Self-reported and LS/CMI measured risk factors:

Relation to RNR adherence and criminal recidivism

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Abstract

Self-reported and LS/CMI-measured Risk Factors: Relation to RNR Adherence and Criminal Recidivism
Stephanie Brooks Holliday

Our criminal justice system has struggled to identify models that effectively reduce the risk of recidivism among offenders. Increasingly, the role of risk/need assessments in offender rehabilitation has been described, and the results of these assessments are frequently used for intervention planning or classification decision-making. As such, this study had two aims. First, this study aimed to examine the effectiveness of the risk-need-responsivity model in reducing recidivism among a sample of N=71 male offenders at a reentry facility. A measure was developed to assess adherence to the RNR model by identifying the match between the risk level and criminogenic needs identified by the Level of Service/Case Management Inventory (LS/CMI), and services received during participation in reentry programming. Rearrest data were available for one year and 16-month follow-up periods. Analyses revealed that there was no significant relationship between level of RNR adherence and rearrest. This relationship remained non-significant when controlling for overall risk level.

Second, this study explored the relationship between assessment-identified and self-identified risk factors, with the aim of determining whether level of insight into one’s own risk factors is associated with recidivism. A subsample of 65 participants was included in analyses. Results revealed that the level of concordance between LS/CMI-identified and self-identified risk factors was not significantly associated with recidivism. Although risk level was tested as a moderator of this relationship, no significant
interaction effect was detected. The implications that these results have for intervention planning are discussed.
**Introduction**

Public safety is an important goal in our criminal justice system. The protection of the public and the prevention of future crime are at the heart of our current methods of working with offender populations. However, our criminal justice system has also met with several obstacles, including prison overcrowding and lack of resources available for offenders when they are released to the community (Clements et al., 2007; Petersilia, 2005), and the difficulty of balancing retributive goals of sentencing with deterrence and rehabilitation. At the same time, there has been a call within the fields of correctional psychology and forensic psychology to move away from punitive and retributive models of corrections, in part due to questions about their impact on recidivism, and to move more actively toward rehabilitation models (Andrews & Bonta, 2010; Cullen, Jonson, & Nagin, 2011). Researchers have argued that our current system of punishment is not set up to effectively reduce criminal activity, due to factors such as delays between a criminal act and sentencing and inconsistent application of punishment (Andrews & Bonta, 2010). There is also increasing evidence that rehabilitation programs have the potential to be effective in reducing future criminal activity, potentially without increased cost, and this makes offender rehabilitation an important target for more rigorous research (Romani, Morgan, Gross, & McDonald, 2011; Wormith et al., 2007).

Although the rate of growth of the prison population has slowed, a substantial number of individuals are incarcerated under federal, state, or local jurisdiction. As of 2009, approximately 208,000 offenders were incarcerated in federal facilities, and another 1.4 million were incarcerated in state facilities (West, Sabol, & Greenman, 2010). Though the state prison and local jail populations experienced a slight decline from 2008 to 2009 (0.2% and 2.3%, respectively), these numbers remain striking. The populations of other types of facilities
continued to rise from 2008 to 2009, with an increase of 3.5% in the number of inmates in federal prisons, and a 1.4% increase in the number of individuals under the custody of federal community corrections centers. Release rates remain high as well: in 2009, approximately 680,000 individuals were released from state prisons, including 504,000 to some form of conditional release (Glaze, 2010; West et al., 2010). Also striking is the high rate of recidivism among individuals on who have been released from secure facilities. For instance, an estimated 14% of individuals on parole returned to incarceration in 2009 (Glaze & Bonczar, 2010). Another recent study examined the recidivism data from 41 states, and found that the mean three year recidivism rate was 43.3% (Pew Center on the States, 2011).

At the same time, the amount of funding spent on the criminal justice system continues to increase (Romani et al., 2011). A study by the Pew Charitable Trusts Center on the States (2011) examined the potential cost savings of a reduction in the recidivism rate, and found that a reduction of 10% in the ten states with the highest potential for cost savings would save a combined $472.5 million dollars.

These figures suggest that there is much to be gained with respect to public safety and resources if effective mechanisms of reducing recidivism were employed. However, the high rates of recidivism also raise questions as to how well offenders are prepared to succeed upon release. Although the search for evidence-based practices that prepare offenders for release and effectively reduce future offending behavior has received greater attention in recent years, identifying these practices has been difficult. Studies of correctional interventions often suffer from methodological problems, and even promising results are often inconsistent across studies. This underscores the importance of developing models of effective correctional programs that may be adapted for use in many settings and many populations. One such theory, which has
grown in prominence over the years, is the risk-need-responsivity (RNR) model (Andrews & Bonta, 1998).

**Risk-Need-Responsivity Model**

The RNR model was developed by Andrews and Bonta (1998) as a framework for effective correctional intervention. This model states that programs that attend to the principles of offender risk, need, and responsivity, which Andrews and Bonta defined and described, are likely to be most effective in reducing the risk of recidivism. Each component of this theory will be described in greater detail.

