

CORRECTIONAL CASE PLANNING: AN EXAMINATION INTO THE IMPACTS OF CASE
PLANS ON OFFENDER RECIDIVISM

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ABSTRACT

Case planning has become common practice within many correctional intervention programs. While the practice of case planning is not a new idea, it remains a largely neglected field within the study of offender rehabilitation. The current study seeks to expand this literature by investigating the effects of four case plan components: compliance, specificity (consisting of positively stated, measurable, and singular objectives), breadth, and expiration. To do so, the study examines 859 correctional case plans of offenders receiving treatment at a Halfway House facility. The results indicate that case plan compliance, breadth, and expiration are not significantly associated with offender recidivism. Additionally, only one of the specificity domains, positively stated, is significant. The positive relationship indicates that more positively stated objectives are associated with higher recidivism when other case plan specificity variables are controlled for. While the results fail to support the initial hypotheses, supplemental analyses demonstrate the importance of continued research on impacts of case plans. As a result, this paper should not be used as a justification to dismiss case planning but rather as a call for more research. The discussion section provides a continued narrative on how future research can expand on what is currently understood about the impacts of case planning on offender recidivism outcomes.

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DEDICATION

For my mother and my father,
neither of whom could tell you what this dissertation is about,
both of whom would insist it is exceptional.

I love you.

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CHAPTER 1: INTRODUCTION

Development of Case Management

Case management and case planning practices have been used by a variety of fields dating back to the 1920's (Cesta, 2017; Kersbergen, 1996). While there is no one definition for case management, it broadly refers to the process through which services are delivered and generally includes practices such as client assessment, service referral, and the tracking of progress (Austin & Caragone, 1980; Loomis, 1988). Another component of case management is case planning. Case planning refers to the process of setting goals or creating a plan to change a behavior or improve specific outcomes (Day et al., 2012).

Case management developed as a method of handling cases that require long-term care. These practices have been used in dealing with mental, physical, and sociological ailments. Specifically, they offered a way to break down complex problems into more actionable objectives (Cesta, 2017). Following the return of soldiers after World War II, case management practices expanded and became standard for several practices. In the 1970's, these practices were also adopted by correctional service providers (Camilleri, 2000; Cesta, 2017).

Research in the fields of psychology, social work, and health provide some indication of the impacts of case management practices. For example, research suggests that management practices can significantly reduce psychological distress, depression, and loneliness as well as increase life satisfaction in adolescence and elderly citizens (Bonaparte et al., 2019; Taube et al., 2018). Fewer scholars have examined the effects of case planning practices specifically; however, some scholars within the field of social work have contributed to this discussion. For example, there is some evidence to suggest that case planning can reduce parental relapse and improve foster care outcomes (Christensen & Todahl, 1999; Pecora & Maluccio, 2000).

Historically, correctional interventions have shifted between various ways handling offenders', a common element found among modern prison and probation is a focus on the treatment and reentry practices used (Latessa & Holsinger, 2011; Mackenzie, 2001). It is a common role of probation officers to broker services to offenders (Healey, 1999). Thus, the concept of case management is necessary to oversee and monitor the treatment delivered to offenders.

While case management services are now widely implemented among correctional populations, little is known about their effectiveness. Despite the lack of research on case management and case plan development, there is limited evidence to support continued use. Specifically, prior research seems to indicate that strictly supervising offenders within the community, absent treatment intervention, is ineffective in reducing recidivism (Bonta et al., 2008). However, to achieve a better understanding of what case management practices may be effective, it is important to revisit what works generally within offender treatment.

Correctional Treatment

Offender treatment in the United States has experienced several shifts from rehabilitative ideals to retributive ones and the reverse. However, research spanning over the last 30 years has focused extensively on identifying what treatments are effective in reducing offender recidivism (Andrews, Bonta, and Hoge, 1990; Cullen and Gilbert, 1982; Gendreau, 1996; Lipsey, 1999; Palmer, 1975). This literature embodies evidence regarding who is best targeted through treatment, what treatment is effective, and how long offenders should receive treatment. Collectively, this body of research led to the development of the principles of effective intervention.

The principles of effective intervention consist of research-driven principles which influence offender recidivism (Andrews, 1995). The first of these is the risk principle. The risk principle outlines the importance of assessing offender risk using objective and validated tools (Bonta & Andrews, 2007; Makarios, Sperber, & Latessa, 2014). In addition, it states that the information gleaned from risk assessments should drive the intensity of treatment which offenders receive. Similarly, offender needs also must be identified and targeted. The need principle specifically emphasizes targeting criminogenic needs, or needs that are directly related to offending (Bonta & Andrews, 2007). While the risk and need principles address who and what to target with treatment, the responsivity principle focuses on how (Bonta & Andrews, 2007; Henwood, Chou, & Browne, 2015; Landenberger & Lipsey, 2005; Lipsey, Chapman, & Landenberger, 2001). Specifically, it identifies treatment modalities that have the greatest impact on offender recidivism. Finally, fidelity centers on treatment integrity or the level accuracy and consistency of the delivery of a program (Andrews & Dowden, 2005; Barnoski, 2004; Duwe & Clark, 2015; Lowenkamp, Latessa, & Smith, 2006; Miller & Miller, 2016). Collectively, these principles provide a framework from which to guide offender treatment practices and are referred to as the RNR model.

Using RNR in Case Management

Since the RNR model has decades of research supporting its effectiveness (Andrews, 1995; Andrews, Bonta, & Hoge, 1990; Bonta & Andrews, 2007; Hannah-Mofatt, 2005; Makarios, Sperber, & Latessa, 2014), it can serve as a framework from which to understand the impacts of case management. Much of existing case management research has centered on this connection. Specifically, a number of scholars have focused on how case plans implement the

principles of risk and need (Bonta et al., 2004; Campbell et al., 2015; Haas & DeTardo-Bora, 2009; Miller & Maloney, 2013; Viglione, Rudes, & Taxman, 2014).

One way in which case management and case planning can implement the risk principle is by properly completing risk assessment tools and using that information to guide treatment intensity. However, research indicates some flaws with these practices. Several studies demonstrate that staff responsible for completing risk assessments occasionally diverge from the guidelines (Miller & Maloney, 2013; Schaefer & Williamson, 2018). For example, Miller and Maloney (2013) used a questionnaire of community corrections staff to examine adherence to risk assessment administration. Their results indicate that over 12 percent of staff failed to properly implement the assessment. Staff would deviate by putting in minimal effort, exaggerating the client's characteristics, or otherwise distorting the information.

While Miller and Maloney (2013) and Schaefer and Williamson (2018) shed light on issues with adhering to proper assessment, case managers can also implement the risk principle by using risk scores to guide their case plans. Existing research has focused on the supervision level and treatment intensity among offenders on probation (Dyck, Campbell, & Wershler, 2018; Luong & Wormith, 2011). These studies indicate mixed support for the implementation of risk scores to treatment intensity. In addition, dosage could also be applied to case plans through tracking treatment attendance; however, currently there is a lack of research that examines adherence to this principle within case plans.

While case plan creation can utilize elements of the risk principle, it is particularly aligned with the need principle. Specifically, case plans are designed to outline treatment referrals and offender goals while under supervision. Therefore, one way in which these plans can use the need principle is by matching these goals to offender needs and by targeting

criminogenic needs. Several scholars have investigated this relationship by using surveys of correctional staff responsible for case management. Generally, these studies indicate a gap in compliance with needs-based decision making (Haas & DeTardo-Bora, 2009; Miller & Maloney, 2013; Schaefer & Williamson, 2018).

Scholars have also focused on the extent to which needs, such as drug/alcohol abuse and criminogenic attitudes, are represented in actual case plans. Some research indicates that needs are underrepresented in case plans between 57 to 88 percent of the time (Bosker, Wittemen, & Hermanns, 2013). In other words, while needs assessments indicate client have criminogenic needs in a given area, the need does not have a corresponding goal in their case plan. Other studies have found the opposite problem. For example, one study found that several case plans over-classify offender needs (Luong & Wormith, 2011). This is particularly notable with regard to education and employment in Luong and Wormith's (2011) study, where 68.8 percent of clients in the sample did not have a need indicated by their assessment but had case plan goals for the area.

Both over- and under-classification portray a deviation from the risk and need principles. One of the concerns with discrepancies when applying risk and needs in case plan design is that offenders may be incorrectly referred to treatment. For example, if risk is not accounted for, offenders may be receiving a higher dosage of treatment than ideal. Alternatively, overclassifying offenders could result in a client receiving the correct amount of treatment but in a need area that does not reflect the needs indicated on their assessment. Research on effective interventions suggest that deviation from either principle will impact offender recidivism (Andrews, Bonta, & Wormith, 2006; Bonta & Andrews, 2007; Makarios, Sperber, & Latessa, 2014).

Altogether, research on the application of the principles of effective intervention indicate a lack of conformity with the principles of risk and need; however, scholars have also offered broader applications of these principles. In addition to exploring how case planning can utilize the principles of effective intervention, some research examines how the process of case management generally can serve as a way to implement these practices. In other words, research literature examines the degree to which the principles of effective intervention can be utilized in the client-case manager interactions.

Like other fields, case management in criminal justice is not well defined (Camilleri, 2000). Instead, it encompasses an assortment of ideas and practices. Historically, case management practices have utilized an approach that emphasizes the fulfillment of basic requirements. This “case-management” approach is categorized by monitoring compliance, ensuring court requirements are completed, and brokering out services. However, multiple different styles exist. Scholars have identified a range of practices which vary from a focus on the use of support, positivity, and identification of client strength (strength-based) to approaches that encompass a community-centered delivery (assertive) (Bonta et al., 2008; Bourgon, 2013; Bourgon, Gutierrez, & Ashton, 2012; Healey, 1999).

Because there is no set formula regarding case management practices, research can provide practitioners with guidance on how to improve. Specifically, scholars have focused on how case management practices and plans can better utilize the principles of effective intervention. Many case management styles are consistent with the principles of effective intervention. For instance, elements of the risk and need principles can be implemented by basing the frequency of meetings on risk scores and by making criminogenic needs central components to discussions. Research indicates that the discussion of these needs is significantly

related to lower recidivism; however, there appears to be little consistency with the discussion of criminogenic needs in client meetings (Bonta et al., 2008; Viglione et al.; 2014). In addition, some scholars argue that certain approaches, namely the change-agent approach, are better suited to implement responsivity through the additional training they require of case managers (Bourgon, Gutierrez, & Ashton, 2012). Research indicates that the incorporation of cognitive-behavioral practices into meetings can also significantly reduce recidivism (Bonta et al., 2011; Bonta et al., 2019; Latessa et al., 2013; Raynor et al., 2014).

While research supports the idea that case management practices can influence offender outcomes, more limited research examines the components of case plans. Few scholars have explored the effectiveness of case planning and identified which components of case plans can effect change (Gossner et al., 2016; Lee, Uken, & Sebold, 2007). As noted earlier, case planning within corrections can differ from case manager to case manager. Therefore, plans from agency-to-agency can differ in complexity and completion. An increased understanding of what makes these plans effective could aid in guiding future case planning practices.

Literature on the impacts of case plan effectiveness have examined a limited array of case plan components. One example of this is Gossner et al.'s (2016) examination of probationer case plans. The study categorizes case plans as "complete" or "incomplete" using the Case Management Completeness Scale, which assesses completion, timeliness, and quality. In the study, offenders with complete case plans were significantly less likely to recidivate than those with incomplete case plans. This provides some indication that the completion of case plans can aid in offender rehabilitation.

One deficit of Gossner et al.'s (2016) design is that it fails to account for case plan components. For example, while their study indicates that case plan completion yields a

significant effect on offender outcomes, it does not provide any evidence as to what about case plans make them effective. Limited research currently provides this in-depth exploration of case plans. One illustration is Lee, Uken, and Sebold's (2007) assessment. Lee, Uken, and Sebold (2007) examine three components of case plans: the offender's commitment to completing their goals, an agreement on goals between the offender and treatment facilitator, and the specificity of the goal. This study also supports the impact of case plans. Specifically, goal specificity and agreement have a significant, negative relationship with offender recidivism.

Current Study

Research on the impacts of case management indicate that case planning in it of itself may play a role in offender treatment. Stated otherwise, developing case plans may serve as a form of intervention. However, there are still several gaps within this literature. One such issue is that current research on case plans tend to focus on one or two aspects of case plans (such as completion or specificity) (Bonta et al., 2004; Gossner et al., 2016; Haas & DeTardo-Bora, 2009; Luong & Wormith, 2011; Miller & Maloney, 2013). The current study will expand upon this by examining four different elements of case plans.

The following study expands upon existing case planning literature. The current study will examine case plans developed within a halfway house facility to further explore the impact of case planning. This is done is by adding additional case plan variables. Similar to several earlier analyses, the current project will include measure of adherence to need. Specifically, it will assess whether there are specified goals that are tailored to the offender's criminogenic needs. It will also include a measure of goal specificity, much like in Lee, Uken, and Sebold's (2007) study. Finally, an additional measure of time-specificity will also be included. This will consist of whether the plan also incorporates dates by which the goals should be completed.

Currently, there is no research on the effects of setting target dates for goal completion within case planning; however, theories on the importance of goal setting have emerged within other areas such as business, and work management (Lunenburg, 2011; Mitchell et al., 2008). In addition, while literature in education has examined setting deadlines the results are inconsistent (Ariely & Wertenbroch, 2002; Bisin & Hyndman, 2014; Burger, Charness, & Lynham, 2011).

Further understanding of case plan effectiveness may contribute to improved correctional practices. This study will first contribute by adding to the existing knowledge of overall case planning effects. More specifically, it will also provide additional clarification as to what components of case plans play a significant role in offender outcomes. This information can then be used, in conjunction with other literature, to guide case management practices.

The following paper will be broken into five chapters. Chapter 2 will provide context on the current state of scholarship of case management literature in criminal justice through a literature review. Chapter 3 will outline the methodology used to examine the qualities and effects of case plan components. In this chapter additional information about the research questions, sample, and variable operationalization will be shared. The results will be presented in Chapter 4. Finally, Chapter 5 will present a discussion on the findings, review limitations of the study, and make recommendations for future research.

CHAPTER 2: REVIEW OF THE LITERATURE

A Brief History of Case Management

Case management is a broad term that is applied to many fields, including social work, nursing, counseling, and criminal justice. The term has no singular definition and has been described in many ways. For example, some scholars refer to case management as a problem-solving process related to the delivery of services (Austin & Caragonne, 1980) while others attempt to define case management through the functions in which it fulfills. For example, case management may include entry of client information, assessments, service referrals, and evaluating progress (Loomis, 1988). A common component of case management within social work and criminal justice is case planning. Case planning refers more specifically to the process of developing specific goals or behavioral changes that are a part of the larger case management process (Day et al., 2012).

Case management practices have been used within the health and human service industries since the 1860's; however, the term case management was not coined until nearly half a century later (Cesta, 2017; Kersbergen, 1996). These practices were initially used within the fields of psychiatry and social work and were later adopted in the medical field by visiting nurses. Case management developed as a way to accommodate a health and social system that was rapidly expanding and largely disjointed (Kersbergen, 1996). For example, early use of case management provided a way to care for patients with long-term illnesses in the community (Cesta, 2017). These practices offered a way to plan client treatment and coordinate the various services being offered by creating a plan for their care and breaking down complex objectives into more actionable steps (Kerbergen, 1996; Moore, 1990). In addition, case management

practices provided practitioners with way to keep costs lower for clients by preventing the duplication of services.

Case management practices were further expanded in the 1950's. During the 1950's, the end of World War II brought about a rise in mental, emotional, and physical disabilities among returning soldiers (Cesta, 2017). This increase in demands for care led to the development of case management tools and strategies within the field of behavioral health. Specifically, this occurred through care coordination techniques which focused on brokering out services to patients and their families.

Case management continued to become more and more prominent during the mental health movements in the 1960's and 1970's (Camilleri, 2000). During this time, there was a push towards deinstitutionalization for individuals with mental illness. Families and advocates perceived institutions providing care to be abusive, and the fiscal limitations of governmental providers meant that resources were limited (Camilleri, 2000). To adjust to the existing needs of mentally ill clients, case management shifted to include methods for connecting clients to community service agencies as well as monitoring client use of services.

Research indicates that case management practices can significantly impact a variety of outcomes. For example, in social work case management has been significantly related to reductions in homelessness, increased academic success, lower reports of child abuse/neglect, and shorter child placements (Antle, Barbee, Christensen, & Sullivan, 2009; Busschers, Vugt, & Stams, 2016; De Vet et al., 2013; Rivera, 2018). Similarly, the significance of case management has been demonstrated within the mental health field on outcomes such as depression, loneliness, and frequency of emergency department visits (Dell, Pelham, & Murphy, 2019; Stergiopoulos et al., 2017; Taube et al., 2018). Research in the field of social work indicates that several forms of

case management can be effective, including standard case management, assertive case management, critical time interventions, and solution-based case work (Antle, Barbee, Christensen, & Sullivan, 2009; De Vet et al., 2013).

Case Management in Corrections

In corrections, case management was adapted from the fields of social work and mental health (Bourgon, Gutierrez, & Ashton, 2012). Case management grew in the early 1970's when there were shifts toward the use of community supervision and a rise in offenders returning to the community from an institution. Similar to mental health, case management arose from the desire to aid their success in the community (Bourgon, Gutierrez, & Ashton, 2012). Therefore, these practices sought to increase access to a variety of agencies, including employment, housing, counseling, educational resources, and treatment.

Case management within corrections has taken on a variety of forms. Since it lacks a concrete definition, scholars are increasingly distinguishing between these approaches (Bourgon, Gutierrez, & Ashton, 2012; Day, Hardcastle, & Birgden, 2012; Loveland & Boyle, 2007). When first adopted in corrections, the "case-management approach" was primary way of handing offenders (Bourgon, Gutierrez, & Ashton, 2012). A "case-management approach" refers a style supervision in which the primary role of the case manager is to ensure client requirements are being fulfilled (Bourgon, Gutierrez, & Ashton, 2012). This can include monitoring the completion of community service, evaluating compliance with rules, testing for continued substance use, and brokering services to the offender. More recently, scholars have begun to advocate for the movement to a "change agent approach" (Bourgon, 2013; Bourgon, Guitierrez, & Ashton, 2012; Gendreau, Goggin, & Smith, 1999). A "change agent approach" emphasizes the need for officers to maintain an understanding of cognitive-behavioral treatment as well as an

ability to implement a variety of cognitive-behavioral skills. Therefore, the role of community supervision officers requires them to not only manage their treatment plans and to supervise their activities, but to also encourage change through their daily interactions (Bonta et al., 2011; Bonta et al., 2019; Bourgon, Gutierrez, & Ashton, 2012; Latessa et al., 2013; Raynor et al., 2014).

Current literature has demonstrated that not all case management practices are equally effective. One such example is the “case management” approaches, otherwise referred to as supervision-based case management practices. This style primary involves monitoring compliance, ensuring court requirements are completed, and brokering out services, with little focus on the relationship between the client and case manager. Currently, there is a growing body of literature to indicate that this style is not effective in reducing offender recidivism (Bonta et al., 2008).

While ample research exists regarding methods to improve the management of clients within corrections, research on case planning remains relatively sparse. The existing research in this area uses knowledge on effective offender treatment (specifically the model of risk, need, and responsivity—RNR) to guide the understanding of case planning and case plans (Bonta et al., 2004; Bosker et al., 2013; Campbell et al., 2015; Day et al., 2012; Louden et al., 2010; Schaefer & Williamson, 2018). The following section will provide an overview of what is currently known about offender treatment. To do so, it will begin with a brief history of how correctional research arrived at the RNR model for offender treatment. Subsequently is a review of each of the four principles within the RNR model as well as supporting research.

Correctional Treatment

Correctional intervention in the United States has made several shifts in the approaches used to manage offenders throughout the years. Back in the 1930’s, the rehabilitation model for

corrections began to take shape (Latessa & Holsinger, 2011; Sarre, 2001). This model persisted throughout the 1940s' and 1950's where the medical model for offender treatment became popularized. The medical model was distinguished by a rising emphasis on treatment, an increased use of behavioral science and psychology, and development of therapeutic communities. However, during the 1960's, the social and political climate within the United States became turbulent (Latessa & Holsinger, 2011; Sarre, 2001). The years to follow experienced increases in violent and property offenses. Across the 1960's and 1970's, the rates of aggravated assault, rape, and robbery had tripled (Latessa & Holsinger, 2011; Sarre, 2001). The rises in crime created a concern among American people and led to scrutiny of the rehabilitative system in place. Concerns began to arise with early release and the government's ability to adequately treat offenders.

It was also at this time that Martinson (1974) conducted a widescale evaluation of correctional programs, including educational and vocational programs, counseling, medical treatments, probation, parole, and intensive supervision. The results of his study conclude that "with few and isolated exceptions, the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism" (p. 25). A common interpretation of the report was that it demonstrated that treatment is not effective and therefore should be abandoned. Martinson's study coupled with the existing distrust in the government led to another shift in the correctional approach. What developed was a widespread adoption of the "Nothing Works Doctrine." The new focus centered on compliance and retribution (Latessa & Holsinger, 2011; Welch, 1999). Mandatory minimums, sentencing guidelines, three-strikes laws, and truth-in-sentencing statutes became widely adopted in the United States.

The mid-1990's marked another shift in correctional practices (Mackenzie, 2001). The retributive policies adopted throughout the 1980's and early 1990's resulted in the overcrowding of prison facilities. Due to the structures in place limiting professional discretions, little could be done to manage the prison capacity. Overcrowding and longer prison stays resulted in a further need for geriatric care and treatment for infectious disease and mental illness. In addition, the use of meta-analyses in offender treatment research became more commonly used (Mackenzie, 2001). This methodology allowed researchers to synthesize what is effective and it began a collective effort to apply the emerging themes from these meta-analyses to guide rehabilitative practices.

The trends from this literature have been compiled to formulate a few principles that can be implemented to reduce criminal offending (Andrews, 1995; Andrews, Bonta, & Hoge, 1990; Bonta & Andrews, 2007; Hannah-Mofatt, 2005; Makarios, Sperber, & Latessa, 2014). Collectively, these are called the principles of effective intervention. The principles of effective intervention are composed of four principles: risk, need, responsivity, and fidelity. Research suggests that each of these principles can increase the effectiveness of treatment. However, to have the largest effect sizes, they should all be used together. This following section will provide an overview of each of these principles.

Principles of Effective Intervention

Risk

The risk principle states that programs should assess risk using an assessment tool that is objective, research-driven, and validated for the population being assessed (Andrews, Bonta, & Hoge, 1990; Bonta & Andrews, 2007; Hannah-Mofatt, 2005; Makarios, Sperber, & Latessa, 2014). This risk score is intended to provide people working with offenders with an estimate to

the likelihood that they will recidivate. Therefore, someone with a higher risk score is more likely to recidivate than someone with a lower risk score. In practice, the risk principle is composed of two main concepts: using actuarial risk assessment tools and using risk to guide treatment.

The first element of risk is that the determination of risk should be derived from validated risk assessment tools. Prior to the use of structured risk assessment tools, risk was determined based strictly on the judgement of criminal justice professionals (Hannah-Mofatt, 2005). To do so, criminal justice professionals were asked to assess risk by relying on previous experiences with other offenders. However, these first-generation assessments were flawed in that they were highly subjective, unreliable, and failed to accurately predict risk. In the 1970's, researchers developed second-generation risk assessment tools in an attempt to improve upon these shortcomings (Hannah-Mofatt, 2005). For this new generation of assessments, risk was determined through the administration of surveys rather than through clinical judgements. These surveys were primarily comprised of static risk factors such as age, type of conviction, number of prior convictions, and the relationship to the victim. The new assessment format proved to improve upon the reliability-deficiency with the first-generation method of assessment; however, new issues arose with using the results (Hannah-Mofatt, 2005). Due to the static nature of the questions, risk was not fluid. Thus, information on risk offered little in terms of practical suggestions for intervention, since no treatment options would impact these scores.

Due to these issues, a new method of assessment was developed. For third-generation risk assessments, surveys were created that emphasize dynamic, rather than static, variables (Hannah-Mofatt, 2005). They also provided an objective measure of risk that could be systematically measured. This change allowed for practitioners to observe changes in risk scores

over time. Treatment could reduce risk and this change could be measured through the re-assessment of risk. Despite these improvements, third-generation assessments still fell short when it came to providing actionable ways in which assessment results could be used in treatment. More recently, fourth-generation tools were developed to further the utility of risk information. Fourth-generation risk assessments integrate case planning systems into the assessment (Hannah-Mofatt, 2005; Latessa & Lovins, 2010). This provides practitioners with direct recommendations on how to treat offenders and reduce risk that are specific to the offender.

While risk assessment tools have developed to be more reliable, predictive, and useful over the years, another component of using a validated risk assessment requires that the tool is validated for the population for which it's being used. Research has indicated that risk assessment tools do not necessarily provide an accurate prediction of recidivism for all offending populations or provide accuracy within all geographic areas (Barbaree, Seta, Langton, & Peacock, 2001; Bartosh, Garby, Lewis, & Gray, 2003). For example, Barbaree, Seto, Langton, and Peacock (2001) found that while the Psychopathy Checklist-Revised was able to predict both general and serious recidivism for adult sex offenders, it failed to accurately predict sexual recidivism. Therefore, assessments should be validated among a specific population of offenders before being adopted.

Finally, validated risk assessments need to be properly implemented. Research on risk assessment tools offer several suggestions on how to improve implementation, including training staff on how to use the tools as well as the benefits of them, increasing staff buy-in, and developing policies to insure accountability and quality (Holsinger, Lurigio, & Latessa, 2001; La Vigne et al., 2008). In addition, organizations should seek to reduce the number of overrides.

Professional overrides allow staff to deviate from the tools results in some circumstances; however, their use can reduce the predictive accuracy of the results (Krauss, 2004; McCafferty, 2017; Wormith, Hogg, & Guzzo, 2012; Wormith, Hogg, & Guzzo, 2015). Therefore, for best results, professional overrides should be used rarely and carefully.

The second element of the risk principle refers to how risk is used within corrections. Specifically, the risk principle states that an offender's level of involvement in treatment should be determined by their risk (Andrews, Bonta, & Hoge, 1990). In other words, high intensity services should be reserved for high-risk offenders and that less intensive programs should be given to moderate risk offenders (Bonta & Andrews, 2007; Lowenkamp & Latessa, 2005; Lowenkamp, Latessa, & Holsinger, 2006; Makarios, Sperber, & Latessa, 2014; Sperber, Latessa, Makarios, 2013). Treatments that focus on targeting high-risk offenders has been demonstrated to produce the largest reductions in recidivism (Lowenkamp & Latessa, 2005; Sperber, Latessa, & Makarios, 2013).

