses worthy of discussion. To begin, none of the direct effects in any of the models are statistically significant. Cognitive-behavioral treatment did not have a significant impact on either reincarceration or self-reported crime at any of the three follow-up waves, when statistically holding constant self-efficacy, perceptions of deviance, and motivation to change behavior. In addition to this, in the preliminary analyses conducted prior to the mediation analyses, cognitive-behavioral treatment did not have a statistically significant impact on recidivism. These findings are not entirely surprising despite the plethora of literature that indicates that cognitive-behavioral interventions have a significant effect on recidivism (i.e. Allen et al., 2001; Golden, Gatchel, and Cahill, 2006; Landenberger and Lipsey, 2005; Pearson et al., 2002; Wilson et al., 2005), as the results of the original SVORI analyses were mixed. In the original SVORI analyses, there was not a statistically significant association between participation in cognitive-behavioral interventions and self-reported criminal activity. In contrast, participation in programming designed to change criminal attitudes was associated with a longer time to first arrest. However, as Lattimore and her colleagues (2012) highlighted, the effect did not last and faded in some of their later models.
Specifically, programming designed to address criminal attitudes was associated with a significantly longer time between release from prison and the offender’s first arrest. In contrast, program participation did not have a significant effect on the gap between the offenders’ first and second arrest. Program participation did result in a significantly longer time between the second and third arrest while the impact on the gap between the third and fourth arrest was not statistically significant (Lattimore et al., 2012). These results suggest that the impact of cognitive-behavioral treatment may not be constant in the time after release but rather, it may ebb and flow as the offender proceeds through their post-prison life. Another possible explanation for these results is that the effect of cognitive-behavioral treatment on time to rearrest is spurious and program participation does not actually impact rearrest.

Additionally, cognitive-behavioral programs were associated with significantly lower reincarceration six months following release from prison. This protective factor did not last beyond six months, however (Lattimore et al., 2012). The lack of significant direct effects suggest that it may not be participation in cognitive-behavioral treatment itself that leads to reductions in recidivism but rather, it is changes that result from participation in these interventions that lead to behavioral change.

While there were not any statistically significant direct effects in the current study’s models, there were several significant indirect effects. In Model 3, the total indirect effect was statistically significant. This means that cognitive-behavioral interventions significantly reduced reincarceration nine months post-release indirectly through self-efficacy, perceptions of deviance, and motivation to change behavior. Similarly, the total indirect effect in Model 4 was found to be statistically significant. Meaning, cognitive-behavioral treatment participation resulted in significantly lower self-reported crime nine months post-release indirectly through
self-efficacy, perceptions of deviance, and motivation to change behavior. These findings provide some support for the current study’s fourth hypothesis, which contends that the three cognitive transformation measures function together as a cumulative process to aid offenders in desisting from crime. Since the total indirect effect is calculated using the sum of the indirect effects in the model, it is likely that perceptions of deviance (the only significant indirect effect) is the driving factor here to an extent. However, it is important to note that even weak effects, when added up, can result in a strong enough outcome to detect with an inferential test (Hayes, 2013). The total indirect effect was not statistically significant in any of the other models, so the other four models did not provide support for this hypothesis. The total indirect effect in Models 3 and 4 is able to be statistically significant even though not all of the individual paths are statistically significant because the indirect effect is the product of the $a$ and $b$ paths. Since the indirect effect is the product of these two paths, the statistical significance of the paths is not necessary for the indirect effect to be significant (Hayes, 2013).

It is noteworthy that none of the indirect effects were significant in Models 1, 2, 5 or 6. This demonstrates that while cognitive-behavioral interventions were able to significantly reduce recidivism nine months following release from incarceration indirectly through the mediators, there was not a significant effect at three months or at fifteen months. This is somewhat similar to a pattern observed in the SVORI rearrest data. While program participation had a significant impact on the time to the offenders’ first arrest and third arrest following release from prison, it did not have a significant impact on the time to the second and fourth arrest (Lattimore et al., 2012). One possible explanation for the fact that cognitive-behavioral programming did not have a statistically significant impact three months after release but was significant at nine months post-release is that it may have taken offenders some time to apply the concepts they learned in
programming. When faced with the immediate challenges of reentry, such as finding housing and employment along with reuniting with family, the individual may be tempted to return to offending as a way to manage these challenges. However, falling back into these old, problematic offending patterns and getting into legal trouble may serve as a wake-up call of sort for respondents, sparking the drive to apply the new skills they learned in their cognitive-behavioral treatment. At the three-month post-release mark, while only 8.9% of the present sample was reincarcerated at this point in time, approximately 20% of the sample reported engaging in criminal activity.

Additionally, these results may indicate that the positive effects of program participation may fade sometime between nine and fifteen months post-release. The original SVORI data discussed above also had a similar pattern, with the positive effects of cognitive-behavioral program participation fading in later models (Lattimore et al., 2012). One possible explanation for the fading effect of program participation relates to the realities of life outside prison. As Maruna (2001) argued, “the ex-offender who decides he or she wants to desist from a life of drugs and crime often loses his or her resolve when faced with temptation and frustration” (p. 25). The offenders who participated in cognitive-behavioral programming and managed to stay away from criminal activity through the nine-month interview but later reoffended may have been able to use their acquired skills to manage the temptation and frustration of the outside world for a time, but ultimately found themselves lacking compared to the challenges they faced. As is highlighted by both Petersilia (2003) as well as Frost and Clear (2012), the return to criminal activity often occurs quickly, with the highest risk of recidivism occurring in the time period immediately following release. This is reflected in the current study’s results, with recidivism beginning to slow somewhat fifteen months following release from prison. At nine
months post-prison, reincarceration increased from approximately 9% at three months post-release to approximately 23% of the sample reincarcerated since their release. Approximately 20% of the sample reported engaging in criminal activity since their release at three months post-prison, which increased to 40% of the sample nine months post-prison. In contrast, at fifteen months post-release, about 33% of the present sample has been reincarcerated since their release from prison while approximately 49% of the sample has reported engaging in criminal activity since their release. Meaning, about 10% more of the sample was engaged in criminal activity by the fifteen-month interview wave. While participation in a cognitive-behavioral program may have served as a protective factor, it may not have been able to keep up with the challenges of reentry.