**Risk.** Andrews and Bonta (2006) defined risk factors as “characteristics of people and their circumstances that are associated with an increased chance of future criminal activity” (p. 47). One example of such risk factors is an individual’s history of antisocial behavior. The RNR model states that more effective correctional programs match the level of intervention an offender receives to that offender’s risk level. More specifically, individuals with a higher risk of recidivism benefit from high levels of contact and more intensive intervention; moderate risk offenders benefit from moderate contact; and low-risk offenders require minimal intervention (Dowden & Andrews, 1999). Service intensity may include both duration of services provided, as well as number of services provided (Vieira, Skilling, & Peterson-Badali, 2009). There has been meta-analytic support for the effectiveness of matching intervention intensity to risk level among samples of female offenders and younger offenders, and the risk principle has received increasing attention in the empirical literature (Andrews & Dowden, 2006; Bourgon & Armstrong, 2005). To determine risk level, a validated risk assessment tool such as the Level of Service/Case Management Inventory (LS/CMI) (Andrews, Bonta, & Wormith, 2004) may be
administered. In addition to a numerical risk score, these instruments often provide a categorical determination of risk (e.g., very low, low, medium, high, very high).

The principle of greater intervention intensity for high-risk individuals appears theoretically sound, but there are a variety of reasons why it may not occur in practice. For instance, improvements among low-risk offenders may be more apparent than improvements by individuals who are high-risk, and staff may inadvertently focus their efforts on these lower risk offenders. However, there is some evidence that providing low-risk offenders with more intensive intervention may actually be iatrogenic (Bonta, Wallace-Capretta, & Rooney, 2000; Lowenkamp & Latessa, 2004). Researchers suggest that this may be due to the interruption of prosocial or protective aspects of a low-risk individual’s life, such as employment (Lowenkamp & Latessa, 2004). However, not all research has provided evidence consistent with the risk principle (see, e.g., Dowden & Andrews, 2000), so it is important to examine the influence of the risk principle in further depth.

**Need.** Criminogenic needs have also been called dynamic risk factors, as they have the potential to change over time and in response to planned intervention. Examples include antisocial attitudes, education and employment, and substance use issues (Andrews & Bonta, 2006). In addition, improvements in these areas among offenders have been associated with lower rates of recidivism (Dowden & Andrews, 2000). Criminogenic needs have been contrasted with non-criminogenic needs, such as self-esteem. Although important on a personal level, improvements in non-criminogenic needs are not associated with decreased offending risk (Dowden & Andrews, 2000). According to the need principle, effective correctional programs should target criminogenic needs, but not non-criminogenic needs (Dowden & Andrews, 1999). It is useful to note that although these criminogenic and non-criminogenic needs have been
empirically established, there may be additional needs that have not yet been identified because they have not been empirically examined or because there are currently insufficient data.

Criminogenic needs may be identified through a structured clinical interview or an assessment tool, such as the LS/CMI.

**Responsivity.** Responsivity refers to the delivery of services in a manner that is in accord with an individual’s learning style and general characteristics. There are two types of responsivity: specific and general (Andrews & Bonta, 2006). Specific responsivity relates to individual characteristics of offenders that should be considered in the delivery of interventions (Dowden & Andrews, 2000), or that should be addressed to more effectively deliver services. Examples of special responsivity considerations include mental disorders and gender-specific issues (Andrews, et al., 2004). Because it is often difficult to address specific responsivity concerns within large treatment programs, the principle of general responsivity dictates that programs that follow a cognitive-behavioral or social-learning orientation are most effective (Andrews & Bonta, 2006). To assess specific responsivity considerations, the LS/CMI may be utilized; it has items on motivation, interpersonal anxiety, cultural issues, ethnicity issues, and mental issues, among others (Andrews, et al., 2004).

**Meta-analytic support.** A series of meta-analyses tested the use of the RNR model for various populations, including general and youth offenders, violent offenders, females, and sexual offenders. Each of these meta-analyses examined the implementation of the model from a programmatic level.

The first meta-analysis was conducted by Andrews and colleagues (1990), and included seventy studies of adult and juvenile correctional programs. In addition to coding the setting, year of publication, quality of research design, and use of a behavioral intervention, the
researchers used the definitions of the risk, need, and responsivity principles to classify the type of treatment a program employed. There were four possible treatment categories: (1) criminal sanctions; (2) inappropriate correctional service, which includes programs that conflict with the RNR principles; (3) appropriate correctional service, which includes programs that follow each of the relevant principles; and (4) unspecified correctional service, which included programs that could not be easily classified as appropriate or inappropriate. They found that type of treatment was a strong predictor of criminal justice outcomes, with appropriate correctional service resulting in the lowest recidivism rates (effect size [phi coefficient] = .29 and .34 for adults and juveniles, respectively). The only other significant predictor of positive treatment effects was year of publication. Secondary analyses demonstrated that the mean phi coefficient for appropriate correctional service was significantly greater than each of the other types of services. Unspecified correctional service was also superior to both criminal sanctions and inappropriate correctional service. This meta-analysis provided initial support for the importance of the risk, need, and responsivity principles.