However, while high-risk offenders should be targeted with intensive treatment, placing low-risk offenders into these programs could be detrimental. This was the case for Lowenkamp and Latessa's (2002) sample of halfway house participants. In their evaluation of community-based correctional programs, they found that while participation in halfway houses decreased recidivism among high-risk participants, it increased the recidivism of low-risk participants. These findings could be the result of an iatrogenic effect. Iatrogenic effects, or unintended negative outcomes, can occur when low-risk offenders are placed under too high of supervision or exposed to high-risk offenders in treatment. Research has demonstrated that either of these can disrupt the prosocial ties and community contacts of low-risk offenders which could ultimately increase their risk (Andrews & Bonta, 1998; Dishion et al., 1999).

Recently, research has advanced the discussion of risk through studies on dosage. Dosage refers to the amount of treatment that is optimal for offenders at a given risk level. Sperber, Latessa, and Makarios (2013) contribute to this discussion with their analysis on the impact that varying quantities of treatment have on recidivism. Their research indicated that the amount of treatment that is optimal fluctuates by risk. In other words, their research showed that the optimal amount of treatment for moderate risk offenders is lower than that of high-risk offenders. In addition, once this optimal dosage for treatment is reached, additional treatment not only produces less benefit, but it can actually produce adverse effects (Makarios, Sperber, & Latessa, 2014). Therefore, dosage can aid in fully applying the risk principle. Currently research indicates that dosage should consist of little to no treatment for low-risk offenders, between 100-150 hours of treatment for moderate risk offenders, and higher offenders should be given at least 200 hours of treatment (Makarios, Sperber, & Latessa, 2014; Sperber, Latessa, Makarios, 2013). In addition, providing offenders with more treatment than is optimal for their risk level produces diminishing returns (Makarios, Sperber, & Latessa, 2014).

Need

The second principle of effective intervention is the need principle (Bonta & Andrews, 2007). Broadly, needs refer to challenges, gaps, or abnormalities that offenders have in their life, behaviors, or thinking patterns. In the discussion of offender treatment, needs refer to the “what.” It centers around identifying which of these challenges or gaps will provide the most change in recidivism when targeted with treatment (Andrews & Bonta, 1998). To do so, the need principle focuses on classifying offender needs into two categories: noncriminogenic needs and criminogenic needs.

Noncriminogenic needs refer to problems and/or disorders that offenders face that are not directly related to offending (Bonta & Andrews, 2007). These include issues such as low-self-esteem, anxiety/depression, or problems relating to reduced physical health. The distinguishing characteristic of noncriminogenic needs, however, is that targeting them will generally not result in reducing recidivism. Ample research on noncriminogenic needs indicate that there is no significant relationship between these factors and recidivism (Dowden, 1998; Dowden & Andrews, 1999; Ghasimbaklo et al., 2014). Other studies have indicated that targeting noncriminogenic needs may actually increase offending. For example, Dowden and Andrews (1999) found that when fear of official punishment was targeted among offenders, it increased their probability of recidivating.

Contrary to noncriminogenic needs, criminogenic needs refer to offender characteristics that are related to offending behavior (Andrews & Bonta, 1998). Decades of research have identified eight primary criminogenic needs which include antisocial attitudes, antisocial cognitions, antisocial companions, antisocial personality, employment/education, family/marriage, leisure/recreation, and substance abuse (Andrews, Bonta, & Wormith, 2006; Gendreau, Little, Goggin, 1996). Research has demonstrated that targeting these needs directly effect the probability of an offender recidivating (Dowden & Andrews, 1999; Grieger & Hosser, 2013; Taxman & Caudy, 2015). One example of this lies within Dowden and Andrews (1999) meta-analysis on the principles of effective intervention. Through their analysis of 134 studies, they found support for the impact of addressing criminogenic needs and recidivism. In other words, they found that addressing criminogenic needs had a significant impact on reducing recidivism. Other research has found criminogenic needs to be a significant predictor of multiple types of recidivism as well (Grieger & Hosser, 2013).

While the needs principle outlines the necessity to address criminogenic, rather than noncriminogenic needs, treatment should be specific to each offender (Vierira, Skilling, & Peterson-Badali, 2009). Baglivio et al. (2018) examined the impact that matching criminogenic needs has on recidivism using a sample of juveniles in a residential treatment center. For their study, participants were considered to have a treatment match when they received treatment for at least one of their top three criminogenic needs. Overall, they found that participants who received treatment for at least one of their top three criminogenic needs had significantly larger declines in their risk levels when compared to participants who did not get matched to one of their top three needs. In other words, to comply with the need principle, offenders should be placed into treatments that target the criminogenic needs that they score highly in.

Finally, research on criminogenic needs also indicates that each of an offender's criminogenic needs should be addressed rather than just one or two (Dowden, 1998; Vierira, Skilling, & Peterson-Badali, 2009; Wooditch, Tang, & Taxman, 2014). For example, Vierira, Skilling, and Peterson-Badali (2009) examined how targeting criminogenic needs impacts recidivism for adolescent offenders. In their analysis of 122 juvenile records they found that not only is targeting criminogenic needs related to lower subsequent risk assessments, but the number of criminogenic needs addressed also significantly impacts recidivism. Specifically, they found that when only a couple of an offender's needs are met with treatment, they are significantly more likely to recidivate both earlier and more frequently. These findings are supported by other research which have found significant relationships between the number of criminogenic needs targeted and effect sizes (Dowden, 1998). Collectively, these studies indicate that targeting all of an offender's criminogenic needs will be produce larger effects than only treating a few or none.

Responsivity

Responsivity is the third principle of effective intervention. Within effective offender treatment, if risk answers the question of “who do we treat” and need addresses the “what do we treat,” responsivity refers to “how do we treat.” Responsivity can be broken down into two types: general and specific.

General responsivity refers to treatment modality. More specifically, the emphasis of general responsivity lies in using a style of treatment that is best suited for most offenders (Bonta & Andrews, 2007). Research on responsivity indicates that cognitive social learning strategies are effective in influencing offender behavior. This is true among a different type of offenders as well, including male and female offenders, sex offenders, and Aboriginal offenders, making it a versatile approach to offender treatment (Bahr, Masters, & Taylor, 2012; Bonta & Andrews, 2007; Jewell et al., 2015; Lipsey, Chapman, & Landenberger, 2001).

A prominent example of this is cognitive-behavioral therapy (CBT). While there are several different types of CBT, broadly, it is a type of treatment in which there is an emphasis on identifying and challenging dysfunctional thoughts, beliefs, and behaviors. This is done through the use of prosocial modeling, problem solving, as well as the appropriate use of reinforcement and disapproval for behaviors (Dowden & Andrews, 2004). The goal of these programs is to identify what cognitions lead to criminal behavior and target them for change. Several research studies and meta-analyses have explored the effectiveness of varying CBT-based programs. Overall, there is ample evidence to suggest that these programs can be effective in reducing recidivism, producing an overall reduction of between 23-30 percent (Bonta & Andrews, 2007; Henwood, Chou, & Browne, 2015; Landenberger & Lipsey, 2005; Lipsey, Chapman, & Landenberger, 2001).

While general responsivity orients around the use of effective cognitive social learning methods for treatment, specific responsivity refers to the tailoring of those treatments for each individual (Bonta & Andrews, 2007). Specific responsivity highlights the need to account for personal factors in offender treatment. It consists of attributes such as their learning styles, motivation, and biosocial factors that may either enable or hinder treatment. For example, while addressing low motivation does not in itself reduce offending per se, it could improve treatment attendance. Therefore, the cognitive behavioral programs should also account for some of the specific responsivity factors as well (Bonta & Andrews, 2007).

Fidelity

Fidelity is the fourth principle of effective intervention. The principle of fidelity states that the implementation of programs should adhere to their program design. In other words, it focuses on high treatment integrity. While implementing the risk, need, and responsivity principles has been demonstrated to reduce recidivism, improper implementation of programs may undermine these effects (Barnoski, 2004).

Numerous research studies have examined the impact that fidelity has on offender recidivism. Emshoff et al. (1987) provide an early illustration of this. The study sought to rate the level of fidelity that a program is implemented with and assess the impact that this has. Overall, they found a positive correlation between fidelity and program effectiveness. Following this study, research on fidelity has continued to expand. For example, Duwe and Clark (2015) compared how the fidelity of program, Moving On, impacted recidivism outcomes. They found that, when implemented with low fidelity, the program had no impact on any of the four recidivism outcome variables. However, when implemented with high fidelity, the program significantly reduced two measures of recidivism. Several studies supported the conclusion that

high program fidelity can improve outcomes (Andrews & Dowden, 2005; Lowenkamp, Latessa, & Smith, 2006; Miller & Miller, 2016; Myer & Makarios, 2017).

One way in which fidelity can be improved is through the continual assessment of programs (Lowenkamp, Latessa, & Smith, 2006; Rossi, Lipsey, & Freeman, 2004). Some researchers have argued that process evaluations should precede outcome evaluations in order to address fidelity (Kelly, Emerson, Fair, & Ramaswamy, 2018; Miller & Miller, 2015).

Additionally, there are some tools, such as the Evidence-Based Correctional Program Checklist and the Correctional Program Assessment Inventory, that can help standardize the assessment process (Duriez et al., 2018).

Evidence Based Practices

Overall, research indicates that these principles of effective intervention are most effective when used in conjunction with one another. For example, in Andrew & Bonta's (2006) assessment of these principles, they found a significant negative effect between the number of principles implemented and recidivism. For instance, when none of the principles were properly implemented, recidivism rates for offenders increased. However, when one of these principles was implemented, there is a minor decrease in recidivism. This reduction in recidivism is greater when two principles are adhered to, and peaks when all three principles of risk, need, and responsivity are implemented.

While ample research supports the effectiveness of these principles, much of it focuses on applying these principles to offender treatment. While the main function of treatment programs is to help in reducing recidivism, it is only one aspect of offender interventions. For example, case planning is a broad way in which the principles of effective intervention can be implemented, specifically risk and need. The following section will discuss how correctional case management

applies the principles of effective intervention and the impacts that they have on offender recidivism.

Evidence-Based Practices in Case Management

The Risk Principle

One way in which the principles of effective intervention can be implemented within case management practices is through changes to policies within agencies. For example, correctional agencies can choose to adopt actuarial risk assessments that are predictive for the clients they service. It is also up to organizations to provide training for personnel implementing these tools. However, other areas of overlap between evidence-based practices and case management depend more heavily on the practices of correctional personnel.

A growing area of interest is the utilization of risk assessments among correctional personnel for case management and release planning purposes. One aspect of this is compliance with assessment implementation. There is limited research that indicates that some staff diverge from proper administration (Luong & Wormith, 2011; Miller & Maloney, 2013; Schaefer & Williamson, 2018). Miller and Maloney (2013) administered questionnaires to a group of community corrections staff responsible for administering and applying risk assessment results. In doing so, they found that 12.4 percent of staff who were required to complete risk assessments for clients made a minimum effort to do so, exaggerated or minimized the characteristics of the client, or otherwise manipulated the information in some capacity.

Schaefer and Williamson (2018) provide a similar examination of probation officers. Using a survey of officers, Schaefer and Williamson's (2018) results reveal even higher levels of non-compliance. Nearly a quarter of respondents indicate that they manipulate risk or need assessment information at least occasionally (Schaefer & Williamson, 2018). When broken

down, over half of officers state that they make less restrictive placements than indicated by risk assessments and 44 percent disregard identified criminogenic needs at least sometimes.

Collectively, these studies indicate not only that officers deviate from assessment results at time, but they do so knowingly. This noncompliance in applying risk assessment tools can be caused by staff exhaustion and low confidence in risk assessments both at the individual and agency levels can influence deviation from proper implementation of risk tools (Miller & Maloney, 2013; Schaefer & Williamson, 2018; Viglione, Rudes, & Taxman, 2014).

In addition to having assessments that are reliable and accurately implemented, the risk principle also states that this information should be used to guide decision-making. Therefore, in applying these principles to case management, assessment tools should be used to create case plans that account for each offenders' risk level. Existing research provides mixed evidence on this. For example, Luong and Wormith (2011) found some evidence in support of adherence to treatment intensity. Their examination of juvenile probationers reveals a significant positive correlation between risk level and supervision level. In addition, Dyck, Campbell, and Wershler (2018) examined adherence to risk, need, and responsivity among a sample of adult probationers. However, their results provide conflicting information with only 44 percent of clients adhering to guidelines on treatment intensity. Further analyses reveal that adherence to intensity among this group was largely a function of risk level. Stated otherwise, the number of interventions given did not vary by the risk level of the offender. For instance, while many low-risk offenders received minimal intervention (90 percent) thus adhering to the risk principle, fewer moderate- (16.7%) and high-risk (29.4%) clients received proportional interventions to their risk scores. Collectively taken, it is likely that compliance with both assessment practices and treatment intensity varies from organization to organization.

The Need Principle

There continues to be mixed evidence on the degree to which the risk principle is applied within case planning; however, case plans may be an integral tool in fulfilling the needs principle as well. Case plans represent offender goals, make treatment recommendations, and provide a way of tracking offender process. Because of these characteristics, treatment plans could be useful in managing and monitoring the appropriate treatment for offender.

Similar to the application of the risk principle, there is mounting research on the utilization of the need principle in case planning as well. One way in which this has been done is through surveys of correctional personnel who develop case plans. For example, Haas and DeTardo-Bora (2009) used mail surveys of case managers, counselors, and parole officers to examine how the LSI-R is used to develop reentry and case plans. Overall, nearly a quarter of personnel sampled do not use LSI-R results to develop treatment plans and around half of case managers use it for reentry planning. These results indicate a large gap between case planning practices of staff and the evidence-based practices indicated through research.

This lack of consistency with applying needs assessments is evident in other research. Schaefer and Williamson (2018) used a survey of probation officers to improve the understanding of how need assessments are applied to offender treatment planning. Their results indicate that 78 percent of probation officers frequently target needs that are not indicated as criminogenic needs in the actuarial assessment results for the offender. Another 44 percent report sometimes disregarding the criminogenic needs highlighted by the tool. Miller and Maloney (2013) find similar, albeit lower rates, of these deviance from need assessments. Overall, these surveys indicate that compliance to the need principle in treatment planning for probationers is inconsistent.

Other scholars have directed their efforts towards examining existing case plans. Much of this literature has focused on case plans developed by probation officers. For example, Bosker, Witteman, and Hermans (2013) examined the intervention plans for 300 offenders receiving services from a Dutch probation department. They focused on addressing the extent to which identified criminogenic needs were represented in the case plans. Their analyses reveal that probation officers were able to appropriately identify the criminogenic needs that offenders needed based on their need assessments between 57 to 88 percent of the time. However, being able to identify a need is present and actually creating goals to address it are two different things.

In examining the written goals, Bosker, Witteman, and Hermans (2013) found that for many need domains, despite acknowledging the need is present, no goals were set. Specifically, for only two of the nine domains, actionable goals were made based on criminogenic needs over half of the time. For seven domain areas (attitude, family, friends, accommodations, emotional well-being, finance, and work/education) officers acknowledged the presence of a need, but goals were only created in fewer than half of the cases.

The gap existing between needs identified via assessments and needs with a corresponding intervention is a trend throughout this literature. Bonta et al. (2004) found a similar gap in their sample of probationer case plans in Canada. In total, just under 40 percent of the needs identified through assessment were represented in the intervention plan. In addition, there is some overlap between what needs are met and what needs are missed. For example, in comparing Bosker, Witteman, and Hermans (2013) study with that of Bonta et al. (2004), addiction/substance use has the highest match rate among both groups. These disparities may suggest that probation officers have more experience with or training on identifying substance

use issues compared to other needs areas or that this need is easier to assess. Conversely, it could also indicate a shortage of resources to help offenders work on other criminogenic needs.

Another area of concern is the over-classification of offender needs. Over-classification occurs when a client's needs are overstated. This would occur for cases in which a client does not have a specific need, yet they are placed in treatment programs or have case plan objectives targeting that need area. In their study, Luong and Wormith (2011) assess whether probation officers adhere to the principles of risk, need, and responsivity in the development of case plans for offenders. Using a sample of 192 juvenile probationers they found that for all eight need domains, some case plans overidentified the need. The severity of this classification issue ranged from 8.9 percent to 68.8 percent. Over-classification was particularly high for education and employment (68.8 percent), substance use (33.3 percent), and companions (30.2 percent).

Literature indicates that the process of applying assessment results to case plans may also differ based on offender risk. Dyck, Campbell, and Wershler's (2018) exemplify this in their study of probation case plans. Among their sample, Dyck, Campbell, and Wershler (2018) found relatively low adherence to criminogenic need classification. Specifically, 59.8 percent of cases identified at least half of the high need areas in their case plans. However, similarly to the risk principle, adherence to the need principle varied by offender risk. Compliance was significantly higher for low-risk clients (70.2 percent) than moderate or high-risk clients (10.6 percent and 19.1 percent respectively). This contradicts the findings of Luong and Wormith (2011). While Luong and Wormith (2011) also found significant differences in the application of the need principle in case plans, they found that moderate and high-risk clients fared significantly better than low-risk. For example, adherence to the need principle ranged from 78.2 to 100 percent for moderate and high-risk clients while low-risk clients ranged from 11.3 to 54.7 percent. It is still

unclear why these disparities exist. It could be that some probation agencies are better equipped to handle low-risk offenders while others have more experiences working with high-risk clients.

Overall, research on how assessments are used to guide case plans provide mixed results. One explanation for this could be that there is too much variance from agency to agency to generalize how decisions are made. Despite these variabilities however, one commonality of research in this area is that assessments are not fully implemented in the decision-making process. While organizations may differ in regards to how many exceptions are made or which populations are more likely to adhere to the recommendations, there are gaps in compliance with the application of need assessments continue to exist.

Case Management as an Intervention

While much of the research on case plans centers around on how assessments guide treatment planning, scholars have also begun exploring the use of case management and case planning as an intervention. One way in which case plans have been used is as a way to provide treatment recommendations and track client progress. However, case management can take on a variety of different forms. An emerging area of research involves examining the impact of interactions during case planning and case plan components.

One area in which assessments can be used to guide the interactions between clients and staff is through one-on-one meeting discussions. In other words, the information gained from risk/need assessments can be used to drive the discussions in supervision meetings in addition to informing case and treatment plans. Bonta et al. (2008) used recorded interview data with probation officer and client supervision meetings examine how often assessments are used to guide these meetings. Overall, the discussion of needs was not consistent. While probation officers were likely to discuss family/marriage and substance use needs (addressed for 90.0

percent and 78.1 percent of clients respectively), they were much less likely to address other needs such as academics/vocation and criminogenic attitudes (addressed for 0.0 and 8.8 percent of clients with the need respective need). This is similar to the findings of Loudon et al.'s (2012) study in which they found that criminogenic needs were addressed in 12.0 to 42.2 percent of meetings, depending on the need.

This pattern persists despite officers being trained otherwise. Viglione et al. (2014) compared how probation officer interactions compare to the priorities outlined in their training. The training they received indicated that interactions with probationers should emphasize four needs (criminal personality, criminal thinking, criminal associates, and history of antisocial behavior) above others (family/relationships, employment, education, leisure activities, and substance abuse). However, despite the training, none of the top areas discussed in these interactions overlap with the top needs they were trained to discuss. Instead, the most discussed topic was employment (discussed in 36 percent of interactions) followed by noncriminogenic needs (housing, fines, and physical health).

Despite the fluctuation in the rates at which needs are discussed, the discussion of these criminogenic needs may play an important role in reducing recidivism. One example of this is Bonta, Rugge, Scott, Bourgon, and Yessine's (2008) evaluation of audiotapes from probation officer and probationer meetings. The results indicate that more time discussing criminogenic needs is significantly related to reductions in recidivism rates. Similar to the identification of needs and creation of actionable objectives, these needs are not discussed equally. For example, while Bonta et al. (2008) found that family/marital issues and substance use were commonly discussed, other needs such as antisocial attitudes and antisocial peers were frequently ignored.

Another component of these interactions is how well case managers implement responsivity into their interactions with clients. Louden et al. (2012) include an element of this in their study of probation officers. Their findings reveal low-rates of some of these skills. For example, only 7.2 percent of meetings included the use of pro-social modeling, reinforcement, or relapse prevention. While this was slightly higher for the use of problem solving (25.3 percent of meetings), over half of meetings (56.6 percent) did not use any core correctional practice strategies in the meetings.

Although these skills may not be widely implemented, combining responsivity into case management meetings may improve client outcomes. This is the case in Raynor et al.'s (2014) assessment of the use of cognitive-behavioral treatment in probation meetings. In their analysis, they examine behaviors such as problem solving, modeling, motivational interviewing, and displaying effective use of authority. Overall, the results indicate that a wider range of use of these skills is significantly related to lower risk scores and reconviction rates of probationers. This suggests that personnel developing case plans and monitoring progress can not only impact recidivism through well designed case plans, but also through using evidence-based methods for interacting with clients.

Several programs have been developed to assist community supervision staff in implementing some of these skills in their interactions with clients. For example, the Staff Training Aimed at Reducing Rearrest (STARR) is a program designed for federal supervision officers to improve client success rates (Robinson et al., 2012). To do so, the program provides training for officers over three and a half days. During the training, officers are taught a variety of skills including active listening, problem solving, effective disapproval and reinforcement, along with how to apply the cognitive model. After the training, officers are asked to record

interactions with clients to get additional feedback. Other similar training programs include Strategic Training Initiative in Community Supervision (STICS) (Bonta et al., 2010) and Effective Practices in Community Supervision (EPICS) (Smith et al., 2012).

In addition to examining how case managers can influence offender outcomes through client interactions, limited research has also focused more broadly on the impact that case plan development can have. These studies examine the impacts of case plan completeness, timeliness, quality, and commitment. For example, Gossener et al. (2016) used the Case Management Completeness Scale to categorize case plans as complete or incomplete. This scale examines the completion of risk assessments, the timeliness of developing case plans, and the quality of relapse prevention. Based on the score generated by weighing these elements, case plans are categorized into “complete” or “incomplete.” Their analyses reveal that case completeness is significantly associated with recidivism. Specifically, offenders who had incomplete case plans were significantly more likely to recidivate than offenders with completed case plans.

While Gossner et al.’s (2016) study combines several features of case plans together, other research provides a better look at what portions of case plans may be impactful. For instance, Lee, Uken, and Sebold (2007) examine three independent variables among participants in a domestic violence treatment group: the offender’s commitment to completing their goals, an agreement on goals between the offender and treatment facilitator, and the specificity of the goal. Their analyses reveal that agreement between the treatment provider and offender on goals was significantly related to lower recidivism. In addition, goal specificity was also significant. The results suggest that offenders who had goals rated as highly specific were significantly less likely to recidivate than offenders with low goal specificity.

The Current Study

Collectively, these studies suggest that case plans themselves may play a role in offender treatment; however, there are still many gaps within this literature. Current literature frequently only assesses a few components of the case plans. For example, while some studies explore the impact that proper matching to needs has, they fail to examine goal breadth. The current study seeks to implement a wider variety of treatment plan components into the analyses. It will assess the impact that case plans have on offender recidivism through examining four components of case plans: compliance, specificity (which is comprised of objectives that are positively stated, measurable, and singular), breadth, and expiration.

The current study will use data from a midwestern halfway house facility. The facility offers residential-based treatment for both male and female offenders in the community. They work with both federal and state clients who are serving time on probation or parole or who are leaving prison and reentering the community.

CHAPTER 3: METHODOLOGY

The current study seeks to further examine the impact that case planning has on offender recidivism. Specifically, this study will examine whether the components of case plans developed during case management reduce future offender recidivism. The first portion of the study will focus on the impact of individual treatment plan components. Analyses will evaluate four aspects of case plans: compliance, specificity, breadth, and expiration. The second portion will examine the collective impact of these components. Together, the current study will examine five hypotheses:

1. Participants whose case plans have higher compliance to need assessment scores will have lower recidivism rates compared to participants with lower compliance.
2. Individual components of specificity will not significantly impact recidivism rates; however, collectively, the three components of specificity will significantly reduce recidivism.
3. More case plan objectives will be associated with lower recidivism rates.
4. Participants with more deadlines outlined in their case plans will have lower recidivism rates than participants with fewer deadlines.
5. The combination of all case plan components will have a larger impact on recidivism than any of them individually.

To investigate these questions, the study utilized a quasi-experimental, ex-post-facto research design. This design was chosen primarily due to the nature of the data being used. The current study relied primarily on secondary data that were previously collected by a halfway house facility. A further discussion of these data is presented below.

Sample

The sample for the current study consisted of all state-supervised participants who received services from the halfway house at any point during the 2017 and 2018 calendar years. In total, the facility serviced 1,360 participants over the specified time period. The initial sample of 1,360 people includes participants who were at the facility for any duration of time and at any point within the two-year period. For example, a participant who entered the facility in June of 2016 and was discharged in January of 2017 would be included in the initial sampling frame.

For the purposes of the current study, participants missing crucial information were removed from the sample. For instance, a crucial component of the study involves the use of the Level of Service Inventory-Revised (LSI-R). This information is required for both controlling for offender risk as well as assessing the compliance variable. Since the state issued identification number is required to match participants to their LSI-R score, participants with missing identification numbers (n=160) were removed from the sample. An additional 137 participants were missing crucial case plan information, including LSI-R assessment information, educational or marital status or case plan objectives and were subsequently removed.

The initial sample pool also consists of people who have had multiple stays at the facility. For example, it is relatively common for one participant to have two or more stays at facility over a two-year period. In order for these repeated stays by offenders to not influence the outcomes of this study, duplicate stays were removed. In other words, each participant is represented once in the sample regardless of how many individual stays they had. This resulted in 204 duplicate cases being removed and a final sample of 859 participants.

Data

Data for the current study were derived from two main sources. The first and primary source is secondary data from a Halfway House facility. As a part of normal operations, the facility collects a variety of client information including demographic and assessment information, client history, and treatment details. The facility agreed to lend access to these data for the purposes of this study. In addition, prior to data collection, the procedures were reviewed and approved by the North Dakota State University Institutional Review Board. The secondary data source used consists of public record databases that track statewide offending.