In addition to the total indirect effects, the mediation model also examines the indirect effects of the individual mediators. The indirect effect of perception of deviance was statistically significant in Model 3. Meaning, participants in cognitive-behavioral treatment had significantly lower reincarceration nine months post-release indirectly through perceptions of deviance, with self-efficacy and motivation held constant. The indirect effect of perceptions of deviance was not significant in any of the other models, which means that there was not an indirect effect three months or fifteen months following release from prison. Additionally, this means perceptions of deviance did not have an indirect effect on self-reported criminal activity. These findings provide considerably limited support for the hypothesis that cognitive-behavioral programming impacts recidivism indirectly through cognitive change processes. Maruna’s (2001) argument that desistance may end when the offender is faced with temptations and frustrations does not hold here because, while cognitive-behavioral programming did have a significant impact on reincarceration nine months after release, it did not have a statistically significant effect on self-
reported crime. If the fading of the program’s effect was due to the temptations and frustration of the world outside prison, this should be visible in the self-reported recidivism data as well. It is also worth noting that the perception of deviance scale uses somewhat charged language (e.g. “Laws are made to be broken”; see Table 5), which clearly suggest which a ‘correct’ answer. This is especially noteworthy since Maruna’s (2001) research noted that offenders may adopt more conventional values but fail to truly view deviance negatively. As such, it is possible that respondents answering these questions may give interviewers the more socially acceptable answers rather than the answers that truly reflect their current views regarding crime and deviance.

The indirect effect of motivation to change one’s behavior was not significant in any of the six models examined here. Nonetheless, motivation to change should not be discounted entirely as it made up part of the total indirect effect, which was statistically significant in two models. However, as discussed above, the total indirect effect was likely driven at least to some extent by the effect of perceptions of deviance. The existing literature suggests that motivation to change is a key aspect of both the desistance process (i.e. Laub and Sampson, 2001; Maruna, 2001; Maruna and LeBel, 2010) and the cognitive transformation process (i.e. Maruna, 2001; Giordano et al., 2002). Maruna (2001) contends that while desistance comes from within the individual, the catalyst for behavioral change often comes from an outside source that displays belief in the individual’s ability to succeed. Programs are one example of an outside source that Maruna (2001) suggests are capable of sparking change. However, motivation to change one’s behavior may in fact occur conceptually prior to participation in cognitive-behavioral programming rather than as an outcome of program participation, as Giordano and her colleagues (2002) argue. They list readiness or openness to change one’s behavior as the first
step to cognitive transformation. Thus, it is possible that motivation is something that must be
brought to the program rather than something that is taught by the programs. As such, it may be
more appropriate to either situate motivation to change as a necessary first step prior to
cognitive-behavioral programming or to account for motivation to change both prior to and
following program participation.

The last indirect effect that was examined was the indirect effect of self-efficacy. This
effect was not statistically significant in any of the current study’s six models. Like motivation,
self-efficacy should also not be overlooked due to the role it plays in the total indirect effect. One
possible explanation for the lack of significance in the self-efficacy indirect effect comes from an
argument made by Bottoms and his colleagues (2004). Bottoms et al. (2004) suggest that
although agency is a key aspect of the desistance process, an individual’s ability to change their
criminal behavior is limited by the extent to which they are aware of why they engage in these
behaviors in the first place. Agency cannot truly impact and explain criminal behavior if the
offender does not have a clear understanding of why they are committing crimes (Bottoms et al.,
2004). Thus, while the cognitive-behavioral program may have successfully impacted the
individual’s self-efficacy and agency, this would ultimately be unproductive if the offender did
not also gain insight into why they engage in criminal activity. The Thinking for a Change
Program does a great deal to address offender’s problematic thinking, problem solving skills, and
dealing with potentially challenging situations (Bush, Glick, and Taymans, 1997). However, this
curriculum does not address why the participating offenders engage in criminal behavior (Bush,
Glick, and Taymans, 1997). As such, the offenders in this sample may not have properly
addressed the reasons behind their offending prior to their release from prison.
It is also important to address how the individual motivation and self-efficacy indirect effects could have been not statistically significant in all six of the models while the total indirect effect (which included motivation and self-efficacy) was significant for two of the models. Both Maruna (2001) and Giordano et al. (2002) make the case that successfully desisting from crime may require more than one form of cognitive change. Maruna (2001) contends that desisting from crime necessitates a level of personal agency along with motivation to change the behavior. While motivation indicates a desire for behavioral change to occur, agency highlights the ability to put this desire for behavioral change into action. The cognitive change model formulated by Giordano and her colleagues (2002) indicates that several forms of cognitive change may be required for desistance from crime to occur. Agency is an essential component of the cognitive change process. However, both agency and cognitive transformation are required in order for a lasting change in behavior to occur (Giordano et al., 2002). This may explain why motivation and self-efficacy on their own are not significant indirect effects while they are able to play a role in the significant total indirect effect.