In the subsequent meta-analyses, the method of coding programs was described more thoroughly. With respect to the risk principle, studies were considered to involve high-risk offenders if the majority of offenders in a program had formally entered the criminal justice system, and had a criminal history (Dowden & Andrews, 2000). The need principle was assessed by determining which criminogenic needs were targeted in some way by a particular program’s activities, identifying the non-criminogenic needs also targeted, and calculating the difference between these two numbers. Finally, the researchers focused on general responsivity, determining whether programs had a social-learning or cognitive-behavioral orientation,
including role-playing and problem solving (Dowden & Andrews, 2000). Based on the number of principles that were met by a program, each program was assigned a score between 0 and 3.

Dowden and Andrews (2000) found that the RNR model appears effective for violent offenders. The mean effect size (measured with the phi coefficient) of programs adhering to the need (effect size = .20) and responsivity (effect size = .19) principles was significantly higher than the mean effect size for programs not adhering to those principles. The presence of human service elements was significantly associated with recidivism as well. However, they found that adherence to the risk principle was not associated with a significantly higher effect size than non-adherence. The authors noted that this is consistent with prior findings on the risk principle, which have been mixed, but indicated that their use of an “aggregate” coding technique for risk may have played a role. Most studies included in the meta-analysis did not distinguish between high- and low-risk offenders within their samples (described as the “within-samples approach”), and the investigators had to decide whether a program generally targeted high versus low-risk offenders. Dowden and Andrews suggested that this less sensitive method of coding risk may have reduced the sensitivity for detecting a significant effect for the risk principle. Finally, the researchers found that that implementation of more principles (risk, need, responsivity, and human service) was associated with increasing effect sizes. Those programs that implemented all four principles had a mean effect size (phi coefficient) of .20.

Dowden and Andrews (1999) also conducted a review of RNR for female offenders. They included 45 effect sizes from 26 different studies; 16 studies (and 24 effect sizes) were from studies of all-female programs. The researchers examined the effect sizes (phi coefficients) for the entire sample of programs included, as well as for the exclusively female programs. They found significantly higher effect sizes for programs that targeted higher risk offenders; this held
true for predominantly female programs and solely female programs (effect sizes were .19 and .24, respectively). Programs that targeted more criminogenic needs than non-criminogenic needs had significantly lower recidivism rates among the predominantly female programs (effect size = .26 for programs adhering to the need principle); although the difference was not significant for solely female programs, the effect size for programs adhering to the need principle was moderate (.23). Similarly, programs following the responsivity principle had significantly lower recidivism for the predominantly female programs (effect size = .27 for programs adhering to the responsivity principle), with a non-significant but moderate effect size for the solely female programs (effect size = .25 for programs adhering to the responsivity principle). It is noteworthy that the number of solely female programs was much lower than the number of predominantly female programs with respect to need and responsivity. Accordingly, it is possible that these comparisons were underpowered, and that the sample of programs was too small to find significance.

In addition, Andrews and Dowden (2006) conducted a meta-analyses focused specifically on the risk principle. A previous study found that less than 10% of studies of correctional programs distinguished between high and low-risk individuals within their sample (Andrews, Dowden, & Gendreau, 2003). This review included 230 studies and 374 effect sizes. The researchers were able to use the within-sample approach to risk classification for 44 of the studies. For the remainder, the aggregate approach described above was employed. The need and responsivity variables were coded and scored in the same manner as in the prior meta-analyses. The results demonstrated that programs targeting high-risk populations were significantly more effective in reducing criminal justice outcomes than programs targeting low-risk offenders. Furthermore, although programs targeting high risk offenders yielded higher
effect sizes than programs targeting low risk offenders whether the aggregate or within-study approach to coding risk was used, this difference was more substantial for studies using the within-study approach. This suggests that in this study and the previous meta-analyses, better support for the risk principle might have been observed if more studies had used a within-samples approach to describing risk. This study also examined each criminogenic and non-criminogenic need, and found that programs meeting these criminogenic needs (with the exception of substance use) demonstrated a significant relationship between risk level and effectiveness. However, those programs that targeted non-criminogenic needs demonstrated no significant relationship between risk and program effectiveness. There was also a significant interaction between gender (i.e., predominantly female programs) and risk, and an interaction between age and risk that approached significance, such that the risk principle was particularly strong among female offenders, and weak among adult offenders. These findings support the importance of the risk principle in maximizing program effectiveness, both alone and in conjunction with the need and responsivity principles, and also demonstrate the need to more specifically examine the risk principle within correctional programs.