Control Variables

Since the current study did not use randomization or matching, several control variables are included into the analyses. The first set of control variables were demographic factors. These included gender, race, and age. Gender was coded as a dichotomous variable in which participants were categorized as male or female. The variable of race is categorical. Due to the low rates of certain racial and ethnic groups, some of the categories include more than one group. The finalized coding for this variable includes three categories: white, Native American, and other. Age was coded as a continuous variable.

In addition, research also indicated an association between various other characteristics and recidivism. To mediate the influence of outside factors, the current project also controls for a variety of other characteristics. Namely, these include risk, education, and marital status. Offender risk level was assessed using the LSI-R. This assessment is conducted shortly before arriving to the facility by the probation department or at the facility. The assessment tool classifies offender scores into five categories of risk: low (score of 0-18), low/moderate (score of 19-25), moderate (score of 26-32), moderate/high (score of 33-39), and high (score of 40+).

These five categories are used to classify offender risk in the current study as well. Education will be coded using an ordinal scale. This will include 4 categories with “0” being less than a high school education, “1” high school diploma or GED, “2” some college, and “3” college degree.” Lastly, marital status will be coded into 3 groups: single/never married, married, and divorced/widowed.

Lastly, program variables will be controlled for as well. First, discharge status was controlled by classifying offenders into “successful” and “unsuccessful” based on whether they successfully completed the program requirements. In addition, the number of days in the program was controlled for using a continuous measure of days in the program.

Independent Variable

The independent variables are the treatment plan components. To operationalize treatment plan components, they were broken down into four aspects: compliance, specificity, breadth, and expiration. The first two of these, compliance and specificity, have at least some empirical evidence supporting their effectiveness in case planning. Therefore, they were included into the current study. In addition to these, breadth and expiration were also added to further explore the effects of different case plan components. Each of these is described in more detail below.

Compliance

Compliance refers to the extent to which an offender treatment plan adheres to the offender’s criminogenic needs. As noted earlier, adherence to the need principle has been among the most researched components of case planning literature. The established significance of matching client criminogenic needs to offender case plans makes compliance an essential variable to include. To measure this, the need assessments of participants were evaluated. Each

offender at the Halfway House completes the LSI-R assessment either prior to or upon arrival at the facility. This assessment breaks down offender needs into ten main areas: criminal history, education/employment, alcohol/drug problems, companions, emotional/personal, family/martial, attitudes/orientation, accommodation, leisure/recreation, and financial. In doing so, it allows case managers to identify high need areas for offenders.

The first step to create this variable was to determine cutoffs for each of these need domains. The publishing company for the LSI-R have determined cutoffs for each domain score within the assessment (Erhardt, 2020). Based on their guide, low-, moderate-, and high-needs will be determined as follows:

Criminal History: a score of 0-3 is low need, 4-6 is moderate need, and 7-10 is high need

Education/Employment: a score of 0-3 is low need, 4-6 is moderate need, and 7-10 is high need

Alcohol/Drug Problems: scores between 0-3 are low need, 4-5 moderate need, and 6-9 high need

Companions: a score of 0-1 is low need, 2-3 is moderate need, and 4-5 is high need

Emotional/Personal: scores between 0-1 are low need, 2-3 are moderate need, and 4-5 are high need

Family/Marital: a score of 0-1 is low need, 2 is moderate need, and 3-4 is high need

Attitudes/Orientation: 0-1 is low need, 2 is moderate need, and 3-4 is high need

Accommodation: between 0-1 is low need and 2-3 is high need (there is no moderate need categories for this domain)

Leisure/Recreation: a score of 0 is low need, 1 is moderate need, and 2 is high need

Financial: a score of 0 is low need, 1 is moderate need, and 2 is high need

The above guidelines were used to determine which need domains are most appropriate for any given offender. For example, an offender who scores “low” in the companion domain should not have an allocated goal. Since the offender is low-need, goals should focus on moderate- or high-need areas. However, if an offender scored “moderate” or “high” in a given domain, a goal is appropriate to attempt to reduce that need.

Overall, compliance is designed to gauge adherence with the need principle. For instance, suppose a client scored “high” in the need domain of companions. The need principle indicates that this need should be targeted in order to lower offender risk. Therefore, if the case manager has developed a goal within this domain, they have complied with that portion of the need principle and would receive a score of “1.” Compliance was then recorded using a dichotomous classification for each of the ten domains. Coding for compliance is as follows:

“0” specifies domains in which an offender’s needs have been improperly classified.

This includes cases that are both over- or under-identified. Under-identified are cases in which an offender scores as “moderate” or “high” need in a given domain but do not have a corresponding goal. Over-identified goals included cases in which an offender is low-need, but still has a corresponding goal.

“1” indicates a need domain that is properly classified. This can take one of two forms.

First, this is used for cases in which an offender has a low-need and the case plan has no specified goal. In addition, this is used to classify cases in which an offender scores “moderate” or “high” in a need domain and has a corresponding goal.

From these classifications, an 11-point scale is used to classify the overall compliance of the offender’s goals. This is done by summing the scores for each of the ten domains for the LSI-R assessment. For example, a score of zero on the scale of compliance would indicate that none

of the ten need areas were properly classified. On the other hand, a score of six would indicate that six needs were properly identified while four were either over- or under-identified by the case plan goals.

Specificity

Specificity denotes the detail of the treatment plan. Limited research already indicates the importance of goal specificity (Lee et al., 2007). Therefore, specificity will involve measuring the level of detail provided within the treatment goals. This measure is based off of the variable in Lee et al.'s (2007) analysis of case plans. Their study uses four criteria to assess goal specificity:

(a) *behaviorally described*. Goals which have specific terms and behavioral aims should provide clients with a clear direction. Ideally, these goals should provide a roadmap for clients as to what their next step should be.

(b) *positively stated*. This refers to goals being stated in a way that outlines what a client should do, rather than what they should not do. This keeps the focus on goal attainment rather than deprivation.

(c) *stated as small step*. Goals that are broken down into small manageable steps seem more manageable to handle.

(d) *stated in process form*. A goal stated in a process form focuses on a specific action or task rather than an overall objective. Take for example, a client who wants to improve their relationship with their child. A goal in process form could include something such as “client will call their child before bed once per week.”

This scale will be adjusted to provide a methodology that can more easily be replicated. Originally in Lee et al.'s (2007) study, a final determination of goal specificity was created by

asking treatment facilitators to determine how specific the offender's goals were using a 3-category Likert scale: 1 = low goal specificity, 2 = moderate goal specificity, and 3 = high goal specificity. Instead of ranking plan specificity on a Likert-scale, the current study will classify these components using a dichotomous "yes" or "no" measurement. In addition, since some of the categories overlap, the specificity measure for the current study will focus on three components: positively stated, measurable, and singular.

The "positively stated" variable was measured by the percentage of objectives that meet the criteria for a positively stated objective. Specifically, a positively stated objective is one in which a behavioral act is outlined. Therefore, each objective will be categorized as "1" if they mention a behavior the client should engage in and a "0" if it mentions a behavior to be avoided. For example, if a client's substance abuse goal is to attend AA meetings once per week, this would meet the criteria and would be coded as "1"; however, if their goal is to not use cocaine it would not be positively stated and would be "0." Since each case plan has a varying number of objectives, the operationalization of the variable will take that into account. The final variable will sum each of the objectives and divide by the total number of objectives. This will result in the percentage of case plan objectives that are positively stated.

The measurable component of specificity focused on whether the objective can be accurately tracked by the case manager. To be considered measurable, the treatment plan objective must answer yes to one of the following questions: Can I know when this has been completed? or Am I able to track progress on this? Examples which meet the first criteria include objectives that have a natural termination to the goal. For example, "register with job service" or "sign a lease" have distinguishable point of completion. The second criteria "am I able to track progress on this?" is designed for goals that are ongoing. This includes goals such as "call my

daughter once per week” or “attend AA at least two times per week” (see Appendix A for more examples). To measure this, each case plan objective will be coded dichotomously as measurable or not measurable. Then each of these will be summed and divided by the total number of case plan objectives to produce the percentage of objectives that are measurable.

The final component of specificity was whether the objective is singular or not. Singular objectives are small steps that are developed to work towards a larger goal. For example, within the broader goal of gaining employment, singular objectives include tasks such as creating a resume, filling out applications, scheduling interviews, getting proper attire for an interview, etc. More examples for the coding of specificity can be found in Appendix B. In this example, each of the individual tasks are considered singular (and receive a code of 1) while larger goal of attaining employment would not be singular (and are coded as 0). Singular will be reported as the percentage of case plans objectives that are singular.

Breadth

Breadth refers the extent to which a needs area is covered. Within case plans that the Halfway House facility, case managers can create a number of objectives within each LSI-R domain; however, this varies slightly by domain. Specifically, case plans are allotted space for a total of 14 objectives within the drug/alcohol abuse section of the case plans while the remaining categories each allow for up to 7 objectives to be created. This flexibility creates some variance in the case plans. For example, in the area of employment, while one case manager may only designate one goal for an offender to complete, other case managers or other clients may provide multiple goals. The number of goals set is left to the discretion of the case manager and client being served.

Breadth is a component of case plans that has not yet been examined within corrections literature. This variable was included into the current study as a measure of how extensively a need area is addressed. For the purposes of the current study, breadth was measured on a continuous scale.

Expiration

Finally, expiration examines whether or not the goal identified has a specified completion date. One element missing within literature on case plans is a measure that indicates if goals have specified deadlines. Due to this lack of literature it is currently unknown if these additions to treatment plans impact offender recidivism. It is hypothesized that establishing goals for offenders to meet their objectives will increase the accountability and in turn improve compliance and reduce recidivism. In order to test this, a variable of expiration was also included in the analyses. This was measured as the percentage of case plan objectives that have a corresponding target date for completion.

Dependent Variable

Information gathered from the halfway house is also supplemented by data from public records websites. The websites provide publicly accessible information on criminal records for anyone within the state and can be searched using name and birthdate. The North Dakota (<https://publicsearch.ndcourts.gov/default.aspx>) and Minnesota (<http://pa.courts.state.mn.us/default.aspx>) websites were used as the data source for the dependent variable.

The dependent variable for the current study is recidivism. Recidivism was defined as a new conviction within two years of release from the program. To collect these data, all participants were searched by name within each of the databases. Once their records were pulled

up, any conviction within two years of their release date was recorded. Low level infractions and parking violations were not included as a measure of recidivism. When collected, the data was recorded as a dichotomous variable (yes or no) for the purposes of this study.

Analysis

The analytic plan for the current study entails univariate, bivariate, and multivariate analyses. This begins with an examination of participant demographics. Descriptive statistics are reported to provide rudimentary information about the sample group and their characteristics. Then, analyses continue through univariate examinations of each of the independent variables: compliance, positively stated, measurable, singular, breadth, and expiration. Following this, analyses address each of the five hypotheses.

CHAPTER 4: RESULTS

The purpose of the current study is to examine the impact that different case plan components have on offender recidivism. This section will begin with presenting descriptive statistics on the sample used in the study. The next sections will provide univariate and bivariate analyses respectively. Following this, are multivariate analyses that examine each of the five hypotheses made. Finally, to finish the section is a summary of the results.

Descriptive Statistics

To begin analyses, participant demographics and descriptive statistics are presented in Table 1. Participants in the current study range from 18 to 70 years of age with a mean age of 32.79 years. In addition, the majority of participants are male (64.3 percent), White (67.5 percent), and single (76.7 percent). While the education of participants range from less than a high school education to a Ph.D., the highest level of education for most participants is a high school diploma/GED (54.2%). Most participants also fall within the moderate or moderate/high risk categories with each comprising 22.2 percent and 40.9 percent of the sample respectively. Low risk clients were very sparse, with only 1.2 percent of the sample falling into the low risk category.

Treatment related variables can also be found in Table 1. The length of stay for participants ranged from 0 to 457 days, with zero indicating a participant who was enrolled in the program for less than 24 hours. The mean stay was 74.56 days, or a slightly under two and a half months. The majority of people had a successful discharge from the facility (74.4%).

Table 1*Sample Demographics*

	n	%	mean	s.d.	range
Age	859		32.79	9.21	18-70
Gender			0.36	0.48	0-1
Male	522	64.3			
Female	307	35.7			
Race			0.46	0.72	0-2
White	580	67.5			
Native American	162	18.9			
Other	117	13.6			
Education Status			1.21	0.80	0-3
Less than high school	140	16.3			
High school diploma/GED	466	54.2			
Some college	187	21.8			
College Degree	66	7.7			
Marital Status			0.40	0.75	0-2
Single/never married	659	76.7			
Married	60	7.0			
Divorced/separated	140	16.3			
Risk Level			3.90	0.93	1-5
Low	10	1.2			
Low/Moderate	56	6.5			
Moderate	191	22.2			
Moderate/High	351	40.9			
High	251	29.2			
Discharge Status			0.26	0.44	0-1
Successful	639	74.4			
Unsuccessful	220	25.6			
Days in Program	859		74.56	49.62	0-457
Recidivism			0.62	0.49	0-1
No	325	37.8			
Yes	534	62.2			

Univariate Analyses**Compliance**

For the current study, compliance refers to whether a case plan complies with the need principle. As a reminder, the need principle states that offender treatment should focus on targeting the criminogenic needs that an offender has. Since the LSI-R assessment categorizes each criminogenic need domain into low, moderate, and high need, these cutoffs were used to guide offender need. Specifically, the compliance variable for the study categorizes domains as

“compliant” if an offender has a moderate/high need and has a corresponding objective or is low need and has no corresponding objectives.

While the compliance measure examines the overall case plan compliance on a scale from not compliant in any domain (0) to compliant in all domains (10), additional coding categorized over- and under-compliance within domains to provide a closer examination of compliance. To provide a framework of compliance with client needs, a preliminary analysis examined the over-, under-, and proper classification of each of the ten LSI-R domains. These descriptive statistics are shown in Table 2.

Overall, intradomain compliance ranges between 18.6 percent to 91.6 percent, indicating a large range of compliance between domains. Criminal history has the lowest compliance; however, criminal history is considered to be a static risk factor, or a risk factor that is not malleable to change, and therefore does not necessarily require case plan objectives. Because of this, the criminal history domain may not portray the most accurate representation of compliance.

The remaining domains are all dynamic needs which can be targeted for change. Overall, for the remaining domains, the majority of case plans are compliant. Domains with the lowest compliance include Attitude/Orientation and Accommodations with 55.1 percent and 59.1 percent compliant respectively. Compliance in other domains, such as alcohol/drug is much higher with 91.6 percent of case plans complying with the need principle.

Table 2*Descriptive Statistics for Intradomain Compliance*

		n	%	mean	s.d.	range
Alcohol/Drugs	Over-classified need	41	4.8	-0.01	0.29	-1 to 1
	Properly complied with need	787	91.6			
	Under-classified need	31	3.6			
Criminal History	Over-classified need	6	0.7	0.8	0.42	-1 to 1
	Properly complied with need	160	18.6			
	Under-classified need	693	80.7			
Emotional/Personal	Over-classified need	92	10.7	0.06	0.56	-1 to 1
	Properly complied with need	620	72.2			
	Under-classified need	147	17.1			
Family/Marital	Over-classified need	155	18.0	-0.04	0.56	-1 to 1
	Properly complied with need	587	68.3			
	Under-classified need	117	13.6			
Leisure/Recreation	Over-classified need	14	1.6	0.26	0.48	-1 to 1
	Properly complied with need	704	70.5			
	Under-classified need	147	27.8			
Companions	Over-classified need	8	0.9	0.16	0.39	-1 to 1
	Properly complied with need	704	82.0			
	Under-classified need	147	17.1			
Attitude Orientation	Over-classified need	171	19.9	0.05	0.67	-1 to 1
	Properly complied with need	473	55.1			
	Under-classified need	215	25.0			
Employment/Education	Over-classified need	123	14.3	-0.08	0.44	-1 to 1
	Properly complied with need	686	79.9			
	Under-classified need	50	5.8			
Financial	Over-classified need	45	5.2	0.09	0.43	-1 to 1
	Properly complied with need	691	80.4			
	Under-classified need	123	14.3			
Accommodations	Over-classified need	281	32.7	-0.25	0.59	-1 to 1
	Properly complied with need	508	59.1			
	Under-classified need	70	8.1			

While the majority of domains have over 50 percent of case plans that comply, when examining over- and under-compliance, there is little consistency between domains. For example, within the accommodation domain, over-compliance constitutes 32.7 percent of case plans. This indicates that nearly a third of offenders are setting objectives to focus on

accommodations despite not having a moderate/high need in the area. Other domains appear to have the opposite occur, with under-compliance being the primary problem. See leisure/recreation for instance, where 27.8 percent of case plans are under-compliant.

Positively Stated

The first component of specificity is whether objectives are positively stated. As a reminder, while literature on the topic is sparse, a positively stated objective is of value because it identifies what the offender should do rather than framing objectives in an avoidant manner. This framing creates objectives that are actionable. A full analysis of the domain scores for the positively stated variable can be found in Table 3.

The first column in Table 3 indicates the sample size included in the analysis. It should be noted that the domain descriptive statistics shown in Table 3 do not include domain information for areas with no objectives. In other words, if case plan only has objectives listed within the drug/alcohol and employment domains, it would not be included within the sample in the examination of the emotional/personal domains. This was done to provide a clearer picture of the case plan objectives, since if a domain has no objectives, they cannot be coded as positively stated or not.

The second column in Table 3, “% at 100%,” indicates the percentage of case plans in which all of the objectives are positively stated. The domain that had lowest rate of positively stated objectives was Alcohol and Drugs. Within this domain, 73.7 percent of participants had case plans in which all of the objectives were positively stated. The remaining domains had between 91.7 percent and 99.0 percent of case plans with 100 percent of objectives positively stated.

Table 3*Descriptive Statistics for Positively Stated*

	n	% at 100%	mean	s.d.	range
Alcohol/Drugs	807	73.7	93.02	15.04	0-100
Criminal History	122	97.5	97.95	13.48	0-100
Emotional/Personal	688	96.1	98.68	7.52	0-100
Family/Marital	716	93.9	97.92	8.90	0-100
Leisure/Recreation	617	97.9	99.42	4.24	50-100
Companions	711	91.7	97.13	11.28	0-100
Attitude Orientation	484	93.6	97.78	9.51	0-100
Employment/Education	791	98.6	99.57	3.86	50-100
Financial	729	95.7	98.44	8.16	0-100
Accommodations	732	99.0	99.71	3.05	60-100

Finally, the third column provides the mean score for case plans. Since these values are coded as percentages, the mean represents the average percentage of case plan objectives that are positively stated. As be seen in the table, the average within each domain is greater than 90 percent, with the lowest being 93.02 percent for the alcohol/drug domain. Collectively, the information in Table 3 indicates that there is little variance within the positively stated variable.

Measurable

The second component of specificity examines the measurability of case plan objectives. The variable “measurable” identifies whether or not the objective is stated in a way in which progress can be tracked. This process entailed classifying objectives as “measurable” or “non-measurable” using the criteria outlined in Chapter 3 and then reporting these values as the percentage of objectives that are measurable. Information on the individual and collective rates of measurable goals can be found in Table 4.

While case plans had high rates of objectives that were positively stated, producing measurable goals was less common. The format for Table 4 is consistent with that of Table 3, with the sample size values shifting based on the frequency of domain objectives. In addition, the

table contains a column that categorizes the percentage of case plans that have all of the domain objectives written in a measurable way (% at 100%) and another which displays the average percent of measurable objectives (mean).

Table 4

Descriptive Statistics for Measurable

	n	% at 100%	mean	s.d.	range
Alcohol/Drugs	807	15.9	54.49	37.13	0-100
Criminal History	122	9.0	11.61	29.99	0-100
Emotional/Personal	668	37.6	62.88	37.13	0-100
Family/Marital	716	27.5	51.22	38.19	0-100
Leisure/Recreation	617	30.1	51.88	38.57	0-100
Companions	711	18.6	39.99	37.35	0-100
Attitude Orientation	484	27.5	42.95	41.34	0-100
Employment/Education	791	33.9	64.52	33.38	0-100
Financial	729	18.1	50.11	32.34	0-100
Accommodations	732	23.9	45.99	37.80	0-100

Unlike the positively stated variable, the majority of case plans do not have all objectives stated in a measurable way. As can be seen in the second column of Table 4, individual domains ranged from 9.0 to 37.6 percent of case plans having all measurable objectives. These rates were lowest for Criminal History (9.0%), Alcohol/Drugs (15.9%) and Financial (18.1%) and highest among Emotional/Personal (37.4%) and Employment/Education (33.9%). The mean values supplement this information. When looking at mean number of measurable goals within domains, it appears as though approximately half of all objectives are measurable, with interdomain means ranging from 11.61 to 64.52 percent.

Singular

The final component of specificity is whether objectives are singular or not. A singular objective is an objective that outlines a small step to take in working towards a broader goal.

Breaking the larger goals into singular objectives may make progress seem more manageable. The intradomain information for singular can be found in Table 5.

The second column of Table 5 indicates that domains vary widely in the percentages of case plans where all objectives are singular. For example, within the alcohol/drug domain, only 25.5 percent of case plans have every objective stated in a singular manner. Other domains however, such as criminal history and emotional/personal, have the majority of case plans with all singular objectives (92.6 and 87.3 percent respectively).

The intradomain means in Table 5 provide additional information. The domain means for singular range from 73.07 percent for Alcohol and Drugs to a high of 95.90 percent for Criminal History. This indicates, for example, that within the alcohol/drug domain, the average case plan has about three quarters (73.07 percent) of objectives that are singular. Overall, the means suggest that the majority of objectives in each domain are singular.

Table 5

Descriptive Statistics for Singular

	n	% at 100%	mean	s.d.	range
Alcohol/Drugs	807	25.5	73.07	23.48	0-100
Criminal History	122	92.6	95.90	15.50	0-100
Emotional/Personal	668	87.3	95.74	12.69	0-100
Family/Marital	716	73.7	88.35	23.30	0-100
Leisure/Recreation	617	75.5	90.00	20.73	0-100
Companions	711	83.0	93.69	16.48	0-100
Attitude Orientation	484	67.6	85.44	24.21	0-100
Employment/Education	791	31.6	65.77	31.09	0-100
Financial	729	70.8	87.89	21.95	0-100
Accommodations	732	55.9	77.34	31.12	0-100

Breadth

Table 6 provides an overview of case plan breadth. Recall that breadth refers to the number of case plan objectives created. This variable is important in examining offender case

plans as it provides a framework for the priorities of treatment. For example, having multiple objectives within the family/marital domain indicate that this is an area of high concern.

It should be noted that the sample column in Table 6 looks different than that of the previous Tables 3-5 and subsequent Table 7. The intradomain sample sizes for Table 6 do not fluctuate because each domain includes case plans without any objectives. This was deemed to be the best representation of the data since breadth examines the number of objectives rather than the characteristics of the objectives.

The format of the case plans allots a set number of objectives within each of the domains. The alcohol/drug domain has the largest number of objective spaces, with the format allowing up to 14 objectives to be created. The remaining domains have space for up to seven objectives to be developed. As can be seen under the range column in Table 6, each domain has at least one case plan that utilized every available space, with the exceptions of criminal history, attitude orientation, and accommodations.

Table 6

Descriptive Statistics for Breadth

	n	mean	s.d.	range
Alcohol/Drugs	859	4.86	3.07	0-14
Criminal History	859	0.17	0.49	0-5
Emotional/Personal	859	2.60	1.91	0-7
Family/Marital	859	2.41	1.54	0-7
Leisure/Recreation	859	2.01	1.60	0-7
Companions	859	2.53	1.66	0-7
Attitude Orientation	859	1.47	1.56	0-6
Employment/Education	859	2.90	1.52	0-7
Financial	859	2.59	1.53	0-7
Accommodations	859	2.20	1.47	0-6

As may be predicted based on the number of allotted spaces, the domain of Alcohol and Drugs had the highest number of objectives listed with an average of 4.86 objectives per case

plan. The next most prominent case plan areas were Employment/Education and Emotional/Personal with means of 2.90 and 2.60 respectively. Criminal History and Attitude Orientation had the lowest number of objectives with a respective mean of 0.17 and 1.47 objectives per case plan.

Expiration

The final independent variable examined in the current study is expiration. Expiration refers to whether case plan objectives identify a target date by which the objective should be completed. While criminal justice literature has not examined expiration, theoretically, it increases accountability among offenders. Descriptive information for expiration within each of the domains is presented in Table 7. This table utilizes the same format of the specificity variables in Tables 3-5.

Table 7

Descriptive Statistics for Expiration

	n	% at 100%	mean	s.d.	range
Alcohol/Drugs	807	71.6	85.06	29.978	0-100
Criminal History	122	91.8	93.03	24.42	0-100
Emotional/Personal	668	68.1	76.97	37.73	0-100
Family/Marital	716	67.0	71.98	42.28	0-100
Leisure/Recreation	617	59.8	63.68	46.24	0-100
Companions	711	64.7	70.67	42.34	0-100
Attitude Orientation	484	66.1	69.88	44.13	0-100
Employment/Education	791	68.3	75.12	39.80	0-100
Financial	729	57.9	64.41	44.83	0-100
Accommodations	732	63.7	67.14	45.27	0-100

Across all domains, the inclusion of a target date for completion is relatively high. Leisure/Recreation and Financial domains tend to have the fewest completion dates with a mean of 63.68 and 64.41 percent listed respectively. The Criminal History domain has the highest rate

of matching of objectives with completion dates with a mean of approximately 93 percent of objectives.

Full Case Plan Overview

While the previous descriptive information provides further context regarding the state of case plan objectives, bivariate and multivariate analyses examine the case plans as a whole. Table 8 provides descriptive statistics for the case plans as a whole. Full compliance with all domains remains quite low in the sample (3.8 percent of case plans). This is likely due to the low rates of compliance within the Criminal History domain discussed previously. To test this, additional descriptive statistics were run excluding compliance to criminal history (see Appendix C). The analyses reveal that without factoring this domain into the score, still only 12.2 percent of case plans reach compliance with the remaining nine domains. This indicates that while case plans may comply with some of the client’s needs, the majority of them fail to comply with all need domains.