In addition to the direct and indirect effects, there are many pathways in the current study’s six models that were statistically significant. As discussed in the previous chapter, while reporting the statistical significance of the various pathways that make up the indirect effects is not necessary, it can provide interesting and useful accompanying information (Hayes, 2013). These pathways also address two of the current study’s hypotheses.

The results of Model 1 through 4 showed that the $a$ path between cognitive-behavioral programming and perceptions of deviance is significant. This means that offenders who participate in cognitive-behavioral interventions have significantly more negative perceptions of deviance both 30 days prior to release from prison and three months following release from
incarceration. This supports the hypothesis that cognitive-behavioral treatment has a positive impact on perceptions of deviance. However, the pathway between cognitive-behavioral programs and perceptions of deviance was not statistically significant in Models 5 and 6, failing to support the original hypothesis. This suggests that the effect program participation has on an offender’s views of crime and deviance fades between nine and fifteen months after release from incarceration.

In Model 3, the $b$ path between perceptions of deviance and reincarceration is also statistically significant. This demonstrates that more negative perceptions of deviance are associated with lower reincarceration nine months following release from prison, which is supportive of the original hypothesis. However, this path is not statistically significant and does not support the original hypothesis in any of the other models. The fact that perceptions of devian
tce are only statistically significant in one model is consistent with the findings from Taylor’s (2012) analysis of the SVORI data. Legal cynicism (the name for this scale in the original SVORI data and Taylor’s work) was not a statistically significant predictor of recidivism in most models. However, Taylor (2012) did conclude that respondents with higher levels of legal cynicism were significantly more likely to self-report engaging in drug crime following release from prison. These self-reported crimes occurred between the three month and nine month offender interviews. The findings from the current study, along with Taylor’s (2012) results, indicate that support for the hypothesis that perceptions of deviance reduces recidivism is minimal and is limited to the time period of nine months following release from prison.

The other statistically significant pathway is the $b$ path in Model 5 between self-efficacy and reincarceration. This indicates that individuals with higher levels of self-efficacy had lower reincarceration fifteen months following release from prison. This supports the initial hypothesis
that self-efficacy has a protective effect and reduces recidivism. However, this path is only significant in Model 5, which indicates the hypothesis is not supported prior to fifteen months after release or when self-reported crime is the outcome variable. This result is supported by other studies in the literature. In Orrick’s (2012) analysis of the SVORI data, self-efficacy was not a significant predictor of self-reported criminal activity. In addition, Orrick (2012) found that offenders with higher self-efficacy at the time of their release from prison had significantly longer time to first arrest as well as fewer total rearrests than offenders with lower self-efficacy. While the current study does not use rearrest as an outcome variable, Orrick’s (2012) findings highlight the fact that most of the relationships between self-efficacy and recidivism in the current model are not statistically significant.

In addition to these statistically significant findings, there were also some pathways with outcome that, while noteworthy, did not reach the level of statistical significance. In Model 4, individuals with higher levels of self-efficacy also had higher levels of self-reported criminal behavior nine months following release from prison. This does not support the original hypothesis, which argued that higher levels of self-efficacy would result in lower levels of self-reported crime. While both Maruna (2001) and Giordano et al. (2002) argue that self-efficacy is an important aspect of desistance from crime, the argument could be made that an individual could have high levels of self-efficacy but still continue to engage in criminal behavior. Bandura (1997) describes self-efficacy as the abilities an individual has to manage and organize the actions that are necessary to achieve a given task. An individual could be engaged criminal activity while also feeling that their life is in control and that they are able to deal with the problems they encounter in their life.
Participation in cognitive-behavioral interventions had a negative impact on self-efficacy in Models 1, 2, 5, and 6. This means that participating in cognitive-behavioral treatment actually resulted in lower levels of self-efficacy 30 days prior to release from incarceration and nine months following release from prison. Although not statistically significant, this is the opposite of the effect that was anticipated. Many cognitive-behavioral programs use cognitive restructuring to help individuals view their life as the outcome of their own behaviors and decisions (Lipsey et al., 2007). This is a necessary process for individuals with self-efficacy issues so they learn to take ownership over their actions rather than blaming them on chance and circumstance (Maruna, 2001). The Thinking for a Change program, which is utilized by four of the five states examined here, specifically outlines a focus on cognitive restructuring and on taking responsibility for one’s decisions (Bush, Glick, and Taymans, 1997). This focus on self-efficacy along with the findings showing that program participation actually has a negative (though not significant) impact in many models suggest there could be issues related to program fidelity. The states implementing the Thinking for a Change program may not be faithfully following the curriculum or may not be implementing quality programs. In addition, there is also the possibility that the cognitive-behavioral programs examined here simply did not work in terms of impacting an individual’s self-efficacy.

Another noteworthy non-significant finding is the relationship between motivation and recidivism in Models 1 and 2. In Model 1, offenders with higher levels of motivation to change their behavior have higher reincarceration three months following their release from prison. In Model 2, offenders with higher motivation to change have higher self-reported criminal activity three months following release from prison. These findings are inconsistent with the existing literature (i.e. Laub and Sampson, 2001; Maruna, 2001). It may be the case that the issue is the
measure of motivation. The Wave 1 motivation scale, which was used in both Models 1 and 2, has an internal consistency that is below acceptable levels (alpha=0.55).