Finally, Hanson and colleagues (2009) adopted the methodology of the previous meta-analyses to examine the risk-need-responsivity model among sexual offenders. Using a sample of 23 programs, they found that treatment programs were increasingly effective as more principles of RNR were followed. In addition, they found that programs targeting criminogenic needs and following the principle of general responsivity resulted in significantly reduced sexual recidivism rates. There was not a significant effect for the risk principle, though there was a non-significant trend for programs targeting high-risk offenders to show greater effect sizes. For the outcome of sexual and violent recidivism, adherence to the RNR principles did not have a
significant effect, though adherence to more principles was associated with a non-significant reduction in recidivism. The same applied in studies that examined general recidivism. It is interesting to note that more recent treatment programs were more effective, although studies that were more methodologically sound had weaker treatment effects. Although this study provides support for the RNR model in the reduction of sexual recidivism among sexual offenders, therefore, it also raises questions. For instance, there was not a significant effect of the risk principle in reducing recidivism. Was this because the study relied on the aggregate risk coding technique, or does it indicate something more substantive regarding the risk principle? Similarly, was there no significant effect of the RNR model on violent or general recidivism due to a small number of studies with those outcomes ($n = 10$ and $n = 13$, respectively), or due to something we do not yet understand about the RNR model? Finally, this study raises the issue of the weak methodology that is sometimes used in studies of correctional interventions. There are certain constraints concomitant with studying correctional interventions, including the inability to randomly assign participants to condition, difficulty identifying comparison groups, and attrition. This study underscores the possibility that studies which are less methodologically rigorous may actually be inflating treatment effects—which should be considered when interpreting the results of this or any meta-analysis.

In general, these meta-analyses support the effectiveness of the risk-need-responsivity framework. Although not all components (i.e., risk, need, and responsivity) were significantly associated with the desired outcomes, each study demonstrated the additive nature of these components; that is, the more elements that were present of the three, the more effective the interventions. These meta-analyses also indicated that the RNR model is associated with an effect size that approaches moderate, which is a useful baseline for this study, as these
inconsistencies strongly suggest the need for additional empirical research on the risk, need, and responsibility principles.

**Other empirical support.** In addition to these meta-analytic reviews of the RNR model, researchers have considered the effectiveness of the RNR model in other ways. For instance, one study examined the relationship between adherence to the risk principle and reduction of recidivism (Lowenkamp, Latessa, & Holsinger, 2006). The risk principle was examined in three ways: whether a program served primarily high- or low-risk offenders; the length of stay in the program; and the number of services received by offenders. The researchers used data from two previous studies. The first had a total of 3,782 offenders placed in halfway houses or community-based correctional facilities in Ohio (a total of 53 programs), and the second included 3,056 offenders from 44 programs. Study participants were classified as high- or low-risk based on the results of a risk assessment instrument. If more than two-thirds of the offenders in a program were classified as high-risk, the program was awarded a point for consistency with the risk principle. Each offender’s length of stay was calculated as well; if high-risk offenders in a program had a longer mean length of stay than low-risk offenders in that program, it was considered consistent. Finally, the total number of services/groups were calculated for the high and low-risk offenders for each group, and consistency with the risk principle was defined as having high-risk offenders participate in at least .5 more services, on average. The investigators also coded adherence to the general responsivity factor (i.e., followed a cognitive-behavioral or behavioral orientation), which was followed in 34 of the 97 programs in the study. As a preliminary analysis, the study demonstrated that residential programs were significantly more effective than non-residential programs. Also, a regression model was created to predict program effectiveness from program characteristics, which revealed that programs serving more
than two-thirds high-risk offenders were significantly associated with better program outcomes. Programs whose high-risk offenders received more intensive services with respect to length of stay and number of programs were also significantly more effective in reducing recidivism. The researchers found that residential, cognitive-behaviorally oriented programs that implemented each of these aspects of the risk principle were associated with an 18% reduction in recidivism rate over the comparison group. It is interesting to note that non-residential programs became associated with reductions in recidivism when the risk principles were followed. More specifically, for non-residential, cognitive-behaviorally oriented programs following each of these three elements, there was a 9% reduction in recidivism compared to the comparison group.

This study helped to provide support for the risk principle, and also provided a more sensitive way to operationalize the risk principle than the meta-analyses.