Table 8

Descriptive Statistics for the Full Case Plans

	n	% at 100%	mean	s.d.	range
Compliance	859	3.8	6.78	1.91	1-10
Positively Stated	859	65.4	97.69	4.11	70-100
Measurable	859	2.6	52.66	21.15	0-100
Singular	859	5.4	82.14	12.78	0-100
Breadth	859	na	23.73	10.16	1-55
Expiration	859	41.9	73.50	34.00	0-100

The majority of case plans fall short in fully meeting the other case plan criteria as well. For example, having a case plan that consists of all measurable or all singular objectives appears quite rare, with only 2.6 percent and 5.4 percent of case plans meeting these criteria respectively. Additionally, less than half of case plans specify a completion date for all of the objectives listed

(41.9%). Positively stated is the one exception to this, where the majority of case plans do consist of entirely positively stated objectives (65.4 percent).

Bivariate Analyses

A correlation matrix provides additional information on the relationships between variables (see Table 9). Specifically, among the predictor variables, Table 9 shows some correlation. For example, compliance is significantly, positively correlated with positively stated, singular, and breadth. Additionally, positively stated is significantly correlated with measurable, singular, and breadth. Overall, the majority of predictor variables are significantly correlated with two or three other predictor variables.

Since analyses showed a correlation between some of the predictor variables, diagnostics were performed to test for multicollinearity. Multicollinearity occurs when there is high correlation between a predictor variable and one or more of the other predictor variables. If this occurs, it can skew the results of a regression model (Field, 2009). Tests of multicollinearity examine tolerance statistics and variance inflation factors (VIF). For the tolerance statistic, a value of 0.1 or less is indicative of a problem and VIF scores should be below 10 (Field, 2009). However, others argue that a more conservative estimate of a 0.2 tolerance statistic should be used (Menard, 1995). The results from this test can be seen in Table 10. Diagnostics revealed that tolerance scores for the independent variables range from 0.623 to 0.985 and VIF statistics range from 1.015 to 1.606. This indicates that there are no issues with multicollinearity between the predictor variables.

A bivariate logistic regression was performed between each of the independent variables and the outcome variable. This test was done to further contextualize the individual and collective impacts the each of the case plan components have on recidivism. These bivariate

analyses demonstrate that “positively stated” is the only independent variable that is significantly related to offender recidivism when other factors are not considered. Additional information on this can be found in Table 11.

Table 9

Pearson Correlation Table

	Recidivism	Age	Gender	Race	Educa- tion	Marital Status	Risk Level	Discharge Status	Days in Program	Compli- ance	Positively Stated	Measur- able	Singular	Breadth	Expiration
Recidivism	1.00	-0.19**	-0.03	0.02	-0.06	-0.08*	0.10**	0.13**	-0.14**	-0.01	0.04	-0.09*	-0.04	-0.01	-0.02
Age	-0.19**	1.00	-0.10**	0.00	0.25**	0.42**	0.00	-0.11**	0.07*	-0.08*	-0.05	0.06	-0.09**	-0.05	0.03
Gender	-0.03	-0.10**	1.00	-0.01	0.03	0.12**	0.03	-0.03	0.04	0.31**	0.32**	0.21**	0.38**	0.30**	-0.08*
Race	0.02	0.00	-0.01	1.00	-0.08*	-0.04	0.09**	0.02	-0.02	-0.01	-0.07*	-0.03	-0.07*	0.01	-0.01
Education	-0.06	0.25**	0.03	-0.08*	1.00	0.22**	-0.13**	-0.08*	0.01	-0.00	-0.03	-0.03	-0.01	0.05	-0.00
Marital Status	-0.08*	0.42**	0.12**	-0.04	0.22**	1.00	-0.01	-0.09**	0.06	0.05	0.03	0.02	0.07*	0.05	0.02
Risk Level	0.10**	0.00	0.03	0.09**	-0.13**	-0.01	1.00	0.14**	-0.13**	0.28**	0.02	0.03	-0.01	0.01	-0.01
Discharge Status	0.13**	-0.11**	-0.03	0.02	-0.08*	-0.09**	0.14**	1.00	-0.32**	0.02	0.01	-0.06	-0.03	-0.03	-0.15**
Days in Program	-0.14**	0.07*	0.04	-0.02	0.01	0.06	-0.13**	-0.32**	1.00	0.08	0.07*	0.23**	0.02	0.15**	0.16**
Compliance	-0.01	-0.08*	0.31**	-0.01	-0.00	0.05	0.28**	0.02	0.08	1.00	0.07*	-0.01	0.28**	0.59**	0.00
Positively Stated	0.04	-0.05	0.32**	-0.07*	-0.03	0.03	0.02	0.01	0.07*	0.07*	1.00	0.29**	0.12**	-0.73*	-0.01
Measurable	-0.09*	0.06	0.21**	-0.03	-0.03	0.02	0.03	-0.06	0.23**	-0.01	0.29**	1.00	-0.03	-0.12**	0.29**
Singular	-0.04	-0.09**	0.38**	-0.07*	-0.01	0.07*	-0.01	-0.03	0.02	0.28**	0.12**	-0.03	1.00	0.25**	-0.11**
Breadth	-0.01	-0.05	0.30**	0.01	0.05	0.05	0.01	-0.03	0.15**	0.59**	-0.73*	-0.12**	0.25**	1.00	0.03
Expiration	-0.02	0.03	-0.08*	-0.01	-0.00	0.02	-0.01	-0.15**	0.16**	0.00	-0.01	0.29**	-0.11**	0.03	1.00

Note: * is sig at .05, ** is sig at .01

Table 10*Collinearity Statistics for Predictor Variables*

	Tolerance	VIF
Compliance		
Positively Stated	0.890	1.124
Measurable	0.826	1.211
Singular	0.903	1.107
Breadth	0.910	1.099
Expiration	0.897	1.115
Positively Stated		
Compliance	0.628	1.592
Measurable	0.898	1.114
Singular	0.895	1.117
Breadth	0.626	1.597
Expiration	0.902	1.109
Measurable		
Compliance	0.623	1.606
Positively Stated	0.959	1.043
Singular	0.882	1.134
Breadth	0.625	1.599
Expiration	0.985	1.015
Singular		
Compliance	0.637	1.571
Positively Stated	0.894	1.119
Measurable	0.824	1.213
Breadth	0.628	1.592
Expiration	0.907	1.102
Breadth		
Compliance	0.916	1.092
Positively Stated	0.893	1.120
Measurable	0.835	1.198
Singular	0.897	1.115
Expiration	0.903	1.108
Expiration		
Compliance	0.622	1.609
Positively Stated	0.885	1.130
Measurable	0.906	1.104
Singular	0.892	1.121
Breadth	0.622	1.609

Table 11

Bivariate Analysis of Independent Variables and Recidivism

	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Compliance	-0.130	0.037	0.987															
Positively Stated				0.020	0.017	1.020												
Measurable							-0.008	0.003	0.992*									
Singular										-0.006	0.006	0.994						
Breadth													-0.003	0.007	0.997			
Expiration																-0.001	0.002	0.999
Constant	0.456	0.138	1.577**	-1.42	1.646	0.242	0.941	0.194	2.562**	0.968	0.470	2.632*	0.563	0.179	1.576**	0.601	0.169	1.827**
-2 Log Likelihood		1139.344			1138.116			1133.242			1138.412			1139.299			1138.981	
Nagelkerke R ²		0.00			0.002			0.01			0.002			0.00			0.001	

Note: ^ is sig at .10, * is sig at .05, ** is sig at .01

Multivariate Analyses

Hypothesis One

The first hypothesis states that participants with higher compliance will have lower rates of recidivism. To test this hypothesis, a binary logistic regression was used to assess the effect that the control and independent variables have on recidivism. A stepwise model was used to provide a reference point to determine whether the model is improved when the independent variables are added into the equation. These results are presented in Table 12.

The initial model in the regression analysis includes key demographic information that research indicates is related to offending. These variables include age, gender, race, education, marital status, and risk level. Consistent with prior literature, Model 1 indicates a significant relationship between several of the demographic variables and recidivism. The strongest relationship is between age and recidivism with a p-value at the $p < 0.01$ level. The negative relationship between age and recidivism, indicates that younger clients are more likely to recidivate than older clients. In addition, results from Model 1 indicate that males are significantly more likely to recidivate than female offenders and that low/moderate, moderate, and moderate/high risk offenders are less likely to recidivate than high risk offenders. While race is not significant at the $p < 0.05$ level, it is approaching significance with Native American participants being more likely to recidivate than white participants. While research generally demonstrates that having a higher level of education and being married are associated with lower recidivism rates, this relationship is not significant among the current sample.

Table 12*Logistic Regression Model Examining the Impacts of Compliance on Recidivism*

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.048	0.009	0.953**	-0.046	0.009	0.995**	-0.046	0.009	0.995**
Gender (ref.=male)	-0.332	0.159	0.718*	-0.299	0.161	0.741^	-0.253	0.168	0.776
Race (ref.=white)									
Native American	0.380	0.200	1.463^	0.328	0.203	1.388	0.320	0.203	1.378
Other	-0.071	0.215	0.931	-0.059	0.217	0.942	-0.063	0.217	0.939
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-0.076	0.212	0.927	-0.093	0.215	0.911	-0.087	0.215	0.917
Some College	-0.039	0.248	0.963	-0.059	0.251	0.942	-0.047	0.252	0.954
College Degree	0.013	0.328	1.013	0.003	0.331	1.003	0.013	0.332	1.013
Marital Status (ref.=single)									
Married	-0.436	0.284	0.646	-0.399	0.286	0.671	-0.395	0.287	0.673
Divorced	0.218	0.221	1.244	0.251	0.224	1.286	0.259	0.224	1.295
Risk Level (ref.=high)									
Low	-0.584	0.675	0.557	-0.393	0.693	0.675	-0.518	0.705	0.595
Low/Mod	-0.628	0.314	0.534*	-0.519	0.317	0.595	-0.6	0.329	0.549^
Moderate	-0.517	0.209	0.597*	-0.411	0.212	0.663^	-0.455	0.218	0.635*
Mod/High	-0.300	0.181	0.741^	-0.268	0.183	0.765	-0.282	0.184	0.754
Discharge Status (ref.=unsuccessful)				0.337	0.188	1.400^	0.342	0.188	1.407^
Days in Program				-0.004	0.002	.996**	-0.004	0.002	0.996**
Compliance							-0.042	0.044	1.043
Constant	2.475	0.366	11.876**	2.612	0.400	13.620**	2.489	0.419	12.050**
-2 Log Likelihood		1088.278			1072.901			1071.99	
Nagelkerke R ²		0.079			0.101			0.103	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

The second model adds in two programmatic variables into the analysis: discharge status and the number of days spent in the program. With the inclusion of these variables into the analysis, age continues to be a significant predictor of recidivism; however, the effects of gender,

race, and risk level become largely reduced. Specifically, race and low-moderate risk are no longer significant after adding discharge status and days in the program into the model. Gender and moderate risk are no longer significant at the 0.05 level but still have p-values below 0.10. Of the new variables, length of stay is significantly related to recidivism at the 0.01 level. The negative relationship indicates that clients who spend less time in the program are more likely to recidivate when compared to clients who spend more time in the program. Discharge status also approaches significance with a p-value of 0.073, but does not reach the 0.05 threshold.

In the final model, compliance is added into the equation. With the addition of compliance, gender is no longer approaching significance at the $p < 0.10$ level; however, other significant variables from Model 2 (age, risk level, discharge status, and days in program) remain largely unchanged. Compliance on the other hand, fails to reach significance. In fact, when examining the -2 Log Likelihood value across Models 1-3, it can be seen that adding compliance to the model produces minimal change in the variance explained.

Since the results of compliance were insignificant and do not align with the predictions made under the guidance of the need principle, an additional regression was conducted (see Appendix B for full analysis). The Appendix B analyses examined compliance as a four-category variable, rather than a scale. A four category variable was created to examine whether there is a difference between low and high compliance that is not seen using the continuous scale. The categories include low compliance (compliance score of 33 percent or lower), moderate (34 to 55 percent compliant), moderate high (56 to 78 percent compliant) and high (over 79 percent compliant). Recoding the compliance variable had no impact on the model and none of the groups reached significance.

Hypothesis Two

The study's second hypothesis states that the components of specificity will not significantly impact recidivism rates when evaluated individually, but will become significant when assessed collectively. The first and second models of Table 13 use the same format of Table 12, with Model 1 consisting of demographic variables related to recidivism and Model 2 adding variables related to their treatment that may impact recidivism.

In Table 13, Models 3-5 provide an examination of each of the components of specificity. The impact of the variable "positively stated" can be seen in Model 3. When compared to the second model, the -2 Log Likelihood value indicates that adding the positively stated variable into the model improves the level of variance explained. In addition, including positively stated in the model has little effect on the significance of the demographic variables, with the exception of race now approaching significance. However, analyses reveal that the percentage of case plan objectives that are positively stated is not significantly related to offender recidivism

The fourth model removes positively stated to examine the individual impact of having measurable goals. When measurable is added into the analysis slight changes can be seen in the impact of gender and the low/moderate risk categories. In the new model, gender is no longer approaching significance and the low/moderate risk category approaches significance at the $p < 0.10$ level. Consistent with the hypothesis, however, measurable is not significant.

The fifth model examines the effects that having singular objectives has on recidivism. Of the three components of specificity, singular has the lowest impact on the predicted variance in the model based on the -2 Log Likelihood scores. In addition, in comparing the demographic information between Model 2 and Model 5, few impacts can be seen from the addition of the

new variable. Consistent with the hypothesis, when examined on its own in the model, singular is not a significant predictor of recidivism.

Table 13

Logistic Regression Model Examining the Impacts of Specificity on Recidivism

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.048	0.009	0.953**	-0.046	0.009	.995**	-0.046	0.009	0.995**
Gender (ref.=male)	-0.332	0.159	0.718*	-0.299	0.161	0.741^	-0.381	0.169	0.683*
Race (ref.=white)									
Native									
American	0.380	0.200	1.463^	0.328	0.203	1.388	0.339	0.204	1.404^
Other	-0.071	0.215	0.931	-0.059	0.217	0.942	-0.038	0.218	0.963
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.076	0.212	0.927	-0.093	0.215	0.911	-0.081	0.215	0.922
Some College	-0.039	0.248	0.963	-0.059	0.251	0.942	-0.049	0.252	0.952
College Degree	0.013	0.328	1.013	0.003	0.331	1.003	0.026	0.333	1.026
Marital Status (ref.=single)									
Married	-0.436	0.284	0.646	-0.399	0.286	0.671	-0.390	0.287	0.667
Divorced	0.218	0.221	1.244	0.251	0.224	1.286	0.250	0.224	1.283
Risk Level (ref.=high)									
Low	-0.584	0.675	0.557	-0.393	0.693	0.675	-0.425	0.692	0.654
Low/Mod	-0.628	0.314	0.534*	-0.519	0.317	0.595	-0.497	0.318	0.608
Moderate	-0.517	0.209	0.597*	-0.411	0.212	0.663^	-0.408	0.213	0.665^
Mod/High	-0.300	0.181	0.741^	-0.268	0.183	0.765	-0.274	0.183	0.760
Discharge Status (ref.=unsuccessful)				0.337	0.188	1.400^	0.326	0.188	1.386^
Days in Program Positively Stated Measurable Singular				-0.004	0.002	0.996**	-0.005	0.002	0.995**
Constant	2.475	0.366	11.876**	2.612	0.400	13.620**	-0.286	1.856	0.751
-2 Log Likelihood		1088.278			1072.901			1070.384	
Nagelkerke R ²		0.079			0.101			0.105	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table 13. *Logistic Regression Model Examining the Impacts of Specificity on Recidivism*
(continued)

	Model 4			Model 5			Model 6		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.045	0.009	0.956**	-0.046	0.009	0.995**	-0.044	0.009	0.957**
Gender (ref.=male)	-0.258	0.165	0.773	-0.305	0.174	0.737^	-0.334	0.185	0.716^
Race (ref.=white)									
Native American	0.317	0.203	1.373	0.328	0.203	1.388	0.328	0.204	1.388
Other	-0.062	0.217	0.940	-0.057	0.218	0.944	-0.039	0.219	0.961
Education (ref=less than H.S.)									
H.S. Diploma/GED	-0.096	0.215	0.909	-0.092	0.215	0.912	-0.084	0.216	0.919
Some College	-0.060	0.251	0.942	-0.058	0.251	0.943	-0.050	0.252	0.951
College Degree	-0.018	0.332	0.982	0.005	0.332	1.005	-0.001	0.335	0.999
Marital Status (ref.=single)									
Married	-0.401	0.287	0.669	-0.398	0.287	0.672	-0.391	0.288	0.676
Divorced	0.237	0.224	1.268	0.252	0.224	1.287	0.228	0.225	1.256
Risk Level (ref.=high)									
Low	-0.41	0.696	0.664	-0.395	0.693	0.674	-0.452	0.697	0.636
Low/Mod	-0.546	0.319	0.579^	-0.520	0.318	0.594	-0.529	0.320	0.589^
Moderate	-0.414	0.212	0.661^	-0.412	0.212	0.663^	-0.41	0.213	0.663^
Mod/High	-0.273	0.183	0.761	-0.269	0.183	0.764	-0.28	0.184	0.756
Discharge Status (ref.=unsuccessful)	0.343	0.188	1.409^	0.337	0.188	1.400^	0.332	0.188	1.393^
Days in Program Positively Stated	-0.004	0.002	0.996*	-0.004	0.002	0.996**	0.037	0.019	1.038^
Measurable	-0.004	0.004	0.996				-0.006	0.004	0.994
Singular				0.001	0.006	1.001	-0.001	0.006	0.999
Constant	2.771	0.425	15.968**	2.568	0.618	13.038**	-0.706	1.933	0.494
-2 Log Likelihood		1071.604			1072.893			1067.96	
Nagelkerke R ²		0.103			0.102			0.109	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

The final model in Table 13, examines the effects that all three components of specificity have on client recidivism when included in the model together. The -2 Log Likelihood score indicates that the final model predicts the most variance of the six models presented; however, similar to the previous models assessing the individual components of specificity, none of the three components of specificity reach significance at the $p < 0.05$ level. One exception to this is positively stated which approaches significance with a p-value of 0.055. It should be noted

though that positively stated has a positive relationship with recidivism. This indicates that case plans with a higher percentage of objectives that are positively stated are related to higher rates of recidivism. These findings are contrary to the initial hypothesis.

Hypothesis Three

The third hypothesis states that more case plan objectives will be associated with lower rates of recidivism. Thus, in the regression model, breadth is added into the analysis. Breadth is a continuous variable which measures the total number of case plan objectives that were developed for the offender. The regression analyses use the same stepwise format of Tables 12 and 13 to provide an easy reference for examining how the introduction of the breadth variable impacts the significance of other control variables. These results are shown in Table 14.

As noted earlier, the initial two models examine the impacts of variables related to reoffending. For example, in Model 1, age and gender are both significant predictors of recidivism with younger offenders and males being significantly more likely to recidivate. In addition, race approaches significance at the $p < 0.10$ level with Native American clients having higher rates of reoffending compared to white offenders. Finally, Model 1 also demonstrates that, when compared to high risk offenders, low/moderate, moderate, and moderate/high risk offenders are less likely to reoffend. Then in Model 2, discharge status approaches significance with a p-value less than 0.10, indicating that participants who successfully complete the program are less likely to reoffend. In addition, days in the program is also significant at the $p < 0.01$ level. The negative relationship indicates that participants who spend more days in the program are significantly less likely to recidivate.

Table 14*Logistic Regression Model Examining the Impacts of Breadth on Recidivism*

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.048	0.009	0.953**	-0.046	0.009	0.995**	-0.046	0.009	0.995**
Gender (ref.=male)	-0.332	0.159	0.718*	-0.299	0.161	0.741^	-0.306	0.167	0.736^
Race (ref.=white)									
Native									
American	0.380	0.200	1.463^	0.328	0.203	1.388	0.327	0.203	1.387
Other	-0.071	0.215	0.931	-0.059	0.217	0.942	-0.060	0.217	0.942
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.076	0.212	0.927	-0.093	0.215	0.911	-0.094	0.215	0.910
Some College	-0.039	0.248	0.963	-0.059	0.251	0.942	-0.062	0.252	0.940
College Degree	0.013	0.328	1.013	0.003	0.331	1.003	0.001	0.332	1.001
Marital Status (ref.=single)									
Married	-0.436	0.284	0.646	-0.399	0.286	0.671	-0.398	0.296	0.672
Divorced	0.218	0.221	1.244	0.251	0.224	1.286	0.25	0.224	1.284
Risk Level (ref.=high)									
Low	-0.584	0.675	0.557	-0.393	0.693	0.675	-0.391	0.693	0.677
Low/Mod	-0.628	0.314	0.534*	-0.519	0.317	0.595	-0.518	0.317	0.596
Moderate	-0.517	0.209	0.597*	-0.411	0.212	0.663^	-0.412	0.212	0.663^
Mod/High	-0.300	0.181	0.741^	-0.268	0.183	0.765	-0.27	0.183	0.764
Discharge Status (ref.=unsuccessful)				0.337	0.188	1.400^	0.336	0.188	1.399^
Days in Program				-0.004	0.002	0.996**	-0.004	0.002	0.996**
Breadth							0.001	0.008	1.001
Constant	2.475	0.366	11.876**	2.612	0.400	13.620**	2.588	0.428	13.309**
-2 Log Likelihood		1088.278			1072.901			1072.878	
Nagelkerke R ²		0.079			0.101			0.102	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Model 3 in Table 14 provides the full model for the breadth variable. Overall, the addition of breadth into the model has no impact on the demographic and program variables entered in the first and second model. Participant age and days in the program remain significant

predictors of recidivism. In addition, gender, moderate risk level, and discharge status remain significant at the $p < 0.10$ level. The breadth variable itself, however, is not significant. The -2 Log Likelihood presented at the bottom of the models also indicates that breadth has a negligible effect on the variance explained between Model 2 and Model 3.

Hypothesis Four

The fourth hypothesis predicts that participants with higher rates of deadlines outlined in their case plans will have lower recidivism than participants with fewer deadlines. Model 3 in Table 15 provides the full regression analysis including the expiration variable. Adding expiration into the model does not impact the significance of other variables in model. For example, in comparing Models 2 and 3, it can be seen that age and days in program remain significant and gender, moderate risk, and discharge status are all still approaching significance at the $p < 0.10$ level. The regression analysis also indicates, that contrary to what was hypothesized, expiration is not significantly related to recidivism in the model. In fact, the -2 Log Likelihood suggests that adding expiration into the model has virtually no effect on the variance explained by the model.

Table 15*Logistic Regression Model Examining the Impacts of Expiration on Recidivism*

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.048	0.009	0.953**	-0.046	0.009	0.995**	-0.046	0.009	0.955**
Gender (ref.=male)	-0.332	0.159	0.718*	-0.299	0.161	0.741^	-0.296	0.161	0.744^
Race (ref.=white)									
Native American	0.380	0.200	1.463^	0.328	0.203	1.388	0.328	0.203	1.388
Other	-0.071	0.215	0.931	-0.059	0.217	0.942	-0.060	0.217	0.942
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-0.076	0.212	0.927	-0.093	0.215	0.911	-0.094	0.215	0.910
Some College	-0.039	0.248	0.963	-0.059	0.251	0.942	-0.061	0.251	0.941
College Degree	0.013	0.328	1.013	0.003	0.331	1.003	0.004	0.331	1.004
Marital Status (ref.=single)									
Married	-0.436	0.284	0.646	-0.399	0.286	0.671	-0.404	0.287	0.668
Divorced	0.218	0.221	1.244	0.251	0.224	1.286	0.251	0.224	1.285
Risk Level (ref.=high)									
Low	-0.584	0.675	0.557	-0.393	0.693	0.675	-0.400	0.694	0.670
Low/Mod	-0.628	0.314	0.534*	-0.519	0.317	0.595	-0.517	0.317	0.597
Moderate	-0.517	0.209	0.597*	-0.411	0.212	0.663^	-0.409	0.213	0.664^
Mod/High	-0.300	0.181	0.741^	-0.268	0.183	0.765	-0.265	0.183	0.767
Discharge Status (ref.=unsuccessful)				0.337	0.188	1.400^	0.341	0.189	1.406^
Days in Program				-0.004	0.002	0.996**	-0.004	0.002	0.996**
Expiration							0.001	0.002	1.001
Constant	2.475	0.366	11.876**	2.612	0.400	13.620**	2.572	0.433	13.092**
-2 Log Likelihood		1088.278			1072.901			1072.844	
Nagelkerke R ²		0.079			0.101			0.102	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Hypothesis Five

The final hypothesis predicts that the inclusion of all of the case plan variables will produce a stronger effect on recidivism than any of the singular components in it of themselves.

For ease of comparison, this was tested using a similarly formatted stepwise logistic regression analysis. The results of these analyses can be seen in Table 16.

In Model 3, all of the variables were added into the regression analysis. Similar to the results seen in previous regression analyses, age, low/moderate and moderate risk level, and days in the program remain consistent predictors of recidivism. However, only one of the case plan variables reaches significance in the model: positively stated. While this variable reaches significance, it is contrary to the hypothesis which predicted a significant negative relationship between the variable and recidivism. Instead, the model indicates that case plans with a higher percentage of objectives that are positively stated are significantly related to higher rates of recidivism. This finding may be associated with the lack of variance within the positively stated variable.

Table 16*Logistic Regression Model Examining the Impacts of Case Plan Components on Recidivism*

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.048	0.009	0.953**	-0.046	0.009	0.995**	-0.045	0.009	0.956**
Gender (ref.=male)	-0.332	0.159	0.718*	-0.299	0.161	0.741^	-0.308	0.196	0.735
Race (ref.=white)									
Native American	0.380	0.200	1.463^	0.328	0.203	1.388	0.310	0.205	1.364
Other	-0.071	0.215	0.931	-0.059	0.217	0.942	-0.040	0.220	0.961
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-0.076	0.212	0.927	-0.093	0.215	0.911	-0.077	0.216	0.926
Some College	-0.039	0.248	0.963	-0.059	0.251	0.942	-0.044	0.253	0.957
College Degree	0.013	0.328	1.013	0.003	0.331	1.003	0.014	0.335	1.014
Marital Status (ref.=single)									
Married	-0.436	0.284	0.646	-0.399	0.286	0.671	-0.389	0.290	0.678
Divorced	0.218	0.221	1.244	0.251	0.224	1.286	0.233	0.226	1.263
Risk Level (ref.=high)									
Low	-0.584	0.675	0.557	-0.393	0.693	0.675	-0.702	0.717	0.496
Low/Mod	-0.628	0.314	0.534*	-0.519	0.317	0.595	-0.663	0.336	0.515*
Moderate	-0.517	0.209	0.597*	-0.411	0.212	0.663^	-0.483	0.221	0.617*
Mod/High	-0.300	0.181	0.741^	-0.268	0.183	0.765	-0.306	0.186	0.736
Discharge Status (ref.=unsuccessful)				0.337	0.188	1.400^	0.351	0.190	1.421^
Days in Program				-0.004	0.002	0.996**	-0.004	0.002	0.996*
Compliance Positively Stated							-0.075	0.054	0.928
Measurable							0.041	0.202	1.042*
Singular							-0.007	0.004	0.993
Breadth							0.001	0.007	1.001
Expiration							0.008	0.01	1.008
							0.002	0.002	1.002
Constant	2.475	0.366	11.876**	2.612	0.400	13.620**	-1.652	2.055	0.192
-2 Log Likelihood		1088.278			1072.901			1065.452	
Nagelkerke R ²		0.079			0.101			0.112	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Supplemental Analyses

Analyses have not provided support for the stated five hypotheses. These results appear to contradict the limited research on correctional case planning. To further explore the relationship between case planning and recidivism, the current study also conducted supplemental analyses to investigate this relationship using the RNR framework. The following sections revisit some of the independent variables and address some of the RNR factors that were not accounted for in the initial analyses.