It is also important to examine the findings from this study in the context of other studies conducted using the SVORI data. Several other studies examined the effect of cognitive-behavioral program participation on recidivism following release. The results were mixed in studies that used multiple forms of programming to measure cognitive-behavioral programming participation (e.g. Gosse, 2013; Lattimore et al., 2012). For example, Lattimore and her colleagues (2012) did not find a significant effect of cognitive-behavioral treatment of self-reported crime but there were some significant effects on rearrest, time to rearrest, and reincarceration. The results were also mixed with studies that measured cognitive-behavioral programming using the treatment to change criminal behavior attitudes measure (the variable used to measure cognitive-behavioral treatment in the current study). Gosse (2013) found treatment to change criminal behavior attitudes had a statistically significant effect on rearrest and Visher et al. (2017) found this treatment had a significant effect on time to rearrest. However, Mowen et al. (2018) concluded that there was not a significant impact on self-reported criminal behavior. The lack of significant direct effects in the present study is not entirely surprising given the mixed nature of the previous research using this data. However, it is worth noting that the reincarceration figures utilized by Lattimore et al. (2012) included NCIC data that was not included in the reincarceration data used in the present study. As such, comparisons of the reincarceration results should be made with caution.

In terms of the mediators, Orrick (2012) found that the self-efficacy scale had a significant effect on the time to first arrest and on the number of arrests following release from prison. However, self-efficacy did not have a significant effect on self-reported crime. In the
current study, the indirect effect of self-efficacy on reincarceration was not statistically significant nor was the indirect effect on self-reported crime significant in any of the models. The path from self-efficacy to reincarceration was significant in Wave 4. Thus, the current study had findings consistent with those of Orrick (2012) in terms of self-reported crime. Orrick (2012) also examined motivation to change. This had a significant effect on time to first arrest but was not a significant predictor of number of arrests or self-reported crime (Orrick, 2012). The indirect effect of motivation to change was not significant in any models in the current study and none of the paths involving motivation were significant. As such, the current study’s findings regarding motivation to change are also consistent with Orrick’s (2012) in terms of self-reported criminal behavior.

The perceptions of deviance measure was created using the legal cynicism scale, which was used in Taylor’s (2012; 2015) and Taylor and Becker’s (2015) analyses. Taylor (2012) found that increased legal cynicism resulted in significantly higher self-reported drug offenses. In the subsequent analysis, Taylor (2015) found that legal cynicism had a significant effect on whether or not an individual reported engaging in crime at the nine-month follow-up and a significant effect on self-reported violent crime specifically at the fifteen-month follow-up. In contrast, Taylor and Becker (2015) did not find any significant effects of legal cynicism on self-reported crime. The present study’s findings regarding self-reported crime are more consistent with the results displayed in Taylor and Becker’s (2015) analysis than Taylor’s (2012; 2015) findings, as the indirect effect of perceptions of deviance did not have a significant impact on self-reported crime in any of the models. However, the total indirect effect on self-reported crime, which included perceptions of deviance, was significant in Model 4. Additionally, the indirect effect of perceptions of deviance did have a significant impact on reincarceration in
Model 3. As noted above, perceptions of deviance may also be the driving factor behind the statistical significance of the total indirect effect in Model 3.

Interventions and conditions examined in other analyses of SVORI data had mixed results in terms of whether they impacted recidivism following release from incarceration. Workman (2018) concluded that mentoring programs did not have a significant effect on self-reported crime. Similarly, Stansfield and colleagues (2018) found that religion and spiritual support did not significantly impact self-reported criminal behavior. When examining reincarceration, Chamberlain et al. (2018) concluded that a supportive relationship with one’s parole officer was significantly associated with a decrease in reincarceration. In contrast, Lattimore and her colleagues (2010) found that participation in the SVORI intervention had a significant effect on self-reported crime three months following release but there was not a significant difference in terms of reincarceration or rearrest. As noted above, both Lattimore et al. (2010) and Chamberlain et al. (2018) used NCIC data in their reincarceration measures, so comparisons should be made with caution. In the current study, there were some significant associations with recidivism. Cognitive-behavioral programming had a significant effect on both reincarceration and self-reported crime nine-months post-release indirectly through self-efficacy, perceptions of deviance, and motivation to change behavior. Cognitive-behavioral programming also had a significant indirect link to reincarceration through perceptions of deviance in Model 4 when controlling for self-efficacy and motivation. These mixed findings are consistent with the mixed findings from the previous studies. There is not a clear pattern of successful recidivism reduction displayed by the previous works using this data. Some interventions are successful in reducing recidivism, depending on the measure, while others have been less successful. This difficulty in achieving success following release may be explained in part by the sample utilized
in these studies. The SVORI sample consists of serious and violent adult male offenders, individuals that are at a higher risk of reoffending.

Ultimately, the findings of the current study are unusual and difficult to explain. It is odd that there are not any significant direct or indirect effects in three months following release from incarceration, but the total indirect effect and indirect effect of perceptions of deviance are significant nine months following release from prison. These effects disappear fifteen months following release from incarceration, at which point none of the direct or indirect effects are statistically significant. There are a number of indicators that demonstrate the difficulty associated with claiming cognitive-behavioral treatment does or does not work following this analysis.