Bourgon and Armstrong (2005) attempted to implement the risk-need-responsivity model in a medium security correctional facility in Ontario, Canada. To better match risk level and service intensity, the facility had three programs of different lengths: a 5-week program, a 10-week program, and a 15-week program. Each program included similar types of activities, including cognitive-behavioral groups and skills training, though the 15-week program had more flexibility to implement additional interventions due to the extended length. Upon admission to the facility, offenders were screened using the Level of Service Inventory – Ontario Revision (LSI-OR; Andrews, Bonta, & Wormith, 1995). The facility’s assessment unit also administered a variety of instruments, including scales measuring antisocial attitudes, social desirability, motivation, and depression. Using these results, the 482 participants were assigned to one of the three treatment programs. This treatment assignment could not be done on a basis only upon the assessment, however, as it was influenced by the length of each offender’s sentence. An
untreated comparison group consisted of 138 offenders who were not admitted into a treatment program, typically because they had little time remaining on their sentence. Analyses revealed that the treated participants had a significantly lower recidivism rate than the untreated group (effect size $[r] = .10$). A logistic regression demonstrated that LSI-OR scores, number of criminogenic needs, and treatment were all significant predictors of recidivism. To examine the effectiveness of matching risk level to service intensity, the researchers compared offenders who were recommended for the 10-week program and completed either the 10-week or 15-week program to untreated offenders with similar LSI-OR scores and criminogenic needs. Participants in the treatment program had significantly lower recidivism rates. In addition, the researchers considered all offenders who had been recommended to the 15-week treatment program, comparing those who actually completed the 15-week program with those who ended up in the 5-week program. Results indicated that these higher risk offenders who only completed the 5-week program had a significantly higher recidivism rate than those who completed the “appropriate” length program. Bourgon and Armstrong also found potential support for the iatrogenic effects of more intensive treatment for lower risk offenders: offenders recommended for the 5-week program who completed the 5-week program had slightly lower recidivism rates (12%) than offenders recommended for the 5-week program who actually completed the 10-week program (16.7%). Therefore, this study provides support for the “dosage” effect, or placing individuals into programs of varying durations based on their level of risk. Additionally, it is one of few studies that considers the prospective application of the RNR model by using assessment results obtained from a risk-needs tool to assign individuals to intensity and length of interventions.
Another study examined the risk factor among a group of offenders receiving community-based treatment (Bonta, Wallace-Capretta, & Rooney, 2000), including treatment participants who were released under electronic monitoring (EM), and inmates attending the treatment program without EM. The comparison group comprised offenders from two prisons in regions where release to community-based treatment was not available. The comparison group was matched to the treatment groups on risk level, type of crime, and time to release. All participants were administered a self-report version of the LSI-R, and the outcome variable was recidivism at one-year follow-up. Initial analyses demonstrated that there were not significant differences between the two groups on LSI-R scores, nor on recidivism rates. The offenders in both the treatment and comparison groups were then divided into high- or low-risk categories. A two-way ANOVA revealed a significant interaction between treatment and risk level, such that high-risk offenders in treatment had a lower recidivism rate and low-risk offenders who received treatment had a higher recidivism rate (relative to both the high-risk offenders in treatment and low-risk offenders who were not in treatment). This provides support for the utility of the risk level in determining the appropriate treatment plan for offenders – that is, intensive treatment programs are best for high-risk offenders, whereas they may be detrimental to low-risk offenders.

Another study tested the RNR model for a substance abusing population (Taxman & Thanner, 2006). Drug offenders at two sites were randomly assigned to either a seamless system treatment program, or to traditional referral for services in the community. The seamless system model is an intensive program that provides drug treatment, routine drug testing, and use of graduated sanctions for at least six months. It is important to note that there were some discrepancies between the two sites in terms of outcomes and treatment provision (for instance,
treatment at Site 2 was provided off-site, as opposed to on-site). However, at Site 2, high-risk treatment offenders were significantly less likely to test positive for drugs or alcohol. The opposite pattern was observed for moderate-risk offenders, as treatment offenders had significantly higher rates of positive urine samples. This supports the tenet that higher-risk offenders perform better with more intensive services, and that lower-risk offenders may be negatively affected by those same intensive services. With respect to rearrest and violation of parole at one-year follow-up, high-risk offenders in the treatment group at Site 1 had significantly fewer arrests than those in the control group, with an effect size of .37. They also had significantly more days to first arrest. There was not a significantly different arrest rate between moderate risk offenders in treatment and those in the control group, though the effect size demonstrated a moderately greater rate of arrest for treated offenders \(d = -.25\). However, though also non-significant, the opposite trend was seen at Site 2: high-risk offenders in the treatment group had higher recidivism rates than high-risk control group participants \(d = -.18\).

This study illustrates a number of important points. First, it demonstrates the importance of using effect sizes in addition to significance testing, particularly when sample size is small. Many of the trends the researchers reported were non-significant, but had effect sizes approaching the moderate range. Second, it suggests that although there is evidence supporting the RNR model, there are other factors (such as site-specific characteristics) that may influence its effectiveness.

Polaschek (2011) studied the effectiveness of an intensive prison-based rehabilitation program for high-risk violent offenders in reducing violent and non-violent reconviction, and whether high-risk offenders in the program had greater benefits than moderate-risk participants. The sample of 112 treatment participants was matched to a sample of prisoners selected from a
database of violent offenders on ethnicity, risk score, release date, and age at release. All participants were administered the Roc*RoI (Bakker, Riley, & O’Malley, 1999), an actuarial risk assessment tool used by the New Zealand Department of Corrections to estimate risk of reimprisonment over a five year period. Effect size was measured using the phi coefficient. The study found that high-risk treatment completers had a significantly reduced risk of any recidivism compared to the comparison group (effect size = .19), and a non-significant decrease in violent recidivism (effect size = .11). Similarly, treatment completers had a longer time to reconviction than the comparison group, though the effect was not significant. For the medium-risk treatment completers, there was a non-significant increased risk of any recidivism (effect size = -.11) and non-significant decreased risk of reconviction or reimprisonment for violence (effect size = .15 and .09, respectively) compared to the comparison group. In addition, the outcomes of treatment non-completers were examined. High-risk non-completers differed little from matched controls with respect to reconviction for any crime (effect size = -.06), violent reconviction (effect size = .04), and violent reimprisonment (effect size = 0). There were only five medium risk treatment non-completers, but they were significantly more likely to be reconvicted for any offense (effect size = -.41), reconvicted for a violent offense (effect size = -.60), or reimprisoned for a violent offense (effect size = -.50) than their matched controls. Finally, the researchers conducted intent-to-treat analyses, and found that fewer high-risk treatment participants were reconvicted for any offense (effect size = .11) or a violent offense (effect size = .08) compared to the untreated comparison group. In contrast, medium-risk treatment participants were more likely to be reconvicted for any offense (effect size = -.17), and equally likely to be reconvicted for a violent offense compared to the comparison group (effect size = 0). This study provides some support for the theory that treatment programs may result in
better outcomes for high-risk offenders. However, the overall effects of the program were small, though the authors noted that it offered services to target multiple criminogenic needs and used a cognitive-behavioral approach to treatment.