Risk Principle Adherence

One explanation for the lack of significant findings for the original hypotheses is that the influence of risk is not fully accounted for in the models. One way in which the original analyses may not account of this is in the examination of breadth. For the current study, breadth examined the total number of case plan objectives created for the offender. While this captures the extensiveness of case plan objectives created, it may fail to adequately account for the importance of case plan objectives for a given offender. In other words, it is not necessarily enough to have a large number of case plan objectives, but that the number of case plan objectives should be a function of risk.

The risk principle states that low risk offenders should receive minimal treatment, with moderate risk offenders receiving more intensive treatment, and high risk offenders receiving the most intensive treatment. Since case plans drive treatment decisions, it is hypothesized that high breadth among low risk offenders will increase recidivism, while it reduces recidivism among moderate and high risk offenders. This was tested by conducting a binary logistic regression among each risk group separately (see Table 17).

Table 17*Logistic Regression Model Examining the Impacts of Breadth on Risk Groups*

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.043	0.036	0.958	-0.042	0.012	0.959**	-0.062	0.019	0.940**
Gender (ref.=male)	-0.678	0.650	0.508	-0.106	0.207	0.900	-0.792	0.339	0.453*
Race (ref.=white)									
Native American	-20.210	27486.873	0.000	0.246	0.256	1.279	0.563	0.345	1.757
Other	-0.088	0.805	0.916	-0.078	0.279	0.925	0.049	0.419	1.050
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-1.766	1.285	0.171	-0.099	0.277	0.906	0.112	0.375	1.119
Some College	-1.032	1.370	0.356	-0.191	0.319	0.826	0.295	0.468	1.344
College Degree	-1.080	1.531	0.339	0.036	0.411	1.037	-0.107	0.672	0.899
Marital Status (ref.=single)									
Married	-1.010	1.109	0.364	-0.503	0.370	0.605	-0.001	0.554	0.999
Divorced	1.642	1.072	5.167	0.129	0.277	1.138	0.395	0.444	1.485
Discharge Status (ref.=successful)	0.473	1.322	1.605	0.334	0.233	1.397	0.377	0.342	1.458
Days in Program	-0.019	0.007	0.981*	-0.004	0.002	0.996*	0.000	0.004	1.000
Breadth	0.008	0.032	1.008	-0.001	0.009	0.999	0.010	0.017	1.010
Constant	4.400	1.825	81.413*	2.182	0.526	8.862**	2.509	0.773	12.287**
-2 Log Likelihood		70.498			693.662			291.346	
Nagelkerke R ²		0.363			0.081			0.114	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table 17 provides the results of these analyses. As the table shows, for low risk offenders, the only significant predictor of recidivism is days in the program. The negative relationship suggests that low risk participants who spend more time in the program are less likely to recidivate. Neither breadth or the other demographic variables significantly influence reoffending. Days in the program is also significant among moderate risk offenders as well as the age variable. Specifically, the results show that younger offenders are more likely to reoffend as well as participants who spend less time in the program. Among high risk offenders, age and

gender are significant with younger and male offenders being more likely to recidivate. Despite this, the results do not support the hypothesis. In fact, breadth does not reach significance for the low, moderate, or high risk offenders.

To provide a thorough examination of the impact of the risk principle, regression analyses were conducted with each of the remaining five independent variables as well as the whole model. Overall, the analyses demonstrate similar findings as is shown in Table 17, with none of the case plan variables being significant. The one exception to this is the positively stated variable which approaches significance among the low and high risk groups in the full model. Each of these analyses can be found in the Appendices (see Appendix C.1 through C.6.).

Need Principle Adherence

Based on the RNR model, treatment and referrals should not only be a product of risk, but need as well. With regard to case planning, this would indicate that objectives should both be related to criminogenic needs broadly, but should address the specific criminogenic needs of each offender. The original breadth measure, however, does not account for where the objectives are in the case plan. For example, the initial analysis of breadth would not distinguish between a client who has nine objectives in a need area versus an offender who has nine objectives in low need domains. Therefore, a supplemental regression was conducted examining the interaction effects between being moderate/high in a need and breadth.

Table 18 provides the results for the Alcohol/Drug domain interaction effects. The results from the demonstrate that adding breadth and need into Model 2 and the interaction term into Model 3, do not impact the significance of the demographic and treatment variables. As the table shows, age and days in program are consistently shown to be significantly related to recidivism in all three models. In addition, gender, moderate risk level, and discharge status remain

significant at the $p < 0.10$ level. Additionally, while both breadth and need are not significant in Model 2, when the interaction between the two variables is added into the equation, both become significant. However, the coefficient indicates a positive relationship. In other words, analyses indicate that participants to have an alcohol/drug need are more likely to recidivate. Additionally, offenders whose case plans outline more objectives are more likely to reoffend. The interaction term within the model is also significant. The interaction suggests that offenders who are low in need for alcohol/drug and subsequently have fewer objectives are less likely to recidivate.

Table 18

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Alcohol/Drug

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	.995**	-0.045	0.009	0.956**	-0.045	0.009	0.956**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.298	0.167	0.742^	-0.319	0.168	0.727^
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.328	0.203	1.388	0.307	0.203	1.360
Other	-0.059	0.217	0.942	-0.066	0.218	0.936	-0.068	0.219	0.934
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-0.093	0.215	0.911	-0.111	0.216	0.895	-0.111	0.216	0.895
Some College	-0.059	0.251	0.942	-0.081	0.252	0.922	-0.052	0.253	0.950
College Degree	0.003	0.331	1.003	-0.033	0.334	0.967	-0.016	0.334	0.984
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.391	0.287	0.676	-0.366	0.288	0.694
Divorced	0.251	0.224	1.286	0.254	0.224	1.289	0.284	0.225	1.329
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.221	0.718	0.802	-0.276	0.744	0.759
Low/Mod	-0.519	0.317	0.595	-0.414	0.332	0.661	-0.442	0.334	0.643
Moderate	-0.411	0.212	0.663^	-0.368	0.216	0.692^	-0.365	0.217	0.694^
Mod/High	-0.268	0.183	0.765	-0.257	0.182	0.774	-0.249	0.183	0.779
Discharge Status (ref.=unsuccessful)									
Days in Program	0.337	0.188	1.400^	0.335	0.188	1.398^	0.351	0.188	1.421^
Breadth	-0.004	0.002	0.996**	-0.004	0.002	0.996**	-0.004	0.002	0.996*
Need				0.001	0.027	1.001	0.184	0.106	1.202*
Breadth X Need				0.323	0.311	1.382	0.928	0.462	2.531*
Constant	2.612	0.400	13.620**	2.270	0.509	9.677**	1.712	0.596	5.539**
-2 Log Likelihood		1072.901			1071.731			1068.316	
Nagelkerke R ²		0.101			0.103			0.108	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Subsequent analyses were conducted for each of the remaining eight domains. These tables can be found in Appendix D. Overall, when breadth and need are added into the model together in Model 2, need becomes significant in the family/marital, leisure/recreation, and employment/education domains, with lower need clients being more likely to recidivate. In the employment/education domain, breadth also has a significant, positive relationship with recidivism, indicating that more case plan objectives are related to higher rates of recidivism. None of the interaction effects are significant outside of the alcohol/drug domain.

The findings from regression analyses on the interaction effects between breadth and need contradict the hypotheses for the current study. One potential explanation for this is that the prior tests account for risk or need, but not both. Research on the RNR model indicate that interventions are most effective when they adhere to multiple principles (Andrew & Bonta, 2006). To further explore this explanation, additional logistic regressions were conducted to examine the interaction between breadth and need among low, moderate, and high risk offending groups. Due to small sample sizes, these analyses could not be conducted for several domains for the high risk group (alcohol/drug, leisure/recreation, companions, employment/education, and financial), since the sample for the low need group was too small to assess.

Table 19 presents the outcome information from the analysis on the alcohol/drug domain. As can be seen in the model, days in the program remains the most significant predictor of recidivism for the low risk group. In addition, for low risk offenders, people who are divorced had higher rates of recidivism when compared to people who are single. However, breadth, need, and the interaction between the two was not significant. For moderate risk offenders, age and days in the program were both negatively related to offending, suggesting that younger offenders and offenders who spend less time in the facility are more likely to recidivate. Additionally, both

need and the interaction between breadth and need are significant for moderate risk offenders. Specifically, the analyses show that moderate risk offenders who have an alcohol/drug need are more likely to recidivate than those who do not have an alcohol/drug need. The significant interaction term also indicates that moderate risk offenders who are low in need in the alcohol/drug domain and have fewer objectives are less likely to recidivate. High risk clients are not presented in Table 19 because all high risk clients had an alcohol/drug need.

Table 19

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Alcohol/Drug

	Low Risk (n=66)			Moderate Risk (n=542)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.044	0.037	0.957	-0.041	0.012	0.960**
Gender (ref.=male)	-0.851	0.778	0.427	-0.099	0.207	0.906
Race (ref.=white)						
Native American	-20.779	27373.91	0.00	0.222	0.258	1.249
Other	0.030	0.875	1.031	-0.155	0.283	0.857
Education (ref.=less than H.S.)						
H.S. Diploma/GED	-1.581	1.283	0.206	-0.176	0.281	0.838
Some College	-0.376	1.458	0.687	-0.245	0.324	0.783
College Degree	-0.648	1.568	0.523	-0.057	0.416	0.945
Marital Status (ref.=single)						
Married	-0.925	1.162	0.397	-0.450	0.375	0.637
Divorced	1.963	1.114	7.123^	0.178	0.281	1.195
Discharge Status (ref.=unsuccessful)	0.587	1.429	1.798	0.343	0.234	1.408
Days in Program	-0.021	0.008	0.979*	-0.004	0.002	0.996^
Breadth	0.176	0.209	1.192	0.207	0.149	1.230
Need	-1.206	1.229	0.299	1.530	0.591	4.620*
Breadth X Need	0.059	0.251	1.061	-0.253	0.152	0.777^
Constant	4.086	2.063	59.480*	0.908	0.715	2.479
-2 Log Likelihood		66.172			686.046	
Nagelkerke R ²		0.424			0.099	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

The remaining regression analyses reveal fewer significant findings. Six of the domains had no significant findings for breath, need, or the interaction term among any of the risk groups examined (emotional/personal, family/marital, leisure/recreation, companions, financial, and accommodations). One exception to this is the analysis for the employment/education domain in which need was significantly, negatively related to recidivism among the moderate risk group. This indicates that moderate offenders without an employment/education need are more likely to reoffend than those with need in that domain. Additionally, in the attitude/orientation domain breadth is approaching significance at the $p < 0.10$ level for high risk offenders, with more objectives being associated with a higher likelihood of reoffending. Each of these analyses can be found in Appendix E.

Overall, the supplemental assessments on breadth fail to provide support for the hypothesis. While the inclusion of breadth into case plan analyses is new, compliance to the need principle has received the most attention within case planning literature (Bonta et al., 2004; Bosker, Wittemen, & Hermans, 2013; Dyck, Campbell, Wershler, 2018; Loung & Wormith, 2011). Generally, past research has found a significant relationship between compliance and offender recidivism; however, this effect was not observed in the current study. One potential explanation for this is the measurement used in the current study does not adequately assess compliance to offender needs. More specifically, the case plans used for the current study are relatively unique in that they are formatted according to the LSI-R domains. Therefore, each case plan is broken up into ten respective domains, under which case plan objectives are developed. For the current analysis, compliance was examined by comparing the existence of a client need in a given domain to a respective objective listed. For example, if a client has a moderate or high

need in the Alcohol/Drug domain and there is any objective listed under the Alcohol/Drug section, the client would be deemed compliant.

One potential issue with using this measurement for compliance is that it relies on the assumption that case managers are properly placing goals within the appropriate domain. To examine whether this may have had an impact on the outcomes, the first category of Alcohol/Drug objectives were re-coded into the domain they best fall under. In doing so, 807 objectives were re-assessed. Of these, 706 or 87.5 percent fall under the Alcohol/Drug domain. The remaining 101 objectives fell within one of the other domains (n=96) or do not fit within any of the need areas (n=5). Given the findings of the Alcohol/Drug domain, this process was continued for each of the objectives within the plan. Then, the newly coded domains were used to reassess compliance.

The newly coded compliance variable provides additional insight into the practice of developing case plans within the organization. Specifically, it demonstrates that while the case plans are structured using the LSI-R domains, in practice, there is some inconsistency in matching objectives to the proper domains. As Table 20 demonstrates, the vast majority of objectives listed within the Employment/Education domain are related to education or employment (with a mean of 97.26). Additionally, financial and alcohol/drug domain objectives were also largely related to their respective domains. However, other areas tended to fall short. Specifically, the domains of emotional/personal and companions had high rates of objectives that were unrelated to the domain, with means of 33.82 and 40.83 respectively.

Table 20*Percent of Objectives Related to Domain*

	n	mean	s.d.	range
Alcohol/Drugs	807	81.61	21.783	0-100
Emotional/Personal	668	33.82	32.145	0-100
Family/Marital	716	80.18	30.371	0-100
Leisure/Recreation	617	76.00	30.968	0-100
Companions	711	40.83	32.829	0-100
Attitude Orientation	484	49.41	37.168	0-100
Employment/Education	791	97.26	11.791	0-100
Financial	729	89.60	21.234	0-100
Accommodations	732	67.17	33.257	0-100

The inconsistencies in properly matching objectives with the case plan domain is also reflected in the overall compliance within case plans. Table 21, provides a comparison between the original compliance variable with the new coding. As can be seen below, this does impact overall compliance on several of the domains. This difference is most stark for the domains of emotional/personal and companions, where the percentage of case plans which are defined as compliant dropped 11.9 and 11.2 percent respectively. However, other domains slightly increased compliance. For example, the leisure/recreation domain improved from 70.5 percent of case plans being compliant using the original coding, to 73.6 percent compliant using the full coding. This occurred in cases where the leisure/recreation area of the case plan was blank, but leisure/recreation related goals were listed under a different domain.

To test whether these initial coding of compliance impacted the results, another logistic regression was conducted using the new compliance coding. As can be seen in Table 22, compliance still fails to reach significance within the full model. In addition, in comparing the -2 Log Likelihood values between Table 22 and Table 12, it can be seen that the recoding of compliance also fails to improve on the model when compared to the original coding.

Table 21*Descriptive Statistics for Compliance*

	Original Coding		New Coding	
	n	%	n	%
Alcohol/Drugs				
Over-classified need	41	4.8	45	5.2
Properly complied with need	787	91.6	787	91.6
Under-classified need	31	3.6	27	3.1
Emotional/Personal				
Over-classified need	92	10.7	71	8.3
Properly complied with need	620	72.2	518	60.3
Under-classified need	147	17.1	270	31.4
Family/Marital				
Over-classified need	155	18	144	16.8
Properly complied with need	587	68.3	582	67.8
Under-classified need	117	13.6	133	15.5
Leisure/Recreation				
Over-classified need	14	1.6	13	1.5
Properly complied with need	704	70.5	632	73.6
Under-classified need	147	27.8	214	24.9
Companions				
Over-classified need	8	0.9	6	0.7
Properly complied with need	704	82	608	70.8
Under-classified need	147	17.1	245	28.5
Attitude Orientation				
Over-classified need	171	19.9	149	17.3
Properly complied with need	473	55.1	428	49.8
Under-classified need	215	25	282	32.8
Employment/Education				
Over-classified need	123	14.3	130	15.1
Properly complied with need	686	79.9	691	80.4
Under-classified need	50	5.8	38	4.4
Financial				
Over-classified need	45	5.2	47	5.5
Properly complied with need	691	80.4	699	81.4
Under-classified need	123	14.3	113	13.2
Accommodations				
Over-classified need	281	32.7	253	29.5
Properly complied with need	508	59.1	495	57.6
Under-classified need	70	8.1	111	12.9

Table 22*Logistic Regression Model Examining the Impacts of New Coding of Compliance on Recidivism*

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.048	0.009	0.953**	-0.046	0.009	0.995**	-0.047	0.009	0.954**
Gender (ref.=male)	-0.332	0.159	0.718*	-0.299	0.161	0.741^	-0.247	0.168	0.781
Race (ref.=white)									
Native									
American	0.380	0.200	1.463^	0.328	0.203	1.388	0.328	0.203	1.388
Other	-0.071	0.215	0.931	-0.059	0.217	0.942	-0.053	0.217	0.948
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.076	0.212	0.927	-0.093	0.215	0.911	-0.081	0.215	0.922
Some College	-0.039	0.248	0.962	-0.059	0.251	0.942	-0.039	0.252	0.962
College Degree	0.013	0.328	1.013	0.003	0.331	1.003	0.025	0.332	1.025
Marital Status (ref.=single)									
Married	-0.436	0.284	0.646	-0.399	0.286	0.671	-0.394	0.287	0.674
Divorced	0.218	0.221	1.244	0.251	0.224	1.286	0.2611	0.224	1.298
Risk Level (ref.=high)									
Low	-0.584	0.675	0.557	-0.393	0.693	0.675	-0.54	0.707	0.583
Low/Mod	-0.628	0.314	0.534*	-0.519	0.317	0.595	-0.597	0.326	0.550^
Moderate	-0.517	0.209	0.597*	-0.411	0.212	0.663^	-0.458	0.217	0.632*
Mod/High	-0.300	0.181	0.741^	-0.268	0.183	0.765	-0.275	0.183	0.759
Discharge Status (ref.=unsuccessful)				0.337	0.188	1.400^	0.345	0.188	1.412^
Days in Program				-0.004	0.002	0.996**	-0.004	0.002	0.996**
Compliance							-0.052	0.048	0.949
Constant	2.475	0.366	11.876**	2.612	0.400	13.620**	2.941	0.506	18.937**
-2 Log Likelihood		1088.278			1072.901			1071.718	
Nagelkerke R ²		0.079			0.101			0.103	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Responsivity Principle Adherence

The last element of the RNR model is responsivity. Overall, the initial hypotheses do not examine the impact that responsivity has within case planning. However, the case plan system at

the facility includes a section to identify specific responsivity factors for offenders. The plans outline six specific responsivity factors: mental health issues, intellectual deficits, low motivation, poor reading/writing, anxiety, and cultural barriers. Since these barriers to treatment do not necessarily have corresponding objectives, a supplemental analysis was run to control for these factors.

The results of these analyses can be seen in Table 23. Model 1 in the regression includes all of the control variables used in the current study as well as the six responsivity factors within the case plans. The results from this analysis demonstrates that anxiety is the only responsivity factor that is significantly related to recidivism at the $p < 0.05$ level. Specifically, the model indicates that participants who struggle with anxiety are less likely to recidivate than participants without anxiety. In addition, two other responsivity factors, mental health issues and intellectual difficulties, are approaching significance with p-values at the $p < 0.10$ level. Similar to anxiety, participants with intellectual difficulties are less likely to recidivate whereas other mental health issues are associated with higher rates of participant recidivism.

In the second model, the independent variables were added to the analysis. Overall, controlling for some of the responsivity factors of participants did not influence the significance of the independent variables. When comparing Table 23 to the original analysis (see Table 16), there is only one variable whose significance was affected: positively stated; however, when accounting for responsivity, the significance decreased from $p < 0.05$ in Table 15 to $p < 0.10$ in Table 23.

Table 23*Logistic Regression Model Including Responsivity Factors*

	Model 1			Model 2		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.050	0.01	0.951**	-0.048	0.010	0.953**
Gender (ref.=male)	-0.320	0.174	0.726^	-0.414	0.208	0.661*
Race (ref.=white)						
Native American	0.341	0.210	1.407	0.337	0.211	1.401
Other	-0.111	0.231	0.895	-0.083	0.233	0.920
Education (ref.=less than H.S.)						
H.S. Diploma/GED	-0.109	0.224	0.897	-0.098	0.226	0.906
Some College	-0.072	0.261	0.930	-0.083	0.263	0.921
College Degree	-0.079	0.346	0.924	-0.089	0.349	0.915
Marital Status (ref.=single)						
Married	-0.278	0.298	0.757	-0.279	0.301	0.756
Divorced	0.309	0.233	1.362	0.288	0.235	1.334
Risk Level (ref.=high)						
Low	-0.365	0.704	0.694	-0.523	0.730	0.593
Low-Moderate	-0.619	0.329	.539^	-0.651	0.349	0.521^
Moderate	-0.330	0.223	0.719	-0.35	0.233	0.705
Moderate-High	-0.247	0.190	0.782	-0.272	0.193	0.762
Discharge Status (ref.=unsuccessful)	0.334	0.198	1.396^	0.344	0.200	1.410^
Days in Program	-0.004	0.002	0.996**	-0.004	0.002	0.996*
Responsivity Factors						
Mental Health Issues	0.355	0.204	1.426^	0.361	0.207	1.435^
Intellectual Deficits	-1.589	0.944	0.204^	-1.601	0.951	0.202^
Low Motivation	-0.539	0.450	0.583	-0.454	0.456	0.635
Poor Reading/Writing	1.555	1.524	4.735	1.581	1.535	4.857
Anxiety	-0.498	0.221	0.608*	-0.468	0.233	0.626*
Cultural Barriers	0.885	1.458	2.351	0.737	1.513	2.090
Compliance				-0.025	0.057	0.975
Positively Stated				0.040	0.021	1.040^
Measurable				-0.006	0.005	0.994
Singular				0.003	0.008	1.003
Breadth				0.010	0.010	1.010
Expiration				0.002	0.003	0.288
Constant	2.761	0.421	15.813**	-1.244	2.137	0.288
-2 Log Likelihood		998.704			992.975	
Nagelkerke R ²		0.121			0.130	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Summary

Overall, the analyses provide little support for any of the five hypotheses. Initial tests of the hypotheses revealed only one of the six predictor variables were significantly related to reoffending: positively stated. The full regression model indicates a significant positive

relationship between positively stated and recidivism, indicating case plans that have more positively stated objectives are related to higher recidivism. These findings contradict the second hypothesis.

Additionally, subsequent analyses that examined the impact of risk, need, and responsivity similarly fail to yield any results that provide strong support for the hypotheses. With few exceptions, examining case plan components effects by risk, examining interactions between need and breadth, recoding compliance, and controlling for responsivity factors noted in case plans do not appear to make a substantive difference in the findings. The following chapter will examine this closer and provide some possible explanations as to why these results are not significant.

CHAPTER 5: CONCLUSION

The final chapter provides an overview of the results from the current study, with specific attention to how the results compare to similar research. For this discussion, each of the independent variables are discussed as well as the supplemental analyses. Following this summary, are the limitations of the current study. This section will outline a few of the main limitations and how they could influence the results and generalizability of the study. The section will conclude with a discussion of future research on offender case planning.

Summary

The current study sought to explore the relationship between case plan development and offender recidivism using a sample of participants from a halfway house facility. Literature on case planning remains very limited within the field of corrections, leaving many unanswered questions surrounding the best practices of case plan development. Of that which exists, a main focus tends to be how case plans are used in managing treatment. Specifically, research in this area tends to show that staff implementing risk and need assessments and constructing case plans at least occasionally diverge from the intended implementation (Luong & Wormith, 2011; Miller & Maloney, 2013; Schaefer & Williamson, 2018). This includes exaggerating or manipulating assessment information (Miller & Maloney, 2013; Schaefer & Williamson, 2018), not using assessment information to guide case plan decisions (Haas and DeTardo-Bora, 2009), and over- or under-classifying offender needs in case plans (Bosker, Witteman, and Hermans, 2013; Luong & Wormith, 2011; Miller & Maloney, 2013; Schaefer & Williamson, 2018).

Despite the limited research on case plans themselves, recent trends in correctional literature has shown that case management more broadly can be effective in reducing reoffending behavior. These effective case management strategies include centering discussions

around the client's criminogenic need areas (Bonta, Rugge, Scott, Bourgon, & Yessine, 2008), implementing cognitive-behavioral treatment (Raynor et al., 2014), and addressing responsivity issues (Louden et al., 2012). These findings have led to the development of programs to help train correctional staff in navigating these interactions with offenders (Bonta et al., 2010; Robinson et al., 2012; Smith et al., 2012).

If a similar trend exists within case plans, scholars can develop similar training for case plan development; however, little research has focused on the effects that specific case plan components have on offender outcomes. The limited information gleaned from case plans so far appears to indicate that they may contribute to subsequent offending. For example, research has shown that case plans that are incomplete are significantly related to higher recidivism rates (Gossner et al., 2016) and that more specific case plan objectives are associated with lower recidivism rates (Lee, Uken, & Sebold, 2007).

The current study expands upon this literature by investigating the effects of several case plan components. To do so, four components were examined: compliance, specificity (consisting of positively stated, measurable, and singular objectives), breadth, and expiration. The effect of these components was assessed both individually and collectively to provide additional information on the significance of case plan development for offending populations. While the quantitative analyses failed to provide clear support any of the six hypotheses assessed and contradict some of the limited research on offender case planning, many insights can still be gained from the study. This section will break down this discussion by addressing each of the independent variables separately.