One example of this relates to the cognitive transformation measures. The indirect effect coefficient of perceptions of deviance was significant in Model 3 and was also part of the significant total indirect effect coefficients in Model 3 and 4. Rather than serving as an indicator that offenders have changed their views of criminal and deviant behavior, it is possible that this is instead an indicator that offenders have learned the proper responses to questions regarding crime and criminal justice system. As mentioned previously, the statements used in the perceptions of deviance scale are rather charged and clearly suggest the appropriate, prosocial answer (e.g. “It’s okay to do anything you want as long as you don’t hurt anyone”; “Fighting with friends and family is nobody else’s business”). As such, it is possible that the program participants in have learned to say the right things about crime and deviance rather than actually making prosocial changes. This is consistent with Maruna’s (2001) argument that few ex-offenders actually make the transition to viewing crime and deviance in a negative light. The possibility that individuals learned to provide the socially acceptable response rather than
actually making prosocial change is especially concerning given that the two cognitive
transformation measures that more directly address prosocial behaviors were not statistically
significant in any of the models. If change had been observed in an individual’s motivation to
change their behavior or in the individual’s self-efficacy, these would both would demonstrate
prosocial changes being made within the individual. However, none of these three factors were
statistically significant in any of the six models. As a result, despite the statistically significant
findings associated with the perception of deviance measure, it does not appear that prosocial
changes occurred following program participation.

The treatment measure itself also creates difficulty in determining whether or not
cognitive-behavioral program participation was effective. The survey question used to measure
the treatment and participation in cognitive-behavioral programming ("Since you have been
incarcerated this time, have you received training on how to change your attitudes related to
criminal behavior?") has several flaws as a programming measure. Despite being designed to
address cognitive-behavioral programming participation (Lattimore, Steffey, and Visher, 2010;
P. Lattimore, personal communication, October 14, 2014), this question does not directly
reference cognitive-behavioral programming. As a result this creates room for individuals to
define their program experiences as being cognitive-behavioral when they are not or as not being
cognitive-behavioral when they are. In addition, because this is the only measure in the dataset
that references cognitive-behavioral programming, it is not clear whether or not the individual
has completed the programming from this variable. Existing literature, such as Wormith and
Olver’s (2002) study, indicates that individuals who do not complete programming differ from
individuals who are able to complete programming in several areas. Completers and
noncompleters differed in terms of education, employment history, and risk score (Wormith and
Olver, 2002). Information regarding treatment dosage is also lacking from the treatment variable and dataset. Program dosage is an important component of treatment integrity and is necessary to understanding a program’s effectiveness (Quay, 1977). Treatment participation, completion, and dosage are all essential areas to understanding the effectiveness of a treatment program. By not having sufficient information regarding treatment participation, completion, and dosage in the treatment variable and the dataset as a whole, it is difficult to examine the effectiveness and success of cognitive-behavioral treatment.

Other studies using the SVORI impact evaluation to examine cognitive-behavioral programming have somewhat unclear findings. For example, as mentioned previously, Lattimore and colleagues (2012) found that programming to address criminal behavior attitudes (the treatment variable in the current study) was associated with a longer time to between an individual’s second and third arrest following release from prison. However, this positive effect did not last. The program did not have a significant effect on the time to between the offender’s third and fourth arrest following release from prison (Lattimore et al., 2012). This pattern of statistical significance is somewhat similar to the rather odd findings in the current study. The positive findings of the program were not immediately apparent and then appeared to vanish. In addition, Lattimore et al. (2012) did not find any significant relationship between the treatment and self-reported criminal activity. This is also consistent with the findings in the current study. However, Lattimore et al. (2012) did find that individuals who participated in programs to change their criminal behavior attitudes had a decreased likelihood of reincarceration six months following their release from incarceration. The difference in findings from the current study can be explained by the fact that Lattimore et al.’s (2012) reincarceration data includes NCIC reincarceration data in addition to the official state records data used in the current study.
In contrast, Gosse’s (2013) analysis found that individuals who participated in cognitive-behavioral programming (measured using the same variable as the current study) had significantly lower rearrest rates during all three of the follow-up interview waves compared to individual who did not receive this programming. Gosse (2013) may have arrived at different results because propensity score matching was not employed, as is done in Lattimore et al. (2012) and in the current study. In addition, the current study was not able to examine rearrest as an outcome measure.

Visher et al.’s (2016) analysis examining the role of programming designed to change criminal behavior attitudes found that participation in these programs is associated with significantly longer time to first arrest following release from prison. This was not a lasting effect and the time to the second arrest was not statistically significant. Participating in this form of programming also did not have a significant impact on an individual’s number of arrests (Visher et al., 2016).

When examining the results of the studies that utilize programming to change criminal behavioral attitudes as a cognitive-behavioral treatment measure, they display an unusual pattern of results, which is somewhat similar to the current study. This measure of cognitive-behavioral treatment may impact time to rearrest but not in any clear, consistent manner. Reincarceration may also be impacted but only six months following release, a time period during which relatively few individuals have had the chance to become reincarcerated. Self-reported crime is not significantly impacted, which is consistent with the findings of the current study, but this measure was only examined in one of these analyses.

When taking a broader look at SVORI studies that have recidivism as an outcome, the results are mixed. Several of the studies concluded that interventions or other conditions were
able to have a significant impact on recidivism. For example, Link and Roman (2017) found that employment result in reduced rearrests at the three month and fifteen month follow-up waves. Wikoff (2015) concluded that employment and education programs significantly reduced rearrest at the nine-month wave but this effect disappeared by one year. Additionally, Lattimore and her colleagues (2010) found that individuals who received SVORI programming were less likely to report engaging in criminal or violent behavior at the three-month follow-up wave. Chamberlain et al. (2018) concluded offenders with a supportive parole officer relationship had a significantly lower risk of reincarceration than those with an unsupportive relationship. In contrast, other examinations of the SVORI data were unable to find a significant difference between individuals who received the intervention or treatment and those who did not in terms of recidivism. Lattimore and her colleagues (2010) did not find a significant difference between SVORI participant and the control group in terms of rearrest or reincarceration. Religious or spiritual programs did not have a statistically significant effect on self-reported criminal behavior (Stansfield et al., 2018).