These studies provide a strong initial foundation for the risk-need-responsivity model. However, each study also highlights the need for future research into the implementation of these principles. For instance, the risk principle has received inconsistent support across the meta-analytic and empirical studies, and it is unclear whether this is due to methodological or theoretical weaknesses. In addition, most of these studies examine RNR from a programmatic point of view, by determining whether a program \textit{generally} served high- versus low-risk offenders, or if services were available to target criminogenic needs. Although the risk principle has received more attention in recent years, relatively little work has been done to study the benefits of targeting an individual offender’s specific criminogenic needs (Brooks-Holliday et al., 2011; Heilbrun et al., 2011; Schlager & Pacheco, 2011).

Recently, though, there has been a burgeoning appreciation of the importance of matching offenders into services that target their own individual needs. In their report on the current state of recidivism, the Pew Center on the States (2011) recommended that to reduce recidivism, pre-release planning should include “a thorough screening and assessment at intake to identify potentially urgent needs,” and “The assessment should guide a case management plan during incarceration that uses evidence-based programming tailored to each offender’s criminal risk factors” (p. 29).

In addition, initial steps have been taken to empirically examine the practice of using assessment results to identify needs and assigning interventions accordingly. Vieira and colleagues (2009) evaluated the matching of services to criminogenic needs among a sample of
122 juvenile offenders who were referred for a court-ordered assessment at a mental health agency in Ontario, Canada. Following the administration of the YLS/CMI, other psychological testing, and collateral interviews, court clinicians generated treatment recommendations, including the criminogenic needs and specific responsivity factors that they recommended to be targeted during probation. In addition to obtaining these clinician recommendations for each youth participant, the researchers accessed probation files and court records to determine what programs were completed by these juveniles. The researchers were able to obtain recidivism data for the study participants. Based on the YLS/CMI and other records, a “matching variable” was calculated to reflect the match between clinician recommendations and services received through probation. This was done by dividing the total number of matched needs by the total number of present needs, with a mean match score of 35% ($SD = 35\%$). A similar procedure was used to determine the match between clinician-identified responsivity factors and services that were provided to address those responsivity factors. The mean percentage match for responsivity was 26% ($SD = 17\%$). The researchers used a cut-off date to calculate recidivism, and the follow-up periods ranged from 13.92 to 65.40 months, though time spent in custody was removed from the follow-up period. The mean follow-up period was 32.28 months ($SD = 14.40$). Recidivism was defined as conviction for one or more concurrent offense, and the participants had between 0 and 7 new convictions. A significant negative correlation was found between the needs match and number of new convictions ($r = -.48, p < .001$) and the responsivity match and new convictions ($r = -.21, p = .02$), such that individuals who had a greater proportion of their need and responsivity factors targeted had a significantly lower number of recidivism events. In addition, the correlation between recidivism and any needs met, regardless of whether that need was present for a given participant, was calculated. This relationship was significant ($r$
= -.23, \( p < .05 \)), but not as strong as the relationship with the match variable, which suggests the importance of targeting an individual’s specific needs rather than broadly targeting any criminogenic needs. A survival analysis was also conducted to examine the relationship between needs and responsivity match and time to reconviction. The researchers categorized participants into low, moderate, and high match groups, and found that the low match group had a greater risk of early reconviction than the other two groups, followed by the moderate match group. They also found that the low match group was significantly more likely to recidivate than both the moderate and high match groups (which did not differ significantly). Criminogenic need match scores significantly predicted recidivism when controlling for risk level, though responsivity match scores did not. However, this is consistent with the RNR model, which states that reductions in criminogenic needs have the potential to reduce risk of recidivism, whereas responsivity factors should be used to determine the manner in which interventions are delivered. This study is also important because it provides preliminary yet strong evidence for the importance of matching an individual into interventions based on their specific criminogenic needs as identified by a risk-need assessment tool. Though the researchers were unable to examine the risk principle (combining intervention duration and intensity) and used a sample of juvenile offenders, this study provides an important platform for future investigations of matching individual needs among other populations. It also sets the stage for future studies to examine the role of adherence to the risk factor in reducing recidivism.