Compliance

The first hypothesis for the current study stated that participants whose case plans have higher compliance will have lower recidivism rates compared to participants with lower compliance. Compliance to the need principle is perhaps one of the most well studied areas within correctional case planning literature, with a handful of studies that examine the topic (Bonta et al., 2004; Bosker, Wittemen, & Hermans, 2013; Dyck, Campbell, & Wershler, 2018; Loung & Wormith, 2011). Specifically, despite the need principle indicating the importance of targeting criminogenic needs, many case plans tend to meet fewer than half of criminogenic needs with corresponding objectives (Bonta et al., 2004; Bosker, Witteman, & Hermans, 2013). While research has not yet examined the effects of adherence to the need principle within case plans, it has been shown to be impactful both in treatment and case management meetings (Andrews, Bonta, & Wormith, 2006; Bonta, Rugge, Scott, Bourgon, & Yessine, 2008; Dowden & Andrews, 1999; Gendreau, Little, & Goggin, 1996; Grieger & Hosser, 2013; Taxman & Caudy, 2015).

To expand upon this literature, the current study sought to examine whether adherence to the need principle in case plans significantly impacts recidivism outcomes. Case plan compliance was measured by examining whether case plans stated objectives for moderate and high need areas. This resulted in an 11-point scale where a zero indicates no compliance for the need domains and a ten indicates compliance in all ten domains.

The compliance hypothesis was examined using a stepwise logistic regression. The results from these analyses indicate that compliance has no significant impact on offender recidivism. This contradicts existing literature. One explanation for this involves the initial coding of compliance within the current study. Coding for compliance relied on the preexisting

categories built into the case plans. Therefore, if a case plan has an objective within the drug/alcohol domain and the offender was moderate/high need in drug/alcohol, a client would be categorized as compliant. This coding was originally chosen because it represents one of six components of case planning; however, upon closer examination it may rely too heavily on case managers properly identifying objectives within need domains.

To further explore the relationship between case plan compliance with the need principle and offender recidivism, supplemental analyses were conducted. To determine whether the operationalization of compliance influenced the outcomes, the variable was recoded. The new compliance variable examined whether at least one of the case plan objectives were related to each of the need areas for the offender. This differs from the initial coding which examined the placement of the objective rather than the content of the objective. This improves upon the initial coding because it reduces the potential case manager error of placing an objective in the incorrect category. Specifically, this was an improvement for the emotional/personal and companion domains where over ten percent of case plans were originally misclassified as compliant.

Regression analyses on the new compliance variable failed to provide support for hypothesis one. Compliance continues to be insignificant in the model after controlling for other variables. While this contradicts some of the existing research on case plans and compliance with the need principle, these findings may indicate a broader problem with treatment. For example, while the RNR model would suggest that case plan compliance to offender needs should improve offending outcomes, these effects may be negated if the treatment being used is improperly conducted or ineffective. Therefore, it may be necessary to control for other interventions in order to fully understand the impact of case planning on recidivism.

Specificity

The second hypothesis states that individual components of specificity will not significantly impact recidivism rates; however, collectively, the three components of specificity will significantly reduce recidivism. Broadly, specificity encompasses how narrow and well-defined an objective is. This area of study within case planning is currently one of limited research. Namely, Lee, Uken, and Sebold's (2007) study provides one illustration of how this topic has been examined within criminal justice literature. In their analysis, treatment facilitators ranked goals on a 3-point Likert scale for specificity using four criteria: behaviorally described, positively stated, stated as a small step, and stated in process form. Lee, Uken, and Sebold (2007) found that offender case plan objectives that were more specific were significantly associated with lower rates of offending.

The current study examined specificity by breaking it into three subcategories: positively stated, measurable, and singular. Each of these categories were influenced by Lee, Uken, and Sebold's (2007) four categories. The hypothesis consists of two parts because it is assumed that individually the measures only capture a portion of specificity but when examined together, create a more accurate representation of specificity. Consistent with the hypothesis, when examined individually, the analyses reveal that none of the three sub-measures of specificity are significantly related to recidivism.

When all three measures of specificity are included into the model together, one variable does approach significance. Specifically, positively stated approaches significance in the full model with a $p\text{-value} < 0.10$. Notably, this is a positive relationship, indicating that case plans that have higher rates of positively stated objectives are associated with higher rates of recidivism. This contradicts the hypothesis made.

One explanation as to why this may occur, is that the variable “positively stated” had little variability across case plans. The means for the positively stated measure was ranged from 93.02 to 99.71 percent among the need domains. This indicates that in the domain with the lowest percentage of positively stated objectives, drug/alcohol, the average case plan has 93.02 percentage of objectives which are stated positively. This lack of variability could influence the results of the regression model. Additionally, it may be that a mix of positively stated and non-positively stated objectives are effective for offenders. For example, having objectives to avoid people who trigger substance use while simultaneously having objectives to address other related issues may yield the best results. Further research is needed to examine the impacts of having positively stated objectives.

Breadth

Hypothesis three focused on breadth, or the total number of objectives created within a given a case plan. Specifically, it stated that more case plan objectives will be associated with lower recidivism. Breadth is a case plan variable that has yet to be examined within the context of offender case planning. This variable was included into the current study to expand the areas of case plans examined in the literature. It is hypothesized that breadth is related to the intensity of treatment given to offenders and may serve as a proxy to treatment dosage within the case plans—with more objectives relating to more treatment.

Initial analyses of breadth indicate that it has no significant relationship with reoffending. These results conflict with the stated hypothesis. These findings could be caused by a number of factors. First, breadth may not be significant in the model because it may not be related to recidivism. An alternative explanation, is that breadth is more complex than originally estimated. For example, breadth may not be significant in the model because it is only important in how it

relates to risk and need. In other words, having more objectives may only be related to recidivism if the objectives are also related to the criminogenic needs of the offender. Finally, another potential explanation is that there may be a non-linear relationship between breadth and recidivism. For instance, while it may be important to have outlined objectives to work towards, too many objectives may become cumbersome or overwhelming.

To further examine whether risk and need played a role in the analysis of breadth, further analyses were conducted. To do so, a supplemental regression was conducted to examine whether the significance of case plan breadth on recidivism varies by offender risk level. This was done by conducting three regressions for each offender risk level: low, moderate, and high. The results fail to reach any significance with regard to breadth. This indicates that having more objectives does not significantly affect recidivism for low, moderate, or high risk offenders. The second regression was conducted by examining the interaction effects between breadth and compliance within each of the need domains. Overall, the regression failed to yield any significant findings, indicating that the complying with offender needs does not significantly influence the impact of breadth on subsequent offending.

The third regression combined the separation of risk and the interaction effects between breadth and compliance. In doing so, a few significant effects emerge. First, among low risk offenders, the interaction between breadth and compliance approaches significance with a p-value at the $p < 0.10$ level. The positive coefficient indicates that for low risk clients who have a need in attitude/orientation, more objectives are related to higher rates of recidivism. This could be the result of providing low risk clients with too much treatment dosage. Among the moderate risk group, family and marital objectives reach significance at the $p < 0.05$ level. The relationship indicates that moderate risk offenders whose case plans are compliant with family/marital and

have more objectives are significantly less likely to recidivate. This effect is similar for the emotional/personal domain for high risk offenders where the interaction approaches significance at the $p < 0.10$ level. These supplemental analyses on breadth underscore the importance of adhering to all of the RNR principles.

Expiration

The fourth hypothesis was participants with more deadlines outlined in their case plans will have lower recidivism rates than participants with fewer deadlines. Similar to breadth, expiration is a new component of case plans that has received little attention historically in case planning literature. While previous literature on offenders has not assessed the impact of setting target dates, literature in other fields demonstrates mixed findings on the impact of these practices (Ariely & Wertenbroch, 2002; Bisin & Hyndman, 2014; Burger, Charness, & Lynham, 2011; Lunenburg, 2011; Mitchell et al., 2008). For example, when examining preset deadlines for students, Ariely and Wertenbroch (2002) found that students with set deadlines performed better than those without; however, a similar study by Burger, Charness, & Lynham (2011) found no significant difference. To further examine this relationship among offenders, a measure of expirations was included in the current study.

It was hypothesized that creating a deadline for objectives to be completed by would increase personal accountability and result in more objectives being completed. Overall, the results of the study indicate that the percent of case plan objectives with corresponding target completion dates have no significant relationship to recidivism. This can be seen both in bivariate and multivariate analyses conducted in the current study. This topic should be examined further in future research. Specifically, given the nature of the data used for the current study, the expiration variable assesses whether there is a target date, not the feasibility of the

target date that is set. Future research should examine whether the amount of time allotted to complete objectives is a significant component of case planning.

Limitations

It is important to acknowledge that the current study was subject to several limitations. This, combined with the limited research on the topic, require one to take caution when interpreting the findings. Most importantly, the current study should not be used as a way to justify abandoning case planning practices or research. Instead, the paper should be used as a way to inform practitioners about the lack of research on case planning strategies. For researchers, the study should be used as a call for future research. This section will summarize some of the limitations for the current study and the subsequent section will present a discussion on ideas for future research in the area.

One of the limitations for the current study regards the generalizability of the information gleaned in the analyses. This study relied on data from one halfway house facility which serves only adult men and women in a limited region in the Midwestern United States. As a result, caution should be used when attempting to generalize these findings to other programs, regions, and ages of offenders. Future research should expand external validity by evaluating other types of offender treatment programs and examining how case plans may differ among juvenile versus adult populations.

Another category of limitations involve the use of secondary data. As noted previously, the current study relied on information that was already collected by the facility during their day-to-day operations. Due to these restrictions with accessing data, the study cannot examine how different approaches to discussing client case plans effects client outcomes. For example, some case managers may spend more time discussing and agreeing on objectives with their clients

while others rely solely on their own objectives or the client's objectives. Still others may rely on a set format for their client's case plan objectives and reuse these plans rather than customizing them to best fit each offender. While some these variations in case planning may produce objectives that are less applicable for the offender, this was unable to be examined in the current study. In addition, the data used does not allow for the progress on objectives to be assessed. It may be the case that clients who complete more of their objectives have lower recidivism than clients who fail to meet the majority of their objectives, so this limitation should be noted.

Coding the independent variables is another limitation of the current study. Specifically, this applies to the variables measuring specificity (positively stated, measurable, and singular), where each of the variables quantified a qualitative component within the case plans. This coding was conducted by a single coder for the purposes of the current study. The use of multiple coders when coding qualitative data can be useful in maintaining reliability in how data is categorized. Due to time and financial limitations, a secondary coder was not feasible for the purposes of the current study. Future research should explore other ways of classifying these case plan components and use multiple coders to ensure a consistency with coding.

Lastly, the current study was unable to account for the quality of treatment being administered by the facility. While it may be that well-constructed case plans improve referrals, increase the likelihood of offenders meeting objectives, and structure case management discussions, if a program is currently using ineffective programming, quality case plans and referrals may become less relevant. In addition, as noted in Chapter 2, fidelity is an important component to ensuring the effectiveness of treatment programs. Since the current study was unable to account for the quality of treatment being administered or attendance to treatment groups, the degree to which treatment quality influenced the results cannot be determined. Future

research should examine the quality of treatment being administered and control for treatment attendance to better parcel out the impacts of case plans versus treatment.

Future Research

Overall, the current study sought to examine the influence that case plan components have on subsequent recidivism. While the study failed to reject any of the null hypothesis, other studies indicate case planning may have a significant effect on offending. Overall, the area of offender case planning remains one of limited research. This, combined with the reality of the current studies limitations, present an opportunity for future research.

First, research on correctional case plans is needed on a broad level. Currently, there is a shortage of information on this topic, particularly in areas outside of probation. Future research should continue to investigate the influence of case planning on recidivism in other areas of correctional interventions. Additionally, it may be that recidivism is not the proper outcome to examine for case planning. For example, case plans may be effective by improving proper referrals to treatment. Therefore, future case plan literature should expand into examining other outcomes.

Another area that should be examined is the different approaches to developing case plans. Research indicates that case management styles are not equal in their effects on offender outcomes. For example, case managers who model prosocial behaviors are more effective in reducing client recidivism than are case managers who strictly rely on check-ins and other compliance-related tasks. However, less is known about whether collaborative objectives produce better outcomes than assigned objectives. This information could assist correctional agencies in refining their case planning practices. Therefore, it is recommended that future

research explores how case managers are developing these objectives and the amount of time they are spending with offenders to create them.

In addition, future research should include a measure for treatment quality. As noted in Chapter 2, one component of the RNR model is treatment fidelity. This principle underscores the importance of properly implementing programs that are adopted into practice. While many of the programs used in the facility are research based, it is possible that the quality of treatment being administered at the facility either contributes to or negates the effects of treatment plans. In order to continue learning about how to best serve offenders, it is essential to parcel out the impacts between these two characteristics. Finally, future research should consider using a mixed methods approach to assessing case planning. Case plans can vary significantly from one another, even within the same facility. Using a mixed methods approach may aid in the understanding of the types of objectives being created as well as any patterns in the development of the case plan. In addition, the qualitative portion can provide further insight into why the quantitative analyses are or are not significant.

While the analyses failed to support the initial hypotheses, the results should not be taken to mean that case planning is not important. At the moment, there is still a lack of research on case planning and the role that it has on offending outcomes. While the current study attempts to bridge this gap in the literature, it has several limitations that should be taken into account when interpreting and applying the results. Further research is still strongly needed to fully understand the impacts of case planning. Additionally, while not examined in the current study, the process of developing a case plan may have the added benefit of leading to more proper referrals for treatment interventions. The process of case planning requires case managers to examine and

strategize the best course of treatment for each offender they serve. It is feasible that not case planning could lead reductions in proper referrals and in turn increase offender recidivism.

REFERENCES

- Andrews, D. (1995). The psychology of criminal conduct and effective treatment. In J. McGuire (Ed.), Wiley series in offender rehabilitation. What works: Reducing reoffending: Guidelines from research and practice (p. 35–62).
- Andrews, D. N., & Bonta, J. (1998). The psychology of criminal. *Canadian Journal of Criminology*, 38(3), 362-363.
- Andrews, D. A., & Bonta, J. (2006). *The psychology of criminal conduct* (4th ed.). Newark, NJ: LexisNexis.
- Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation: Rediscovering psychology. *Criminal justice and Behavior*, 17(1), 19-52.
- Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime & delinquency*, 52(1), 7-27.
- Andrews, D. A., & Dowden, C. (2005). Managing correctional treatment for reduced recidivism: A meta-analytic review of programme integrity. *Legal and Criminological Psychology*, 10(2), 173-187.
- Andrews, D. A., Zinger, I., Hoge, R. D., Bonta, J., Gendreau, P., & Cullen, F. T. (1990). Does Correctional Treatment Work? A Clinically Relevant and Psychologically Informed Meta-Analysis. *Criminology*, 28(3), 369-404.
- Antle, B. F., Barbee, A. P., Christensen, D. N., & Sullivan, D. J. (2009). The prevention of child maltreatment recidivism through the solution-based casework model of child welfare practice. *Children and Youth Services Review*, 31(12), 1346-1351.
- Ariely, D., & Wertenbroch, K. (2002). Procrastination, Deadlines, and Performance: Using Precommitment to Regulate One's Behavior. *Psychological Science*.

- Austin, D. M., & Caragonne, P. (1980). A comparative analysis of twenty-two settings using case management components. Case Management Research Center.
- Baglivio, M. T., Wolff, K. T., Howell, J. C., Jackowski, K., & Greenwald, M. A. (2018). The search for the holy grail: Criminogenic needs matching, intervention dosage, and subsequent recidivism among serious juvenile offenders in residential placement. *Journal of Criminal Justice*, 55, 46-57.
- Bahr, S. J., Masters, A. L., & Taylor, B. M. (2012). What works in substance abuse treatment programs for offenders?. *The Prison Journal*, 92(2), 155-174.
- Barbaree, H. E., Seto, M. C., Langton, C. M., & Peacock, E. J. (2001). Evaluating the predictive accuracy of six risk assessment instruments for adult sex offenders. *Criminal justice and behavior*, 28(4), 490-521.
- Barnoski, R. (2004). Assessing risk for re-offense: Validating the Washington State Juvenile Court assessment appendices. Olympia, WA: Washington State Institute for Public Policy.
- Bartosh, D. L., Garby, T., Lewis, D., & Gray, S. (2003). Differences in the predictive validity of actuarial risk assessments in relation to sex offender type. *International Journal of Offender Therapy and Comparative Criminology*, 47(4), 422-438.
- Bisin, A., & Hyndman, K. (2014). Present-bias, procrastination and deadlines in a field experiment (No. w19874). National Bureau of Economic Research.
- Bonaparte, K., Graves, C., Faber, E., Gillespie, S., Hussen, S., Thomas-Seaton, L., Chakraborty, R., Camacho-Gonzalez, A. (2019). Metropolitan Atlanta Community Adolescent Rapid Testing Initiative: The Impact of Motivational Interviewing and Intensive Case

Management on the Psychosocial and Clinical Care Outcomes of Adolescents and Young Adults With HIV. *Psychotherapy*.

Bonta, J., & Andrews, D. A. (2007). Risk-need-responsivity model for offender assessment and rehabilitation. *Rehabilitation*, 6(1), 1-22.

Bonta, J., Bourgon, G., Rugge, T., Scott, T. L., Yessine, A. K., Gutierrez, L., & Li, J. (2010). Strategic Training Initiative in Community Supervision: Risk-Need-Responsivity in the Real World 2010-01. Public Safety Canada

Bonta, J., Bourgon, G., Rugge, T., Scott, T. L., Yessine, A. K., Gutierrez, L., & Li, J. (2011). An experimental demonstration of training probation officers in evidence-based community supervision. *Criminal justice and behavior*, 38(11), 1127-1148.

Bonta, J., Rugge, T., Bourgon, G., & Wanamaker, K. A. (2019). A conceptual replication of the Strategic Training Initiative in Community Supervision (STICS). *Journal of Experimental Criminology*, 15(3), 397-419.

Bonta, J., Rugge, T., Scott, T. L., Bourgon, G., & Yessine, A. K. (2008). Exploring the black box of community supervision. *Journal of offender rehabilitation*, 47(3), 248-270.

Bonta, J., Rugge, T., Sedo, B., & Coles, R. (2004). Case management in Manitoba probation 2004-01. Available on-line at:

http://www.psepcsppcc.gc.ca/publications/corrections/pdf/200401_e.pdf Accessed, 21(12), 04.

Bosker, J., Witteman, C., & Hermans, J. (2013). Do intervention plans meet criteria for effective practice to reduce recidivism? How probation officers forget about social capital and basic needs. *European Journal of Probation*, 5(1), 65-85.

- Bourgon, G., Gutierrez, L., & Ashton, J. (2012). The evolution of community supervision practice: The transformation from case manager to change agent. *Fed. Probation*, 76, 27.
- Bourgon, G. (2013). The demands on probation officers in the evolution of evidence-based practice: The forgotten foot soldier of community corrections. *Fed. Probation*, 77, 30.
- Burger, N., Charness, G., & Lynham, J. (2011). Field and online experiments on self-control. *Journal of Economic Behavior & Organization*, 77(3), 393-404.
- Busschers, I., van Vugt, E. S., & Stams, G. J. J. M. (2016). Case management for child protection services (Doctoral dissertation, Hogeschool van Amsterdam).
- Camilleri, P. (2000). Researching case management: Making it a 'fact'? *Australian Journal of Case Management*, 2(2), 18-23.
- Campbell, M. A., Canales, D. D., Wei, R., Totten, A. E., Macaulay, W. A. C., & Wershler, J. L. (2015). Multidimensional evaluation of a mental health court: Adherence to the risk-need-responsivity model. *Law and Human Behavior*, 39(5), 489.
- Cesta, T. (2017). What's Old Is New Again: The History of Case Management. *Case Management Insider*.
- Christensen, D. N., & Todahl, J. L. (1999). Solution based casework: Case planning to reduce risk. *Journal of Family Social Work*, 3(4), 3-24.
- Cullen, F. T., Skovron, S. E., Scott, J. E., & Burton Jr, V. S. (1990). Public support for correctional treatment: The tenacity of rehabilitative ideology. *Criminal Justice and Behavior*, 17(1), 6-18.
- Day, A., Hardcastle, L., & Birgden, A. (2012). Case Management in Community Corrections: Current Status and Future Directions. *Journal of Offender Rehabilitation*, 51(7), 484-49.

- Dell, N. A., Pelham, M., & Murphy, A. M. (2019). Loneliness and depressive symptoms in middle aged and older adults experiencing serious mental illness. *Psychiatric rehabilitation journal*, 42(2), 113.
- De Vet, R., Van Luitelaar, M. J., Brilleslijper-Kater, S. N., Vanderplasschen, W., Beijersbergen, M. D., & Wolf, J. R. (2013). Effectiveness of case management for homeless persons: a systematic review. *American Journal of Public Health*, 103(10), 13-26.
- Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: Peer groups and problem behavior. *American psychologist*, 54(9), 755.
- Dowden, C. (1998). A meta-analytic examination of the risk, need and responsivity principles and their importance within the rehabilitation debate (Doctoral dissertation, Carleton University).
- Dowden, C., & Andrews, D. A. (1999). What works in young offender treatment: A meta-analysis. In *Forum on corrections research* (Vol. 11, pp. 21-24). Correctional Service of Canada.
- Dowden, C., & Andrews, D. A. (2004). The importance of staff practice in delivering effective correctional treatment: A meta-analytic review of core correctional practice. *International Journal of Offender Therapy and comparative criminology*, 48(2), 203-214.
- Duriez, S. A., Sullivan, C., Latessa, E. J., & Lovins, L. B. (2018). The evolution of correctional program assessment in the age of evidence-based practices. *Corrections*, 3(2), 119-136.
- Duwe, G., & Clark, V. (2015). Importance of program integrity: Outcome evaluation of a gender-responsive, cognitive-behavioral program for female offenders. *Criminology & Public Policy*, 14(2), 301-328.

- Dyck, H. L., Campbell, M. A., & Wershler, J. L. (2018). Real-world use of the risk–need–responsivity model and the level of service/case management inventory with community-supervised offenders. *Law and human behavior*, 42(3), 258.
- Emshoff, J. G., Blakely, C., Gottschalk, R., Mayer, J., Davidson, W. S., & Erickson, S. (1987). Innovation in education and criminal justice: Measuring fidelity of implementation and program effectiveness. *Educational Evaluation and Policy Analysis*, 9(4), 300-311.
- Erhardt, T. Personal Communication, November 16, 2020.
- Gendreau, P., Goggin, C., & Smith, P. (1999). The forgotten issue in effective correctional treatment: Program implementation. *International Journal of Offender Therapy and Comparative Criminology*, 43(2), 180-187.
- Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult offender recidivism: What works!. *Criminology*, 34(4), 575-608.
- Ghasembaklo, U., Mohammadyari, G., Mahmodzadeh, M., Mohammadzadeghan, R., & Mokhtari, M. (2014). The relationship of social support and self-esteem with recidivism among prisoners. *Journal of Research and Health*, 4(3), 818-826.
- Gossner, D., Simon, T., Rector, B., & Ruddell, R. (2016). Case planning and recidivism of high risk and violent adult probationers. *Journal of Community Safety and Well-Being*, 1(2), 32-43.
- Grieger, L., & Hosser, D. (2014). Which risk factors are really predictive? An analysis of Andrews and Bonta’s “Central Eight” risk factors for recidivism in German youth correctional facility inmates. *Criminal justice and behavior*, 41(5), 613-634.
- Grube, W., & Mendenhall, A. N. (2016). Adolescent mental health case management: Consumer perspectives. *Families in Society*, 97(2), 86-94.

- Haas, S. M., & DeTardo-Bora, K. A. (2009). Inmate reentry and the utility of the LSI-R in case planning. *Corrections Compendium*, 34(1), 11-16.
- Hannah-Moffat, K. (2005). Criminogenic needs and the transformative risk subject: Hybridizations of risk/need in penalty. *Punishment & society*, 7(1), 29-51.
- Healey, K. M. (1999). Case management in the criminal justice system (Vol. 2, No. 2). US Department of Justice, Office of Justice Programs, National Institute of Justice.
- Henwood, K. S., Chou, S., & Browne, K. D. (2015). A systematic review and meta-analysis on the effectiveness of CBT informed anger management. *Aggression and violent behavior*, 25, 280-292.
- Holsinger, A. M., Lurigio, A. J., & Latessa, E. J. (2001). Practitioner's Guide to Understanding the Basis of Assessing Offender Risk, 65 (2) *FED. Probation*, 46, 47.
- Jewell, J. D., Malone, M. D., Rose, P., Sturgeon, D., & Owens, S. (2015). A multiyear follow-up study examining the effectiveness of a cognitive behavioral group therapy program on the recidivism of juveniles on probation. *International journal of offender therapy and comparative criminology*, 59(3), 259-272.
- Kelly, P. J., Emerson, A., Fair, C., & Ramaswamy, M. (2018). Assessing fidelity: balancing methodology and reality in jail interventions. *BMC women's health*, 18(1), 127.
- Kersbergen, A. L. (1996). Case management: a rich history of coordinating care to control costs. *Nursing Outlook*, 44(4), 169-172.
- Krauss, D. A. (2004). Adjusting risk of recidivism: Do judicial departures worsen or improve recidivism prediction under the Federal Sentencing Guidelines?. *Behavioral sciences & the law*, 22(6), 731-750.

- Landenberger, N. A., & Lipsey, M. W. (2005). The positive effects of cognitive-behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of experimental criminology*, 1(4), 451-476.
- Latessa, E.J. & Holsinger, A.M. (2011). *Correctional Contexts: Contemporary and Classical Readings*. Oxford University Press.
- Latessa, E. J., & Lovins, B. (2010). The role of offender risk assessment: A policy maker guide. *Victims and Offenders*, 5(3), 203-219.
- Latessa, E. J., Sullivan, C., Blair, L., Sullivan, C. J., & Smith, P. (2013). Outcome and process evaluation of juvenile drug courts. Center for Criminal Justice Research, University of Cincinnati, School of Criminal Justice.
- La Vigne, N., Palmer, T., & Halberstadt, R. (2008). *Release Planning for Successful Reentry: A Guide for Corrections, Service Providers, and Community Groups*, Washington, DC: Urban Institute Justice Policy Center.
- Lee, M. Y., Uken, A., & Sebold, J. (2007). Role of self-determined goals in predicting recidivism in domestic violence offenders. *Research on Social Work Practice*, 17(1), 30-41.
- Levine, I.S., & Fleming, M. (1986). *Human Resource Development: Issues in Case Management*, Washington, D.C.: National Institute of Mental Health. *Schizophrenia Bulletin*, 8(4), 655-674.
- Lipsey, M. W. (1999). Can intervention rehabilitate serious delinquents? *The Annals of the American Academy of Political and Social Science*, 564(1), 142-166.