These studies also demonstrate mixed results. Some studies did find significant recidivism reductions. However, these were not necessarily immediate or lasting effects. This is ultimately similar to the current study as the only significant reincarceration findings in the present study were not immediate or lasting. Self-reported crime was not significant in any of the models of the current study. Comparing these findings to the current study is complicated by the fact that rearrest data was not available to the current study. Additionally, few studies used reincarceration as an outcome measure and those that do utilize NCIC data in addition to official state data.
The odd results found in the current study may be best explained by the fact that the SVORI impact evaluation data is ultimately not well suited to evaluation of a cognitive-behavioral program. The stated goal of the Serious and Violent Offender Reentry Initiative was to “develop programs to improve criminal justice, employment, education, health, and housing outcomes for released prisoners” (Lattimore and Visher, 2009, p. v). The impact evaluation set out specifically to determine if individual who received these enhanced reentry services had improved outcomes (such as recidivism, employment, or housing) following their release from prison. Meaning, the impact evaluation set out to determine if the programming was effective (Lattimore and Steffey, 2009). However, as discussed above, this dataset does not include information that is essential to making conclusions regarding program effectiveness. The dataset is lacking information regarding whether or not the individual completed a given program. In addition, the dataset is lacking information relate to program dosage, which is a key aspect of program integrity. In some cases, as is the case with the variable designated as a measure of cognitive-behavioral treatment, there is even a lack of clarity concerning whether the individual participated in the treatment of interest. Given all of these concerns, it seems that it is very difficult to effectively examine program effectiveness using the SVORI impact evaluation.

**Limitations**

As with any secondary analysis of data, the current study has several limitations. The first of these limitations is that the measure of cognitive-behavioral participation relies on the offender correctly understanding the interview question. The question used for the independent variable, "Since you have been incarcerated this time, have you received training on how to change your attitudes related to criminal behavior?” (Lattimore and Visher, 2011b, p. 74) is designed to reflect offenders’ participation in cognitive-behavioral programming (Lattimore,
Steffey, and Visher, 2010; P. Lattimore, personal communication, October 14, 2014). Due to the fact that this interview question does not directly reference cognitive-behavior treatment or intervention, there is room for individuals to mislabel their experiences as either being cognitive-behavioral in nature when they were not or as not being cognitive-behavioral when they were, in fact, cognitive-behavioral treatments. As such, this measure is subject to error in terms of respondents misreporting their participation. Respondents may not accurately remember what services they received during their incarceration, may not understand the services they have received, or may lie about their program participation (Lattimore et al., 2012). In the present study, prior to the propensity score matching, approximately 53% of respondents report participating in cognitive-behavioral treatment while approximately 47% report that they did not. However, because Nevada required participation in its cognitive-behavioral program as part of its SVORI package (Lattimore et al., 2004), this can be used as a gauge of the CBT measure. In Nevada, approximately 90% of SVORI offenders report receiving cognitive behavioral programming (Table 18). This number is close to what would be expected given the state of Nevada’s SVORI treatment parameters, indicating that offenders may be correctly interpreting this question.

**Table 18: Nevada SVORI CBT Participation**

<table>
<thead>
<tr>
<th>SVORI Participation</th>
<th>CBT Participation</th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SVORI Participation</td>
<td>Yes</td>
<td>85 (90.4%)</td>
<td>9 (9.6%)</td>
<td>94 (100%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>15 (44.1%)</td>
<td>19 (55.9%)</td>
<td>34 (100%)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100 (78.1%)</td>
<td>28 (21.9%)</td>
<td>128 (100%)</td>
</tr>
</tbody>
</table>
Similarly, the measure of cognitive-behavioral participation does not provide information regarding the specifics of the respondents’ participation history. While the SVORI dataset includes information as to whether or not an individual has participated in cognitive-behavioral programming at some point during their current incarceration, this dataset does not indicate whether the respondent successfully completed the program or dropped out of the program prior to completion. This is important to note because the existing literature indicates that there may be important differences between individuals who complete prison programs and those who do not complete these programs. For example, Wormith and Olver’s (2002) examination of violent offenders in an intensive treatment program found that noncompleters differ from completers in several areas. Noncompleters had higher risk scores, lower levels of education, less employment history, and were more likely to be aboriginal (Wormith and Olver, 2002). Similar results were found in Cullen, Soria, Clarke, Dean, and Fahy’s (2011) analysis of mentally disordered offenders’ participation in cognitive skills programs. Noncompletion of the program was predicted by violence risk, antisocial characteristics, psychopathy, and recent violence. However, contrary to Wormith and Olver’s (2002) findings, Cullen et al. (2011) did not find any demographic variables, including education, to be significant predictors of program noncompletion. In addition, Wormith and Olver (2002) also contend that many of the factors that make an individual less likely to complete a treatment program also make the individual more likely to recidivate following release from prison.