A second study following similar methodology examined the effect of gender on the relationship between treatment match and recidivism (Vitopolous, Peterson-Badali, & Skilling, 2012). A sample of 76 juveniles referred for court-ordered assessment was recruited for this study. Following the administration of the YLS/CMI, clinicians made recommendations as to
which domains should be targeted for intervention, which were then provided to the youths’ probation officers. The researchers used the juvenile probation files to determine which services were provided to the participants, and defined a “match” as receipt of services consistent with the needs identified by the assessing clinicians. A logistic regression was conducted to determine whether there was a significant interaction between gender and treatment match in the prediction of recidivism (controlling for YLS/CMI criminal history scores). Recidivism was defined as reconviction, and the average follow-up period was 807 days. The results demonstrated that a stronger match between clinician recommendations and services received was associated with a reduction in recidivism among males, but not among females.

Another study explored the relationship between risk/needs assessment and case management among youth on probation (Luong & Wormith, 2011). Scores from the Level of Service Inventory – Saskatchewan Youth Edition (LSI-SK; Andrews, Bonta, & Wormith, 2001) were available for the sample of 192 youth offenders. The researchers used these scores to identify the needs that were present for each participant, defined as the domains rated as medium risk or higher. Official records of the Saskatchewan Department of Corrections were available, including information regarding the services that were identified for each juvenile by the court or the respective youth worker. Using this information, the researchers determined whether there was a match between the needs that were present and the interventions that were identified. When there was a mismatch between needs and identified services, the mismatch was classified as “overidentification” (i.e., a service provided when a need was not present) or “underidentification” (i.e., failure to provide a service when a need was present). Recidivism was defined as reconviction, and the average follow-up period was 673.38 days. Results demonstrated that in general, the juveniles were being referred for appropriate services when
necessary. However, there were certain domains in which youth workers tended to overidentify services: education/employment, companions, and substance abuse. To determine whether there was a relationship between treatment match and recidivism, a series of logistic regression analyses were conducted. After controlling for follow-up length, ethnicity, and LSI-SK scores, there was no significant relationship between treatment match and recidivism. Secondary analyses examined the role of overidentification and underidentification more specifically; however, after controlling for follow-up length, ethnicity, and LSI-SK scores, neither variable was significantly associated with recidivism. Follow-up analyses explored the role of treatment match by risk level. There remained no significant relationships for low- or medium-risk offenders. However, among high-risk juveniles, a stronger treatment match was associated with a reduced risk of recidivism, whereas underidentification of interventions was associated with an increased risk of recidivism. Overidentification of interventions did not impact recidivism.

Other research has recognized the role of risk/needs measures in the implementation of needs-based services (Schlager & Pacheco, 2011). One study examined changes in scores on the Level of Service Inventory – Revised (LSI-R; Andrews & Bonta, 1995), a risk-need assessment that reflects both static risk factors and dynamic needs, such as employment and friends/associates. This study included 179 offenders who participated in one of four community-based corrections programs in New Jersey and had two LSI-R assessments. The mean time between assessments was 152 days ($SD = 82$), and the researchers found significant improvements in seven of the nine dynamic subcategories (only Alcohol/Drug and Emotional/Personal did not achieve significance), as well as a significant improvement in the composite LSI-R score (the value of $r^2$ as calculated from the information provided in the study was .29). This provides two important pieces of information: first, it demonstrates the sensitivity
of risk-needs instruments to changes in criminogenic needs over time; and second, it indicates that improvements in an individual’s criminogenic needs can be made when targeted with planned interventions. However, one weakness of this study is that it did not consider whether an individual’s need was specifically targeted with an intervention. Instead, the researchers noted that case management staff at these facilities used results from the LSI-R and other assessments “to develop a comprehensive individualized treatment and case management plan” (p. 544), which is updated throughout the program. Though this may be the case, the retrospective nature of the study reduces the ability to determine if this type of individualized case management was in fact implemented for all participants.

These studies demonstrate that there is increasing recognition of the potential the RNR model holds for individual treatment planning, although inconsistencies remain. A better understanding of the relationship between risk-needs assessment and case management and its impact on risk reduction is important for two reasons. First, this approach appears to have very significant potential to reduce criminal justice outcomes such as rearrest, reconviction, and reincarceration. Second, it has important implications for facilities with respect to assessment and treatment planning. For instance, it would demonstrate the importance of providing treatment providers with an offender’s assessment results to ensure that the treatment provider is better able to place the offender in services that will be relevant and meaningful.

**Reentry Programs**

Reentry programs are those that “focus on the transition from prison to community” (Seiter & Kadela, 2003). Researchers have described three phases to these programs, which help offenders to prepare for reintegration into the community: the *institutional* phase, *structured reentry* phase, and *community reintegration phase* (Taxman, Young, Byrne, Holsinger, &
The institutional phase begins several months prior to release, while an offender is still incarcerated. During this phase, placement is ideally based on an assessment and classification procedure, and a treatment plan is developed. The structured reentry phase, which begins six months prior to release and ends about one month post-release, focuses on the creation of more specific service plans and development of community connections. The final phase is the community reintegration phase, which begins two months post-release. The focus in this phase is community supervision, and this phase may involve an agency such as probation or parole, though some reentry programs have specific after-care components (e.g., see Haas, Hamilton, & Hanley, 2007; Schram & Morash, 2002). During this phase, the offender transitions to greater independence, assistance is provided to establish necessary community ties, and surveillance may be provided to ensure the offender is following his or her reentry plan.