- Lipsey, M. W., Chapman, G. L., & Landenberger, N. A. (2001). Cognitive-behavioral programs for offenders. *The Annals of the American Academy of Political and Social Science*, 578(1), 144-157.
- Loomis, J. F. (1988). Case management in health care. *Health & social work*, 13(3), 219-225.
- Louden, J., Skeem, J. L., Camp, J., Vidal, S., & Peterson, J. (2012). Supervision practices in specialty mental health probation: What happens in officer–probationer meetings?. *Law and Human Behavior*, 36(2), 109.
- Loveland, D., & Boyle, M. (2007). Intensive case management as a jail diversion program for people with a serious mental illness: a review of the literature. *International Journal of Offender Therapy and Comparative Criminology*, 51(2), 130-150.
- Lowenkamp, C. T., & Latessa, E. J. (2002). Evaluation of Ohio's community based correctional facilities and halfway house programs. Cincinnati, OH: University of Cincinnati, Division of Criminal Justice, Center for Criminal Justice Research.
- Lowenkamp, C. T., & Latessa, E. J. (2005). Increasing the effectiveness of correctional programming through the risk principle: Identifying offenders for residential placement. *Criminology & Public Policy*, 4(2), 263-290.
- Lowenkamp, C. T., Latessa, E. J., & Holsinger, A. M. (2006). The risk principle in action: What have we learned from 13,676 offenders and 97 correctional programs?. *Crime & Delinquency*, 52(1), 77-93.
- Lowenkamp, C. T., Latessa, E. J., & Smith, P. (2006). Does correctional program quality really matter? The impact of adhering to the principles of effective intervention. *Criminology & Public Policy*, 5(3), 575-594.

- Lunenburg, F. C. (2011). Goal-setting theory of motivation. *International journal of management, business, and administration*, 15(1), 1-6.
- Luong, D., & Wormith, J. S. (2011). Applying risk/need assessment to probation practice and its impact on the recidivism of young offenders. *Criminal Justice and Behavior*, 38(12), 1177-1199.
- Mackenzie, D.L., (2001). *Sentencing and Corrections in the 21st Century: Setting the Stage for the Future*. University of Maryland, College Park, Md., Department of Criminology and Criminal Justice, Evaluation Research Group.
- Makarios, M., Sperber, K. G., & Latessa, E. J. (2014). Treatment dosage and the risk principle: A refinement and extension. *Journal of Offender Rehabilitation*, 53(5), 334-350.
- Martinson, R. (1974). What works?-Questions and answers about prison reform. *The public interest*, 35, 22.
- McCafferty, J. T. (2017). Professional discretion and the predictive validity of a juvenile risk assessment instrument: Exploring the overlooked principle of effective correctional classification. *Youth Violence and Juvenile Justice*, 15(2), 103-118.
- Miller, J., & Maloney, C. (2013). Practitioner compliance with risk/needs assessment tools: A theoretical and empirical assessment. *Criminal Justice and Behavior*, 40(7), 716-736.
- Miller, J. M., & Miller, H. V. (2016). Validating program fidelity: lessons from the Delaware County second chance initiatives. *American Journal of Criminal Justice*, 41(1), 112-123.
- Mitchell, T. R., Harman, W. S., Lee, T. W., & Lee, D. Y. (2008). Self-regulation and multiple deadline goals. In *Work Motivation* (pp. 225-259). Routledge.
- Moore, S. T. (1990). A social work practice model of case management: The case management grid. *Social Work*, 35(5), 444-448.

- Myer, A. J., & Makarios, M. D. (2017). Understanding the impact of a DUI court through treatment integrity: A mixed-methods approach. *Journal of Offender Rehabilitation*, 56(4), 252-276.
- Palmer, T. (1975). Martinson Revisited. *Journal of Research in Crime and Delinquency*, 12(2), 133-152.
- Pecora, P. J., & Maluccio, A. N. (2000). What works in family foster care. *Child Welfare League of America*, 139-155.
- Raynor, P., Ugwudike, P., & Vanstone, M. (2014). The impact of skills in probation work: A reconviction study. *Criminology & Criminal Justice*, 14(2), 235-249.
- Rivera, G. (2018). Case Management and Social Work Practice in Public Schools. Walden Dissertations and Doctoral Studies. 5685.
- Robinson, C. R., Lowenkamp, C. T., Holsinger, A. M., VanBenschoten, S., Alexander, M., & Oleson, J. C. (2012). A random study of Staff Training Aimed at Reducing Re-arrest (STARR): Using core correctional practices in probation interactions. *Journal of Crime and Justice*, 35(2), 167-188.
- Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2004). Assessing and monitoring program process. *Evaluation: a systematic approach*. Beverly Hills: Sage Publications, 169-201.
- Sarre, R. (2001). Beyond 'what works?' A 25-year jubilee retrospective of Robert Martinson's famous article. *Australian & New Zealand Journal of Criminology*, 34(1), 38-46.
- Schaefer, L., & Williamson, H. (2018). Probation and parole officers' compliance with case management tools: Professional discretion and override. *International journal of offender therapy and comparative criminology*, 62(14), 4565-4584.

- Smith, P., Schweitzer, M., Labrecque, R. M., & Latessa, E. J. (2012). Improving probation officers' supervision skills: An evaluation of the EPICS model. *Journal of Crime and Justice*, 35(2), 189–199.
- Sperber, K. G., Latessa, E. J., & Makarios, M. D. (2013). Examining the interaction between level of risk and dosage of treatment. *Criminal Justice and Behavior*, 40(3), 338-348.
- Stergiopoulos, V., Gozdzik, A., Cohen, A., Guimond, T., Hwang, S. W., Kurdyak, P., ... & Wasylenki, D. (2017). The effect of brief case management on emergency department use of frequent users in mental health: Findings of a randomized controlled trial. *Plos one*, 12(8).
- Taube, E., Kristensson, J., Midlöv, P., & Jakobsson, U. (2018). The use of case management for community-dwelling older people: the effects on loneliness, symptoms of depression and life satisfaction in a randomized controlled trial. *Scandinavian journal of caring sciences*, 32(2), 889-901.
- Taxman, F. S., & Caudy, M. S. (2015). Risk tells us who, but not what or how: Empirical assessment of the complexity of criminogenic needs to inform correctional programming. *Criminology & Public Policy*, 14(1), 71-103.
- Vieira, T. A., Skilling, T. A., & Peterson-Badali, M. (2009). Matching court-ordered services with treatment needs: Predicting treatment success with young offenders. *Criminal Justice and Behavior*, 36(4), 385-401.
- Viglione, J., Rudes, D. S., & Taxman, F. S. (2014). Misalignment in supervision: Implementing risk/needs assessment instruments in probation. *Criminal Justice and Behavior*, 42(3), 263-285.

- Vourlekis, B., & Ell, K. (2007). Best practice case management for improved medical adherence. *Social work in health care*, 44(3), 161-177.
- Welch, M. (1999). *Punishment in America: Social control and the ironies of imprisonment*. Sage Publications, Inc.
- Wooditch, A., Tang, L. L., & Taxman, F. S. (2014). Which criminogenic need changes are most important in promoting desistance from crime and substance use?. *Criminal Justice and Behavior*, 41(3), 276-299.
- Wormith, J. S., Hogg, S., & Guzzo, L. (2012). The predictive validity of a general risk/needs assessment inventory on sexual offender recidivism and an exploration of the professional override. *Criminal Justice and Behavior*, 39(12), 1511-1538.
- Wormith, J. S., Hogg, S. M., & Guzzo, L. (2015). The predictive validity of the LS/CMI with Aboriginal offenders in Canada. *Criminal Justice and Behavior*, 42(5), 481-508.

APPENDIX A: SPECIFICITY CODING EXAMPLES

The tables in Appendix A provide examples of the coding scheme used for the measurable and singular objectives. Each table provides two examples of objectives that meet and fail to meet the criteria for measurable or singular for each of the domains.

Table A1

Examples of Measurable and Non-Measurable Objectives

	Measurable	Non-Measurable
Alcohol/Drugs	I will obtain a sponsor/mentor. complete CD evaluation	Rebuild support systems. learn and implement coping skills for co-dependency
Emotional/Personal	complete boundaries assignment Schedule therapy appointment at RACC	Do not sweat the small stuff program participation
Family/Marital	Write Zach letters - at least 3x month Talk to my mom weekly	work on communication with family talk to family
Leisure/Recreation	make a list of activities I enjoy Take walking pass 3 times a week	Eat better get involved in positive activities
Companions	Attend min of 2 support groups weekly complete engaging prosocial others assignment	maintain contact with sober friends Go for coffee instead of alcohol
Attitude Orientation	meet with case manager weekly Complete T4C complete self-esteem assignment	work to be positive use T4C skills Think about situations
Employment/Education	file fafsa paperwork register at job service ND	Job search stay positive and persistent
Financial	open bank account make a list of debts owed	budget money Save money
Accommodations	Submit release plan to NDSPO complete housing application for Fargo Housing	begin apartment searching be more responsible

Table A2*Examples of Singular and Non-Singular Objectives*

	Singular	Non-Singular
Alcohol/Drugs	I will not spend time with people who are not supportive of my sobriety. Attend scheduled ASAM assessment	Remain sober Complete treatment
Emotional/Personal	participate in individual counseling complete co-dependency assignment	Live better life learn and implement coping skills to help deal with depression
Family/Marital	Take a pass with my daughter journal my interactions with my children	Always be there for her (daughter) Prove to my family that I am not the person they think I am
Leisure/Recreation	Study chess moves Try a staff escorted outing	Obtain level 2 Obtain a job
Companions	Skill practice setting boundaries with ex Fill out visitor list	Get a support network Become a mentor
Attitude Orientation	Sign up for ShareHouse programming meet with my CM weekly	Do what I need to do to get off parole successfully Getting my life on track
Employment/Education	write a resume file fafsa paperwork	obtain employment earn degree
Financial	turn in paychecks biweekly schedule SSI interview.	increase my assets and equity accountability at work
Accommodations	Get mother's information to CM Get application for F5	successfully complete recommendations from CD eval find stability

APPENDIX B: SUPPLEMENTAL ANALYSES FOR HYPOTHESIS

Appendix B provides the supplemental analyses run for the compliance variable. Table B1 provides the descriptive information for the original coding of compliance when the criminal history variable is excluded from analysis. Table B2 offers the results for the supplemental regression run when testing the first hypothesis. In this regression, compliance is coded on an ordinal scale rather than as a continuous variable.

Table B1

Descriptive Statistics for Case Plan Compliance (Excluding Criminal History)

	n	% at 100%	mean	s.d.	range
Compliance	859	12.2	6.59	1.808	1-9

Table B2*Logistic Regression Model Examining the Impacts of Compliance on Recidivism*

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.048	0.009	0.953**	-0.046	0.009	0.995**	-0.046	0.009	0.955**
Gender (ref.=male)	-0.332	0.159	0.718*	-0.299	0.161	0.741^	-0.225	0.172	0.798
Race (ref.=white)									
Native American	0.38	0.200	1.463^	0.328	0.203	1.388	0.331	0.204	1.393
Other	-0.071	0.215	0.931	-0.059	0.217	0.942	-0.036	0.218	0.965
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-0.076	0.212	0.927	-0.093	0.215	0.911	-0.093	0.216	0.911
Some College	-0.039	0.248	0.963	-0.059	0.251	0.942	-0.053	0.253	0.949
College Degree	0.013	0.328	1.013	0.003	0.331	1.003	0.002	0.335	1.002
Marital Status (ref.=single)									
Married	-0.436	0.284	0.646	-0.399	0.286	0.671	-0.389	0.288	0.678
Divorced	0.218	0.221	1.244	0.251	0.224	1.286	0.258	0.224	1.295
Risk Level (ref.=high)									
Low	-0.584	0.675	0.557	-0.393	0.693	0.675	-0.398	0.708	0.671
Low/Mod	-0.628	0.314	0.534*	-0.519	0.317	0.595	-0.527	0.331	0.590
Moderate	-0.517	0.209	0.597*	-0.411	0.212	0.663^	-0.442	0.22	0.643*
Mod/High	-0.300	0.181	0.741^	-0.268	0.183	0.765	-0.278	0.184	0.757
Discharge Status (ref.=unsuccessful)				0.337	0.188	1.400^	0.315	0.189	0.757^
Days in Program				-0.004	0.002	.996**	0.315	0.002	0.996**
Compliance (ref.=low compliance)									
Low/Mod							-0.509	0.345	0.601
Mod/High							-0.288	0.330	0.750
High							-0.533	0.351	0.587
Constant	2.475	0.366	11.876**	2.612	0.400	13.620**	2.989	0.503	19.864**
-2 Log Likelihood		1088.278			1072.901			1068.987	
Nagelkerke R ²		0.079			0.101			0.107	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

APPENDIX C: ANALYSES FOR EFFECTS OF PREDICTOR VARIABLES BY RISK GROUPS

Appendix C provides the supplemental tables examining the effect that the predictor variables have on recidivism outcomes when examined among low, moderate, and high risk groups.

Table C1

Logistic Regression Model Examining the Impacts of Compliance on Risk Groups

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.041	0.035	0.960	-0.043	0.012	0.958**	-0.062	0.019	0.940**
Gender (ref.=male)	-0.801	0.669	0.449	-0.038	0.210	0.962	-0.734	0.336	0.480*
Race (ref.=white)									
Native American	-	27243.88							
Other	20.561	6	0.000	0.235	0.256	1.265	0.567	0.354	1.762
Other	0.034	0.836	1.034	-0.074	0.280	0.929	0.060	0.418	1.062
Education (ref=less than H.S.)									
H.S. Diploma/GED	-1.934	1.274	0.145	-0.081	0.277	0.922	0.122	0.374	1.130
Some College	-1.172	1.369	0.310	-0.173	0.320	0.841	0.319	0.466	1.375
College Degree	-1.084	1.535	0.338	0.068	0.411	1.070	-0.082	0.674	0.921
Marital Status (ref.=single)									
Married	-0.968	1.100	0.380	-0.510	0.371	0.601	-0.001	0.554	0.999
Divorced	1.539	1.037	4.659	0.153	0.277	1.165	0.395	0.445	1.484
Discharge Status (ref=successful)									
Days in Program	0.375	1.323	1.456	0.355	0.234	1.426	0.377	0.341	1.458
Compliance	-0.018	0.007	.982*	-0.004	0.002	.996*	0.000	0.004	1.000
Constant	-0.342	0.282	0.710	-0.070	0.061	0.933	0.016	0.082	1.016
			572.104*			13.454*			13.385*
Constant	6.350	2.443	*	2.599	0.614	*	2.594	0.853	*
-2 Log Likelihood		69.007			692.355			291.695	
Nagelkerke R ²		0.384			0.084			0.113	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table C2*Logistic Regression Model Examining the Impacts of Positively Stated on Risk Groups*

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.038	0.035	0.962	-0.042	0.012	.959**	-0.063	0.019	.939**
Gender (ref.=male)	-1.083	0.724	0.339	-0.162	0.210	0.850	-0.871	0.334	.418**
Race (ref.=white)									
Native American	-20.54	26391.735	0.000	0.261	0.257	1.298	0.556	0.355	1.744
Other	0.043	0.857	1.043	-0.065	0.280	0.937	0.114	0.422	1.121
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-1.750	1.271	0.174	-0.077	0.278	0.926	0.086	0.376	1.089
Some College	-0.995	1.384	0.370	-0.175	0.320	0.839	0.310	0.468	1.363
College Degree	-0.871	1.553	0.418	0.059	0.412	1.061	-0.137	0.684	0.872
Marital Status (ref.=single)									
Married	-1.313	1.104	0.269	-0.497	0.370	0.608	0.073	0.561	1.076
Divorced	1.536	1.107	4.648	0.122	0.277	1.129	0.458	0.452	1.580
Discharge Status (ref.=successful)	0.037	1.360	1.037	0.329	0.233	1.390	0.364	0.342	1.438
Days in Program	-0.023	0.008	.977**	-0.004	0.002	.996*	0.000	0.004	1.000
Positively Stated	0.105	0.071	1.111	0.020	0.025	1.020	0.050	0.034	1.052
Constant	-5.309	6.754	0.005	0.232	2.436	1.261	-2.113	3.328	0.121
-2 Log Likelihood		68.275			693.022			289.645	
Nagelkerke R ²		0.395			0.083			0.123	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table C3*Logistic Regression Model Examining the Impacts of Measurable on Risk Groups*

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.039	0.035	0.962	-0.041	0.012	0.960**	-0.062	0.019	0.940**
Gender (ref.=male)	-0.581	0.674	0.559	-0.075	0.205	0.928	-0.677	0.317	0.508*
Race (ref.=white)									
Native American	-19.973	27690.32	0.000	0.229	0.257	1.258	0.571	0.354	1.770
Other	-0.093	0.801	0.911	-0.083	0.279	0.921	0.063	0.418	1.065
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-1.743	1.278	0.175	-0.099	0.277	0.905	0.116	0.374	1.123
Some College	-1.058	1.368	0.347	-0.190	0.319	0.827	0.316	0.466	1.372
College Degree	-1.187	1.536	0.305	0.024	0.411	1.024	-0.122	0.676	0.885
Marital Status (ref.=single)									
Married	-1.105	1.092	0.331	-0.497	0.37	0.608	-0.008	0.555	0.992
Divorced	1.627	1.053	5.086	0.113	0.277	1.12	0.376	0.444	1.456
Discharge Status (ref.=successful)	0.445	1.314	1.561	0.334	0.233	1.397	0.389	0.343	1.476
Days in Program	-0.017	0.007	0.983*	-0.004	0.002	.996*	0.001	0.004	1.001
Measurable	-0.008	0.015	0.992	-0.004	0.005	0.996	-0.003	0.007	0.997
Constant	4.661	1.852	105.752*	2.289	0.506	9.866*	2.831	0.790	16.961**
-2 Log Likelihood		70.213			693.079			291.511	
Nagelkerke R ²		0.367			0.083			0.113	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table C4*Logistic Regression Model Examining the Impacts of Singular on Risk Groups*

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.036	0.955	-0.042	0.012	0.959**	-0.060	0.019	0.941**
Gender (ref.=male)	-0.855	0.686	0.425	-0.140	0.216	0.869	-0.593	0.338	0.553^
Race (ref.=white)									
Native American	-20.238	27741.533	0.000	0.245	0.256	1.277	0.572	0.335	1.771
Other	-0.032	0.819	0.969	-0.063	0.282	0.939	0.066	0.418	1.068
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-1.673	1.260	0.188	-0.090	0.278	0.914	0.114	0.374	1.120
Some College	-1.069	1.373	0.343	-0.182	0.320	0.833	0.311	0.467	1.364
College Degree	-0.903	1.543	0.405	0.048	0.412	1.049	-0.080	0.672	0.923
Marital Status (ref.=single)									
Married	-0.790	1.136	0.454	-0.498	0.370	0.608	-0.003	0.554	0.997
Divorced	1.480	1.036	4.391	0.132	0.277	1.142	0.395	0.443	1.485
Discharge Status (ref.=successful)	0.171	1.318	1.183	0.340	0.234	1.406	0.400	0.343	1.491
Days in Program	-0.018	0.007	0.983*	-0.004	0.002	.996*	0.000	0.004	1.000
Singular	0.032	0.037	1.032	0.003	0.008	1.003	-0.011	0.013	0.990
Constant	1.948	3.409	7.013	1.942	0.770	6.972*	3.452	1.180	31.570**
-2 Log Likelihood		69.801			693.539			290.988	
Nagelkerke R ²		0.373			0.082			0.116	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table C5*Logistic Regression Model Examining the Impacts of Expiration on Risk Groups*

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.036	0.035	0.965	-0.041	0.012	0.959**	-0.062	0.019	0.940**
Gender (ref.=male)	-0.767	0.665	0.464	-0.099	0.201	0.905	-0.706	0.311	0.493*
Race (ref.=white)									
Native American	-20.021	27363.762	0.000	0.244	0.256	1.276	0.572	0.354	1.771
Other	-0.049	0.820	0.952	-0.075	0.279	0.928	0.060	0.418	1.062
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-1.754	1.284	0.173	-0.106	0.277	0.899	0.127	0.374	1.135
Some College	-1.236	1.400	0.291	-0.201	0.320	0.818	0.324	0.465	1.383
College Degree	-1.347	1.602	0.260	0.026	0.410	1.026	-0.085	0.675	0.919
Marital Status (ref.=single)									
Married	-1.324	1.168	0.266	-0.518	0.371	0.596	-0.005	0.557	0.995
Divorced	1.660	1.053	5.261	0.125	0.276	1.134	0.390	0.444	1.478
Discharge Status (ref.=successful)	0.299	1.307	1.349	0.343	0.234	1.410	0.381	0.346	1.464
Days in Program	-0.017	0.007	0.983*	-0.004	0.002	0.996*	0.000	0.004	1.000
Expiration	-0.011	0.012	0.989	0.002	0.003	1.002	0.001	0.005	1.001
Constant	5.183	2.002	178.184*	2.059	0.509	7.839**	2.641	0.817	14.033**
-2 Log Likelihood		69.631			693.344			291.722	
Nagelkerke R ²		0.375			0.082			0.112	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table C6*Logistic Regression Model Examining the Impacts of Case Plan Components on Risk Groups*

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.037	0.039	0.964	-0.043	0.012	.948**	-0.058	0.019	.944**
Gender (ref.=male)	-1.443	0.847	.236^	-0.064	0.246	0.938	-0.801	0.402	.449*
Race (ref.=white)									
Native American	-20.614	26245.427	0.000	0.212	0.260	1.236	0.545	0.358	1.724
Other	0.217	0.964	1.243	-0.035	0.284	0.966	0.109	0.428	1.115
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-2.112	1.333	0.121	-0.044	0.281	0.957	0.009	0.382	1.009
Some College	-1.443	1.446	0.236	-0.149	0.323	0.862	0.210	0.478	1.234
College Degree	-1.263	1.729	0.283	0.093	0.417	1.097	-0.273	0.691	0.761
Marital Status (ref.=single)									
Married	-1.618	1.410	0.198	-0.515	0.374	0.598	0.068	0.567	1.070
Divorced	1.767	1.155	5.852	0.127	0.280	1.135	0.455	0.455	1.575
Discharge Status (ref.=successful)	-0.548	1.426	0.578	0.387	0.237	1.472	0.445	0.357	1.560
Days in Program	-0.021	0.009	.979*	-0.004	0.002	.996*	-0.001	0.004	0.999
Compliance	-0.391	0.328	0.676	-0.108	0.073	0.898	-0.026	0.134	0.974
Positively Stated	0.139	0.080	1.149^	0.025	0.026	1.026	0.069	0.037	1.072^
Measurable	-0.010	0.017	0.990	-0.007	0.005	0.993	-0.009	0.008	0.991
Singular	0.019	0.041	1.019	-0.005	0.008	1.005	-0.017	0.014	0.983
Breadth	0.012	0.036	1.012	0.006	0.012	1.006	0.022	0.028	1.022
Expiration	-0.013	0.013	0.987	-0.105	2.648	0.901	0.000	0.005	1.000
Constant	-6.638	7.621	0.001	-0.105	2.648	0.901	-2.512	3.589	0.081
-2 Log Likelihood		64.318			688.959			286.361	
Nagelkerke R ²		0.449			0.092			0.140	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

**APPENDIX D: ANALYSES FOR THE INTERACTION EFFECTS BETWEEN
BREADTH AND NEED**

Appendix D provides the regression analyses for the interaction effects between breadth and need for the remaining eight need domains.