An additional limitation of the current study is that the dataset is lacking in program information. The dataset only includes measures of whether or not the respondent participated in programming. As discussed previously, the SVORI impact evaluation was not designed to examine the effectiveness of individual programs and services. The impact evaluation included
dozens of programs and services, offered in numerous facilities in several different states (Lattimore et al., 2012). As such, detailed information regarding the services and programs offered as part of the SVORI reentry project or as part of treatment-as-usual is not available. However, the exceptions to this are the sites that include the specific branded cognitive-behavioral intervention (e.g. Thinking for a Change) have been offered. In supplemental materials associated with the original study (Lattimore et al., 2004), it is possible to identify which states offered cognitive-behavioral programs and if a branded curriculum was utilized, identifying four of the states for the present study. Direct contact with the Indiana Department of Corrections was able to identify the curriculum used for the fifth state in the current study (M. Guyer, personal communication, August 13, 2015). While branded programs are not necessarily any more effective than nonbranded programs (Landenberger and Lipsey, 2005), being able to identify the curriculum that was followed also allows for the identification of the goals and skills addressed in the program. However, while the current study can examine programs with a known curriculum, this study cannot explore the quality of the cognitive-behavioral interventions being offered or the role that quality plays in the ultimate outcome for the respondents. In addition, the current study cannot explore the degree to which any of these programs follow the program’s curriculum. In their analysis, Lattimore and colleagues (2012) make the suggestion that one could expect that the programs identified in their original study may be more likely than others to provide quality services. This is based in the argument that a great deal of effort was undertaken to initially identify suitable sites for the original study. Given this initial stringency, the programs at sites included in the original study had clearly defined goals, elements, and had either already been implemented at the site or were very likely to be implemented soon. As such, Lattimore and colleagues (2012) argue, “there is no reason to believe that the quality would be any less than the
average quality of these types of services being provided in institutions at that time” (p. 130). As a result, this may be an indicator that the programs as implemented may not be working to effectively reduce offenders’ recidivism.

Furthermore, the dataset that is used in this study does not include any interview waves or measures that occur prior to program participation. Rather, the first wave of offender interviews occurs just prior to release from incarceration. Thus, the first interview occurs after any program participation and the data does not reflect when the individuals’ program participation occurred during their incarceration. Consequently, the present study is not able to directly explore how respondents change as they progress through their incarceration and through their participation in the cognitive-behavioral program. In addition, not knowing when an individual participated in programming makes it impossible to examine any decay effects that may be occurring. The lack of pre-program measures makes ensuring treatment and control group equivalence more difficult. However, the methodology outlined above, specifically the propensity score matching procedures, seeks to address this limitation and the lack of pre-program measures. Though some significant associations have been found, these limitations make it difficult to argue that participation in cognitive-behavioral programming is causally related in any changes in offending behavior.

Implications

The findings of the current study present several implications for both future research as well as for policy and practice. In terms of future research, it will be important to include preprogram measures of the key variables of interest in future studies of cognitive-behavioral programming. While the propensity score matching process utilized in the current study goes a long way to establishing the equivalence of the treatment and control groups, it is unable to
tackle all of the questions that arise from the lack of measures that occur prior to participation in cognitive-behavioral programming. For example, none of the cognitive change variables utilized in the present study have preprogram measures. Each of these variables was measured after participation in cognitive-behavioral treatment. As a result, the limited effects that are observed here cannot be causally linked to participation in cognitive-behavioral programming. The presence of these preprogram measures would be helpful in establishing the time ordering of the cognitive change variables, particularly in the case of motivation. The work of Maruna (2001) and Giordano et al. (2002) indicate a degree of disagreement on this matter. Giordano and her colleagues (2002) contend that readiness to change one’s criminal behavior is the first step of cognitive change while Maruna (2001) suggests that the change process is often begun when an outside source displays confidence in an individual’s ability to change. However, the results of the current study indicate that participating in cognitive-behavioral interventions can influence recidivism indirectly through motivation, self-efficacy, and perceptions of deviance. Currently, while this study has cognitive change measures, it is not possible to conclude that any cognitive change is due to treatment participation. If the measures of cognitive change from both before and after cognitive-behavioral treatment were present, this temporal ordering would be able to be clarified.

In addition, a gap in the current study that should be explored by future research relates to the quality and implementation of cognitive-behavioral programs. Since the current study was a secondary analysis of an impact evaluation, the variables included in the dataset did not address the quality of the programs being offered or faithfully the program followed the curriculum. In order to truly understand how and why a program is working, it is imperative to understand how well the program was implemented. As Lipsey and his colleagues (2007) argue, “What seems to
most strongly characterize effective CBT programs is high quality implementation as represented by low proportions of treatment dropouts, close monitoring of the quality and fidelity of the treatment implementation, and adequate CBT training for the providers” (p. 22). The curriculum of a program cannot be assessed or examined if it is unclear to researchers how closely programs follow this curriculum. In addition, understanding the quality and implementation of a program is important when trying to make comparisons among programs. A true assessment cannot be done if one is comparing a poorly implemented Reasoning and Rehabilitation program to a high quality, well-implemented Thinking for a Change program.

Similarly, it is important to be able to examine whether offenders who participate in cognitive-behavioral programming successfully complete their treatment or if they drop out of the program prior to completion. The effect program participation has on an individual will undoubtedly differ depending on how much, if any, of the program has been completed. In the SVORI dataset, the only information available is whether or not an individual believes they received cognitive-behavioral treatment at some point during their current incarceration. As discussed in the previous section, studies (e.g. Wormith and Olver, 2002) indicate that there are differences between individuals who drop out of correctional programming and individuals who are able to successfully complete these programs. As such, future studies of cognitive-behavioral interventions should include measures which examine how much of the treatment program was completed by the offender.

The findings of the current study also suggest that follow up with respondents beyond fifteen months would be beneficial. In the current study, cognitive-behavioral programming had a significant indirect effect on recidivism through the cognitive transformation variables nine months following release from prison. This impact was not significant three months or fifteen
months post-release. However, this follow up period is only slightly longer than their first year following release from incarceration. In their analysis, Blumstein and Nakamura (2009) examined the amount of time it would take for the recidivism risk of a sample of New York offenders to match the recidivism risk of the general population. The results of this study indicated that it may take anywhere from 3.2 to 8.5 years for the risk of offenders to match to recidivism risk of the general population, depending on age at first arrest and type of crime committed (Blumstein and Nakamura, 2009). For example, an individual arrested for robbery at age sixteen would take 8.5 years for their risk to match the general population while someone arrested for aggravated assaulted at age twenty would take 3.3 years (Blumstein and Nakamura, 2009). Given this, a longer follow up period would provide the opportunity for a more complete picture of the offenders’ recidivism along with the role that cognitive-behavioral treatment may play in it.

In addition to these research-related implications, there are also several implications associated with policy and practice. In two of the current study’s models, the total indirect effect of cognitive-behavioral interventions on recidivism through the three cognitive transformation variables was statistically significant. While motivation to change, self-efficacy, and perceptions of deviance all play a role in the total indirect effect, perceptions of deviance is likely the primary driver behind the significant impact. Though the limitations of the current study do not allow one to conclude that these are causal relationships, the significant associations are still present. As a result, it may be beneficial for cognitive-behavioral programming curricula to include aspects that specifically address offenders’ perceptions of criminal behavior and deviance.
Another aspect of program practice that should be addressed is the potential fading of the effects of program participation following the nine-month mark. In the current study, the statistically significant indirect effects of program participation all occurred nine-months following release from prison. These findings were not significant at three months and no longer significant fifteen months following release from prison. One explanation for these findings is that the effect of treatment participation on recidivism is simply spurious and there is not real effect of cognitive-behavioral programming participation on recidivism. Another potential explanation is that the treatment effects from the nine-month wave have faded by fifteen-months. One factor to examine is when treatment is offered in comparison to when the offender is released from prison. If the treatment is made available too far in advance of release from prison, the skills acquired by the individual may begin atrophy by the time the offender is actually able to put them into use upon release. This dataset does not indicate when the individual offenders received their cognitive-behavioral treatment.

Conclusion

The present study sought to examine how and why cognitive-behavioral programming may be effective in increasing the likelihood of desisting from crime for offenders who participate in this form of intervention. Specifically, this study explored whether participation in cognitive-behavioral treatment resulted in cognitive transformation, which ultimately impacted the offender’s desistance from crime. Cognitive transformation desistance theories, specifically the work of Maruna (2001) and Giordano et al. (2002) are used to contextualize this examination of cognitive-behavioral interventions in correctional settings.

Four hypotheses were presented to address these questions. First, it was hypothesized that participation in cognitive-behavioral programming increases the likelihood of cognitive
transformation occurring. The second hypothesis argued that offenders who experience higher levels of cognitive transformation would desist at higher levels than offenders with lower levels of cognitive change. The third hypothesis, participation in cognitive-behavioral programming will increase desistance indirectly through the cognitive transformation process, followed logically from the previous two hypotheses. The final hypothesis contended that forms of cognitive transformation function together as a cumulative process.

The results from the six models in the mediation analyses led to several conclusions. First, there is some support for the first hypothesis. Cognitive-behavioral programming was able to significantly increase negative perceptions of deviance at both three and nine months following release from prison. However, program participation did not have a significant impact on other forms of cognitive transformation or in other waves. Next, there is limited support for the second hypothesis. More negative perceptions of deviance resulted in lower reincarceration nine-months post-prison and higher self-efficacy resulted in lower reincarceration fifteen months after release from incarceration. None of the other findings related to this hypothesis were statistically significant.

The support for the third hypothesis is also rather limited. Nine months following release from prison, cognitive-behavioral programming participation resulted in significantly lower reincarceration indirectly through perceptions of deviance, when controlling for self-efficacy and motivation. Cognitive-behavioral programming did not have a significant effect on recidivism through the other forms of cognitive transformation or during other waves. Lastly, the fourth hypothesis received some support. Cognitive-behavioral programming significantly lowered both reincarceration and self-reported nine months after release indirectly through self-efficacy,
motivation to change behavior, and through perceptions of deviance. The combined effect of the three cognitive transformation variables was not significant at any of the other time periods.

Ultimately, while there is support for each of the four hypotheses, this support is quite limited. In this analysis, cognitive-behavioral programming only results in cognitive change during the three month and nine month measurement periods. The complete process of cognitive-behavioral program participation, cognitive transformation, and desistance from crime occurred only occurred nine months after release from incarceration. As such, it is apparent that there is further work to be done in this area to further clarify how and why cognitive-behavioral programs work.

Additionally, it is crucial to acknowledge the difficulty in drawing any sort of definitive conclusions in a program evaluation such as this. It is very difficult to make an accurate assessment of a program using the SVORI impact evaluation because little is known about the conditions under which treatment occurred or whether the individual successfully completed the program. The ability to make a precise appraisal of the program is further hampered when the interview question that addresses whether or not the respondent participated in cognitive-behavioral programming does not directly reference cognitive-behavioral treatment. When a series of limitations are present in a program evaluation, the discussion of “what works” and the process of determining which practices are, in fact, best correctional practices are complicated. These limitations cloud any important findings regarding the program itself and making definitive conclusions regarding the effectiveness of the program or treatment difficult to make. As such, in order to truly advance the discussion of effective correctional interventions and “what works” in corrections, program evaluations must be conducted with an eye towards being able to assess program implementation and quality while minimizing limitations. Ultimately,
these issues must be addressed in order to obtain the crucial understanding of how cognitive-behavioral program participation may result in cognitive change and, from this, how to create lasting cognitive change that results in lasting behavioral change.
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