Table D1

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Emotional/Personal

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	.995**	-0.046	0.009	.955**	-0.046	0.009	0.955**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.291	0.167	0.747^	-0.292	0.167	0.747^
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.288	0.206	1.334	0.290	0.206	1.336
Other	-0.059	0.217	0.942	-0.096	0.220	0.908	-0.095	0.220	0.910
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.093	0.215	0.911	-0.102	0.215	0.903	-0.102	0.215	0.903
Some College	-0.059	0.251	0.942	-0.072	0.252	0.931	-0.072	0.252	0.930
College Degree	0.003	0.331	1.003	-0.018	0.334	0.982	-0.018	0.334	0.982
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.406	0.287	0.666	-0.409	0.287	0.664
Divorced	0.251	0.224	1.286	0.245	0.224	1.278	0.245	0.224	1.277
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.473	0.703	0.623	-0.470	0.703	0.625
Low/Mod	-0.519	0.317	0.595	-0.632	0.333	0.532^	-0.634	0.333	0.530^
Moderate	-0.411	0.212	0.663^	-0.473	0.220	0.623*	-0.472	0.220	0.624*
Mod/High	-0.268	0.183	0.765	-0.292	0.184	0.747	-0.291	0.184	0.748
Discharge Status (ref.=unsuccessful)	0.337	0.188	1.400^	0.328	0.188	1.388^	0.329	0.188	1.390^
Days in Program	-0.004	0.002	0.996**	-0.004	0.002	0.996**	-0.004	0.002	0.996**
Breadth				0.014	0.047	1.014	-0.201	0.271	0.818
Need				-0.240	0.222	0.787	0.039	0.112	1.040
Breadth X Need							-0.030	0.121	0.971
Constant	2.612	0.400	13.620**	2.869	0.474	17.614**	2.834	0.494	17.021**
-2 Log Likelihood		1072.901			1071.668			1071.608	
Nagelkerke R ²		0.101			0.103			0.103	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table D2

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Family/Marital

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	0.995**	-0.046	0.009	0.955**	-0.045	0.009	0.956**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.258	0.164	0.773	-0.259	0.164	0.772
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.334	0.203	1.397	0.334	0.203	1.396
Other	-0.059	0.217	0.942	-0.058	0.218	0.943	-0.060	0.218	0.942
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.093	0.215	0.911	-0.072	0.216	0.931	-0.074	0.216	0.928
Some College	-0.059	0.251	0.942	-0.024	0.253	0.976	-0.026	0.253	0.974
College Degree	0.003	0.331	1.003	0.000	0.332	1.000	-0.006	0.334	0.994
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.343	0.288	0.709	-0.346	0.288	0.708
Divorced	0.251	0.224	1.286	0.304	0.226	1.355	0.302	0.226	1.353
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.640	0.708	0.527	-0.631	0.710	0.532
Low/Mod	-0.519	0.317	0.595	-0.716	0.335	0.489*	-0.715	0.335	0.489*
Moderate	-0.411	0.212	0.663^	-0.516	0.220	0.597*	-0.517	0.220	0.596*
Mod/High	-0.268	0.183	0.765	-0.297	0.184	0.743	-0.297	0.184	0.743
Discharge Status (ref.=unsuccessful)	0.337	0.188	1.400^	0.326	0.188	1.385^	0.324	0.188	1.383^
Days in Program	-0.004	0.002	0.996**	-0.004	0.002	0.996*	-0.004	0.002	0.996*
Breadth				-0.017	0.048	0.983	-0.034	0.105	0.966
Need				-0.387	0.204	0.679^	-0.431	0.316	0.650
Breadth X Need							0.021	0.117	1.022
Constant	2.612	0.400	13.620**	2.940	0.440	18.925**	2.976	0.481	19.610**
-2 Log Likelihood		1072.901			1069.090			1069.056	
Nagelkerke R ²		0.101			0.107			0.107	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table D3

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Leisure/Recreation

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	0.995**	-0.047	0.009	0.954**	-0.047	0.009	0.954**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.305	0.164	0.737^	-0.304	0.164	0.738^
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.339	0.204	1.404^	0.337	0.204	1.400^
Other	-0.059	0.217	0.942	-0.065	0.218	0.937	-0.061	0.218	0.941
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.093	0.215	0.911	-0.084	0.215	0.919	-0.088	0.216	0.916
Some College	-0.059	0.251	0.942	-0.076	0.252	0.927	-0.083	0.253	0.920
College Degree	0.003	0.331	1.003	0.028	0.332	1.028	0.023	0.333	1.023
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.441	0.289	0.644	-0.444	0.289	0.642
Divorced	0.251	0.224	1.286	0.261	0.225	1.298	0.260	0.225	1.297
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.620	0.724	0.538	-0.621	0.725	0.537
Low/Mod	-0.519	0.317	0.595	-0.624	0.322	0.536^	-0.627	0.322	0.534^
Moderate	-0.411	0.212	0.663^	-0.448	0.214	0.639*	-0.446	0.214	0.640*
Mod/High	-0.268	0.183	0.765	-0.269	0.183	0.764	-0.270	0.183	0.763
Discharge Status (ref.=unsuccessful)	0.337	0.188	1.400^	0.340	0.188	1.405^	0.340	0.188	1.405^
Days in Program	-0.004	0.002	0.996**	-0.004	0.002	0.996^	-0.004	0.002	0.996**
Breadth				-0.032	0.041	0.968	-0.139	0.380	0.871
Need				-1.059	0.591	0.347^	-1.285	1.011	0.277
Breadth X Need							0.108	0.382	1.114
Constant	2.612	0.400	13.620**	3.761	0.739	42.991**	3.984	1.097	53.706**
-2 Log Likelihood		1072.901			1068.751			1068.671	
Nagelkerke R ²		0.101			0.108			0.108	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table D4

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Companions

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	0.995**	-0.046	0.009	0.955**	-0.046	0.009	0.955**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.303	0.162	0.739^	-0.295	0.162	0.744^
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.328	0.203	1.388	0.310	0.214	1.354
Other	-0.059	0.217	0.942	-0.062	0.217	0.940	-0.060	0.217	0.942
Education (ref=less than H.S.)									
H.S.									
Diploma/GED	-0.093	0.215	0.911	-0.093	0.215	0.912	-0.081	0.215	0.923
Some College	-0.059	0.251	0.942	-0.060	0.251	0.942	-0.047	0.252	0.955
College Degree	0.003	0.331	1.003	0.002	0.332	1.002	0.024	0.333	1.024
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.397	0.287	0.673	-0.398	0.287	0.672
Divorced	0.251	0.224	1.286	0.248	0.225	1.282	0.242	0.225	1.274
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.403	0.710	0.668	-0.422	0.719	0.656
Low/Mod	-0.519	0.317	0.595	-0.523	0.320	0.593	-0.514	0.320	0.598
Moderate	-0.411	0.212	0.663^	-0.415	0.213	0.660^	-0.420	0.213	0.657*
Mod/High	-0.268	0.183	0.765	-0.272	0.183	0.762	-0.270	0.183	0.763
Discharge Status (ref.=unsuccessful)	0.337	0.188	1.400^	0.338	0.188	1.402^	0.351	0.189	1.420^
Days in Program	-0.004	0.002	.996**	-0.004	0.002	.996**	-0.004	0.002	0.996**
Breadth				0.012	0.052	1.012	0.428	0.505	1.534
Need				-0.021	0.739	0.979	0.607	1.029	1.835
Breadth X Need							-0.422	0.508	0.656
Constant	2.612	0.400	13.620**	2.615	0.855	13.661**	1.981	1.118	7.251^
-2 Log Likelihood		1072.901			1072.850			1072.049	
Nagelkerke R ²		0.101			0.102			0.103	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table D5

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Attitude/Orientation

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	0.995**	-0.046	0.009	0.955**	-0.046	0.009	0.955**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.268	0.165	0.765	-0.271	0.165	0.762
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.310	0.204	1.364	0.318	0.204	1.374
Other	-0.059	0.217	0.942	-0.035	0.218	0.966	-0.021	0.219	0.979
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.093	0.215	0.911	-0.086	0.216	0.918	-0.087	0.216	0.917
Some College	-0.059	0.251	0.942	-0.054	0.251	0.947	-0.057	0.251	0.945
College Degree	0.003	0.331	1.003	0.020	0.332	1.020	0.032	0.333	1.033
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.386	0.288	0.680	-0.389	0.288	0.678
Divorced	0.251	0.224	1.286	0.239	0.224	1.271	0.237	0.224	1.267
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.390	0.708	0.677	-0.421	0.708	0.657
Low/Mod	-0.519	0.317	0.595	-0.551	0.330	0.576^	-0.543	0.330	0.581
Moderate	-0.411	0.212	0.663^	-0.418	0.221	0.658^	-0.421	0.221	0.656^
Mod/High	-0.268	0.183	0.765	-0.281	0.186	0.755	-0.277	0.186	0.758
Discharge Status (ref.=unsuccessful)	0.337	0.188	1.400^	0.351	0.188	1.420^	0.248	0.188	1.416^
Days in Program	-0.004	0.002	0.996**	-0.004	0.002	0.996*	-0.004	0.002	0.996*
Breadth				-0.105	0.065	0.900	-0.044	0.108	0.957
Need				-0.027	0.164	0.974	0.053	0.199	1.055
Breadth X Need							-0.095	0.134	0.910
Constant	2.612	0.400	13.620**	2.680	0.423	14.581**	2.631	0.428	13.886**
-2 Log Likelihood		1072.901			1070.237			1069.735	
Nagelkerke R ²		0.101			0.105			0.106	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table D6*Logistic Regression Examining the Interaction Effects Between Breadth and Need for Employment/Education*

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	0.995**	-0.048	0.009	0.953**	-0.047	0.009	0.954**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.355	0.166	0.701*	-0.359	0.167	0.698*
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.346	0.204	1.413^	0.343	0.204	1.410^
Other	-0.059	0.217	0.942	-0.016	0.219	0.984	-0.018	0.219	0.982
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.093	0.215	0.911	-0.064	0.216	0.938	-0.060	0.216	0.942
Some College	-0.059	0.251	0.942	-0.039	0.252	0.961	-0.038	0.252	0.962
College Degree	0.003	0.331	1.003	0.046	0.334	1.048	0.052	0.334	1.054
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.370	0.287	0.691	-0.376	0.287	0.687
Divorced	0.251	0.224	1.286	0.288	0.225	1.334	0.285	0.226	1.330
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.831	0.730	0.436	-0.824	0.729	0.439
Low/Mod	-0.519	0.317	0.595	-0.812	0.344	0.444*	-0.824	0.345	0.441*
Moderate	-0.411	0.212	0.663^	-0.570	0.222	0.565*	-0.572	0.222	0.565*
Mod/High	-0.268	0.183	0.765	-0.343	0.185	0.710^	-0.343	0.185	0.710^
Discharge Status (ref.=unsuccessful)	0.337	0.188	1.400^	0.350	0.189	1.420^	-0.005	0.002	.995**
Days in Program	-0.004	0.002	0.996**	-0.005	0.002	0.995**	-0.762	0.406	0.467^
Breadth				0.070	0.042	1.072^	0.023	0.092	1.023
Need				-0.572	0.228	0.564*	-0.762	0.406	0.467^
Breadth X Need							0.059	0.102	1.060
Constant	2.612	0.400	13.620**	2.999	0.494	20.060**	3.138	0.554	23.066**
-2 Log Likelihood		1072.901			1063.843			1063.518	
Nagelkerke R ²		0.101			0.115			0.115	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table D7*Logistic Regression Examining the Interaction Effects Between Breadth and Need for Financial*

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	0.995**	-0.046	0.009	0.955**	-0.045	0.009	0.956**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.306	0.161	0.736^	-0.306	0.161	0.736^
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.324	0.203	1.383	0.323	0.203	1.382
Other	-0.059	0.217	0.942	-0.058	0.218	0.944	-0.058	0.218	0.943
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-0.093	0.215	0.911	-0.092	0.215	0.912	-0.092	0.215	0.912
Some College	-0.059	0.251	0.942	-0.065	0.252	0.937	-0.066	0.252	0.937
College Degree	0.003	0.331	1.003	-0.001	0.332	0.999	-0.002	0.332	0.998
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.404	0.286	0.668	-0.406	0.287	0.666
Divorced	0.251	0.224	1.286	0.249	0.224	1.282	0.248	0.224	1.281
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.324	0.706	0.723	-0.322	0.707	0.725
Low/Mod	-0.519	0.317	0.595	-0.481	0.325	0.618	-0.477	0.326	0.621
Moderate	-0.411	0.212	0.663^	-0.397	0.215	0.672^	-0.396	0.215	0.673^
Mod/High	-0.268	0.183	0.765	-0.267	0.183	0.765	-0.268	0.183	0.765
Discharge Status (ref.=unsuccessful)	0.337	0.188	1.400^	0.334	0.188	1.397^	0.330	0.188	1.396^
Days in Program	-0.004	0.002	0.996**	-0.004	0.002	0.996**	-0.004	0.002	0.996**
Breadth				0.013	0.040	1.013	-0.009	0.136	0.991
Need				0.153	0.320	1.166	0.076	0.562	1.078
Breadth X Need							0.024	0.143	1.024
Constant	2.612	0.400	13.620**	2.423	0.528	11.285**	2.495	0.676	12.116**
-2 Log Likelihood		1072.901			1072.578			1072.550	
Nagelkerke R ²		0.101			0.102			0.102	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table D8

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Accommodations

	Model 1			Model 2			Model 3		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.009	0.995**	-0.046	0.009	0.955**	-0.047	0.009	0.954**
Gender (ref.=male)	-0.299	0.161	0.741^	-0.289	0.162	0.749^	-0.297	0.162	0.743^
Race (ref.=white)									
Native American	0.328	0.203	1.388	0.333	0.203	1.394	0.339	0.204	1.404^
Other	-0.059	0.217	0.942	-0.059	0.217	0.943	-0.038	0.218	0.963
Education (ref.=less than H.S.)									
H.S.									
Diploma/GED	-0.093	0.215	0.911	-0.097	0.215	0.908	-0.092	0.215	0.912
Some College	-0.059	0.251	0.942	-0.053	0.251	0.949	-0.034	0.252	0.967
College Degree	0.003	0.331	1.003	-0.007	0.332	0.993	-0.008	0.320	0.992
Marital Status (ref.=single)									
Married	-0.399	0.286	0.671	-0.418	0.287	0.658	-0.431	0.288	0.650
Divorced	0.251	0.224	1.286	0.261	0.224	1.298	0.267	0.225	1.305
Risk Level (ref.=high)									
Low	-0.393	0.693	0.675	-0.376	0.704	0.687	-0.472	0.705	0.624
Low/Mod	-0.519	0.317	0.595	-0.496	0.334	0.609	-0.551	0.336	0.576
Moderate	-0.411	0.212	0.663^	-0.382	0.230	0.682^	-0.408	0.230	0.665^
Mod/High	-0.268	0.183	0.765	-248.000	0.188	0.780	-0.277	0.190	0.758
Discharge Status (ref.=unsuccessful)	0.337	0.188	1.400^	0.326	0.188	1.386^	0.321	0.188	1.379^
Days in Program	-0.004	0.002	0.996**	-0.004	0.002	0.996**	-0.004	0.002	0.996**
Breadth				-0.052	0.060	0.949	-0.166	0.096	0.847^
Need				0.043	0.167	1.044	-0.249	0.256	0.780
Breadth X Need							0.186	0.123	1.204
Constant	2.612	0.400	13.620**	2.653	0.436	14.202**	2.866	0.460	17.567**
-2 Log Likelihood		1072.901			1072.105			1069.813	
Nagelkerke R ²		0.101			0.103			0.106	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

**APPENDIX E: ANALYSES FOR THE INTERACTION EFFECTS BETWEEN
BREADTH AND NEED BY RISK GROUPS**

Appendix E provides the regression analyses for the interaction effects between breadth and need among each of the three risk groups. Each table provides an analysis for one of the need domains discussed.

Table E1

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Emotional/Personal

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.041	0.036	0.960	-0.042	0.012	0.959**	-0.064	0.019	0.938**
Gender (ref.=male)	-0.664	0.698	0.515	-0.144	0.210	0.866	-0.565	0.324	0.568^
Race (ref.=white)									
Native American	-20.267	27443.03	0.000	0.155	0.263	1.168	0.606	0.361	1.833^
Other	-0.165	0.911	0.848	-0.118	0.282	0.888	0.092	0.421	1.096
Education (ref=less than H.S.)									
H.S.									
Diploma/GED	-1.706	1.301	0.182	-0.118	0.278	0.889	0.248	0.383	1.281
Some College	-1.006	1.393	0.366	-0.251	0.323	0.778	0.442	0.475	1.556
College Degree	-1.087	1.574	0.337	-0.040	0.414	0.961	0.059	0.693	1.061
Marital Status (ref.=single)									
Married	-1.069	1.107	0.343	-0.527	0.372	0.590	-0.058	0.563	0.944
Divorced	1.589	1.047	4.900	0.102	0.278	1.107	0.427	0.448	1.533
Discharge Status (ref=unsuccessful)	0.478	1.319	1.613	0.297	0.235	1.346	0.350	0.343	1.419
Days in Program	-0.019	0.007	0.982**	-0.005	0.002	0.995*	0.00	0.004	1.000
Breadth	-0.009	0.271	0.991	0.085	0.137	1.089	-0.224	0.548	0.799
Need	-0.147	0.967	0.863	-0.275	0.305	0.760	-0.817	1.422	0.442
Breadth X Need	0.039	0.375	1.04	0.001	0.150	1.001	0.096	0.550	1.100
Constant	4.501	1.928	90.091*	2.36	0.568	10.587**	3.572	1.599	35.604*
-2 Log Likelihood		70.524			690.639			289.083	
Nagelkerke R ²		0.362			0.088			0.126	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table E2

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Family/Marital

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.045	0.037	0.956	-0.042	0.012	0.959**	-0.063	0.019	0.939**
Gender (ref.=male)	-0.815	0.666	0.443	-0.004	0.205	0.996	-0.786	0.321	0.456*
Race (ref.=white)									
Native American	-19.812	27885.27	0.00	0.234	0.258	1.264	0.569	0.355	1.766
Other	0.018	0.832	1.018	-0.050	0.281	0.951	-0.016	0.425	0.984
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-1.665	1.328	0.189	-0.039	0.280	0.962	0.133	0.378	1.143
Some College	-0.987	1.494	0.373	-0.125	0.323	0.883	0.252	0.473	1.286
College Degree	-0.787	1.657	0.455	0.053	0.414	1.054	-0.157	0.678	0.855
Marital Status (ref.=single)									
Married	-1.205	1.135	0.300	-0.387	0.374	0.679	-0.007	0.555	0.993
Divorced	1.739	1.138	5.693	0.225	0.280	1.253	0.406	0.447	1.501
Discharge Status (ref.=unsuccessful)	0.405	1.305	1.499	0.327	0.235	1.387	0.363	0.344	1.437
Days in Program	-0.024	0.009	0.977**	-0.004	0.002	0.996*	-0.001	0.004	0.999
Breadth	0.251	0.274	1.285	-0.066	0.133	0.936	-0.036	0.263	0.965
Need	1.193	1.148	3.297	-0.425	0.389	0.654	-0.493	0.800	0.611
Breadth X Need	-0.158	0.445	0.854	-0.030	0.148	0.971	0.204	0.279	1.227
Constant	4.083	1.974	59.326*	2.567	0.564	13.024*	2.983	1.054	19.747**
-2 Log Likelihood		68.097			686.664			288.849	
Nagelkerke R ²		0.397			0.098			0.127	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table E3

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Leisure/Recreation

	Low Risk (n=66)			Moderate Risk (n=542)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.037	0.035	0.964	-0.042	0.012	0.959**
Gender (ref.=male)	-1.179	0.745	0.308	-0.13	0.203	0.878
Race (ref.=white)						
Native American	-20.450	25189.3	0.000	0.231	0.257	1.260
Other	-0.536	0.877	0.585	-0.065	0.28	0.937
Education (ref=less than H.S.)						
H.S. Diploma/GED	-1.682	1.326	0.186	-0.108	0.277	0.898
Some College	-1.487	1.443	0.224	-0.237	0.322	0.780
College Degree	-1.33	1.608	0.264	0.002	0.412	1.002
Marital Status (ref.=single)						
Married	-2.028	1.271	0.132	-0.513	0.375	0.599
Divorced	0.847	1.169	2.333	0.155	0.278	1.167
Discharge Status (ref.=unsuccessful)	0.487	1.364	1.627	0.339	0.233	1.403
Days in Program	-0.020	0.008	0.980*	-0.004	0.002	0.996*
Breadth	0.776	1.167	2.172	-0.293	0.425	0.746
Need	0.367	2.118	1.443	-1.652	1.394	0.192
Breadth X Need	-1.098	1.197	0.334	0.305	0.428	1.357
Constant	5.08	2.785	160.834 [^]	3.787	1.468	44.145*
-2 Log Likelihood		65.448			691.649	
Nagelkerke R ²		0.434			0.086	

Note: [^] is sig at .1, * is sig at .05, ** is sig at .01

Table E4

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Companions

	Low Risk (n=66)			Moderate Risk (n=542)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.034	0.038	0.966	-0.040	0.012	0.961**
Gender (ref.=male)	-0.677	0.691	0.508	-0.135	0.203	0.874
Race (ref.=white)						
Native American	-20.478	27199.68	0.000	0.241	0.259	1.272
Other	-0.023	0.822	0.977	-0.085	0.279	0.918
Education (ref.=less than H.S.)						
H.S. Diploma/GED	-1.651	1.270	0.192	-0.093	0.278	0.911
Some College	-0.877	1.387	0.416	-0.189	0.320	0.828
College Degree	-0.911	1.577	0.402	0.056	0.414	1.058
Marital Status (ref.=single)						
Married	-1.162	1.112	0.313	-0.502	0.370	0.605
Divorced	1.125	1.117	3.079	0.102	0.278	1.108
Discharge Status (ref.=unsuccessful)	0.512	1.318	1.668	0.36	0.235	1.433
Days in Program	-0.018	0.008	0.982*	-0.004	0.002	0.996*
Breadth	17.951	20268.73	62534825	0.307	0.5	1.36
Need	17.81	20268.73	54299970	1.153	1.441	3.167
Breadth X Need	-18.168	20268.73	0	-0.261	0.504	0.77
Constant	-13.316	20268.73	0	-0.261	0.504	2.475
-2 Log Likelihood		67.837			692.404	
Nagelkerke R ²		0.401			0.084	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table E5

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Attitude/Orientation

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.042	0.036	0.959	-0.042	0.012	0.959**	-0.063	0.019	0.939**
Gender (ref.=male)	-0.571	0.674	0.565	-0.130	0.205	0.878	-0.578	0.325	0.561^
Race (ref.=white)									
Native American	-21.504	27802.72	0.000	0.241	0.257	1.273	0.493	0.360	1.638
Other	0.012	0.846	1.012	-0.020	0.282	0.980	0.098	0.427	1.103
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-1.935	1.329	0.144	-0.105	0.278	0.900	0.241	0.382	1.273
Some College	-1.179	1.395	0.308	-0.205	0.319	0.814	0.374	0.469	1.454
College Degree	-1.289	1.59	0.275	0.068	0.412	1.071	0.016	0.682	1.016
Marital Status (ref.=single)									
Married	-0.977	1.131	0.377	-0.520	0.372	0.594	0.157	0.575	1.170
Divorced	1.813	1.075	6.127^	0.127	0.277	1.136	0.386	0.447	1.472
Discharge Status (ref.=unsuccessful)	0.601	1.331	0.377	0.338	0.235	1.402	0.392	0.344	1.48
Days in Program	1.813	1.075	6.127^	-0.004	0.002	0.996**	0.001	0.004	1.001
Breadth	0.030	0.327	1.030	0.072	0.133	1.075	-0.518	0.295	0.595^
Need	-0.066	0.977	0.936	0.073	0.235	1.076	-0.21	0.48	0.811
Breadth X Need	0.731	0.734	2.078	-0.212	0.165	0.809	0.354	0.325	1.424
Constant	4.505	1.944	90.485*	2.167	0.498	8.732**	2.898	0.827	18.136**
-2 Log Likelihood		68.475			691.022			287.219	
Nagelkerke R ²		0.392			0.087			0.135	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table E6

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Employment/Education

	Low Risk (n=66)			Moderate Risk (n=542)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.040	0.037	0.960	-0.042	0.012	0.959**
Gender (ref.=male)	-0.564	0.675	0.569	-0.158	0.208	0.854
Race (ref.=white)						
Native American	-20.227	28135.39	0.000	0.258	0.258	1.294
Other	0.314	0.868	1.369	0.002	0.282	1.002
Education (ref=less than H.S.)						
H.S. Diploma/GED	-1.949	1.344	0.142	0.037	0.280	0.964
Some College	-1.357	1.467	0.257	-0.139	0.321	0.870
College Degree	-1.283	1.557	0.277	0.055	0.414	1.057
Marital Status (ref.=single)						
Married	-0.862	1.131	0.422	-0.486	0.371	0.615
Divorced	2.173	1.250	8.785^	0.136	0.279	1.145
Discharge Status (ref.=unsuccessful)	0.508	1.337	1.662	0.381	0.236	1.464
Days in Program	-0.019	0.008	0.981*	-0.005	0.002	0.995**
Breadth	0.076	0.198	1.078	-0.028	0.111	0.973
Need	1.381	1.443	3.977	-1.086	0.496	0.337*
Breadth X Need	-0.593	0.447	0.553	0.130	0.124	1.138
Constant	4.403	2.018	81.677*	2.770	0.642	15.965**
-2 Log Likelihood		68.323			683.759	
Nagelkerke R ²		0.394			0.104	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table E7*Logistic Regression Examining the Interaction Effects Between Breadth and Need for Financial*

	Low Risk (n=66)			Moderate Risk (n=542)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.046	0.039	0.955	-0.042	0.012	0.959**
Gender (ref.=male)	-0.625	0.665	0.535	-0.106	0.200	0.899
Race (ref.=white)						
Native American	-20.059	27366.55	0.000	0.249	0.256	1.283
Other	-0.092	0.796	0.912	-0.061	0.281	0.941
Education (ref.=less than H.S.)						
H.S. Diploma/GED	-1.786	1.335	0.168	-0.088	0.277	0.916
Some College	-1.088	1.412	0.337	-0.173	0.321	0.841
College Degree	-1.065	1.565	0.345	0.056	0.411	1.058
Marital Status (ref.=single)						
Married	-0.987	1.188	0.373	-0.501	0.370	0.606
Divorced	1.875	1.133	6.519^	0.133	0.277	1.143
Discharge Status (ref.=unsuccessful)	0.311	1.328	1.365	0.341	0.234	1.406
Days in Program	-0.020	0.008	0.980**	-0.004	0.002	0.996**
Breadth	0.156	0.341	1.169	-0.05	0.160	0.951
Need	0.325	1.54	1.384	0.072	0.663	1.075
Breadth X Need	-0.243	0.389	0.784	0.022	0.168	1.022
Constant	4.509	2.113	90.867*	2.177	0.810	8.820**
-2 Log Likelihood		69.717			693.119	
Nagelkerke R ²		0.374			0.083	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01

Table E8

Logistic Regression Examining the Interaction Effects Between Breadth and Need for Accommodations

	Low Risk (n=66)			Moderate Risk (n=542)			High Risk (n=251)		
	B	S.E.	Exp (B)	B	S.E.	Exp (B)	B	S.E.	Exp (B)
Age	-0.055	0.038	0.946	-0.042	0.012	0.959**	-0.063	0.019	0.939**
Gender (ref.=male)	-0.800	0.668	0.449	-0.092	0.202	0.912	-0.741	0.317	0.477*
Race (ref.=white)									
Native American	-19.905	26751.34	0.00	0.264	0.257	1.302	0.586	0.355	1.797^
Other	0.05	0.808	1.051	-0.076	0.280	0.926	0.113	0.425	1.119
Education (ref.=less than H.S.)									
H.S. Diploma/GED	-1.474	1.431	0.229	-0.098	0.277	0.907	0.131	0.381	1.140
Some College	-0.586	1.583	0.556	-0.161	0.321	0.852	0.347	0.475	1.415
College Degree	-1.004	1.704	0.366	0.041	0.411	1.042	0.045	0.685	1.046
Marital Status (ref.=single)									
Married	-1.179	1.173	0.308	-0.536	0.371	0.585	-0.007	0.556	0.993
Divorced	1.504	1.062	4.501	0.151	0.279	1.163	0.409	0.451	1.505
Discharge Status (ref.=unsuccessful)	0.502	1.361	1.651	0.312	0.235	1.366	0.384	0.344	1.469
Days in Program	-0.017	0.007	0.983*	-0.004	0.002	0.996*	0.00	0.004	1.000
Breadth	-0.126	0.508	0.882	-0.053	0.094	0.948	-0.059	0.314	0.943
Need	-0.422	1.280	0.656	0.099	0.293	1.104	-0.356	0.772	0.700
Breadth X Need	-0.221	0.632	0.802	-0.076	0.144	0.927	0.256	0.344	1.292
Constant	5.242	2.410	189.008*	2.259	0.508	9.577**	2.775	1.044	16.044**
-2 Log Likelihood		68.876			691.996			289.834	
Nagelkerke R ²		0.386			0.085			0.122	

Note: ^ is sig at .1, * is sig at .05, ** is sig at .01