Reentry services are important because they equip offenders with the resources and skills that they need to succeed in the community, and also help to ensure a continuity of care such that offenders continue to receive necessary services post-release. Reentry programs commonly target areas such as education, vocation and employment, and substance use, to help offenders change past patterns of behavior and help them to avoid situations that put them at increased risk for recidivism (Petersilia, 2004). In addition to the positive impact on offenders, reentry services also have favorable implications for the larger community. This includes reducing the risk of future criminal activity, improving employment rates among former offenders, reducing homelessness, and ensuring that former offenders receive treatment for mental and physical health problems (Petersilia, 2001).

There is some empirical support for the effectiveness of reentry programs. Seiter and Kadela (2003) reviewed 32 studies of reentry programs, grouping them by type of program and
evaluating the rigor of methodology. Methodology was evaluated using the Maryland Scale of Scientific Methods (MSSM; Sherman et al., 1998), which uses criteria related to a study’s internal validity and research design to classify it into one of five levels (with Level 1 being least methodologically rigorous, and Level 5 being most methodologically sound). They then classified programs according to those which “work,” “do not work,” or are “promising.” A program was defined as “working” if there were “at least two Level 3 evaluations with significance tests indicating that the intervention was effective, and the preponderance of the remaining evidence must support that conclusion” (p. 372). To be designated as “not working,” at least two Level 3 studies must have demonstrated a program to be ineffective in reducing criminal activity, with any other studies generally supporting the same results. Finally, programs were identified as “promising” if there was some available evidence supporting their effectiveness in reducing recidivism, but this evidence was limited or of weaker methodological rigor. Among the services that “work” were vocational training and work release programs, drug rehabilitation programs (including therapeutic communities), and halfway houses. Prison prerelease programs were considered promising, though the number and methodological rigor of available studies leaves room for future investigation. Similarly, methodological weaknesses in studies of programs for sexual offenders prevented the authors from making conclusions about their effectiveness. Although educational programs were found to improve academic achievement, no significant effect on recidivism was found. In their investigation of predictors of recidivism among prisoners in Ohio, Makairos and colleagues (2010) found that participation in substance abuse treatment, sex offender treatment, and “other” forms of treatment (such as family counseling or mental health treatment) had lower rates of recidivism, whereas halfway houses, vocational programs, and educational programs did not have a significant effect. These
reviews suggest that some varieties of reentry programs have promise, though there is still room to improve our knowledge of “what works” and why.

Other research has focused on the effectiveness of individual reentry models. One such program is the Serious and Violent Offender Reentry Initiative, a federally supported program that aims to reduce recidivism, improve housing and employment, and optimize health outcomes of offenders through a three-phase program (Bouffard & Bergeron, 2006). A basic comparison of rearrest and parole revocation rates between program participants and the comparison group, who received traditional pre-release services, revealed no significant differences. However, the researchers noted that the SVORI program comprised more serious offenders. Therefore, a survival analysis for recidivism was conducted, controlling for age, gender, race, most serious current charge, whether the offense was methamphetamine-related, LSI-R score at entry to prison, programs completed during incarceration, and any positive drug tests in the community. This analysis indicated that offenders in the program were significantly less likely to be rearrested, but there was no significant difference with respect to revocation of parole. Program participants were also less likely to test positive for drugs, and were referred to a greater number of programs in the community; and though individuals in the comparison group participated in a greater proportion of referred programs, program participants attended an overall greater number of programs post-release. A study of the Preventing Parolee Crime Program (PPCP) in California found that PPCP participants who had access to employment, substance abuse, educational, and housing services had significantly lower levels of reincarceration than non-PPCP parolees (Zhang, Roberts, & Callanan, 2006). Additionally, they found that participants who achieved program goals were more successful in avoiding recidivism than participants who did not achieve these targets, and those with higher levels of program participation had better
outcomes. Another study evaluated the Boston Reentry Initiative (BRI), a collaborative transitional program that connects violent offenders with social and vocational services and provides the guidance of jail-staff caseworkers and faith-based mentors (Braga, Piehl, & Hureau, 2009). The researchers compared program participants to an earlier cohort of inmates matched on age, race, conviction, gang association, and criminal history. They found that participation in BRI was significantly associated with reduced overall arrests and arrests for violent offenses. They also found that program participants had lower overall and violent recidivism rates at one, two, and three years post-release. Although these results provide support for the BRI program, it is notable that recidivism rates were high for both groups. At three years, the overall arrest rates for the program participants and control group were 77.8% and 87.7%, respectively; the rates of violent arrests for program participants and the control group were 27.8% and 39.2%.

In general, these studies provide some support for the effectiveness of reentry programs in reducing criminal justice outcomes, although these effects are not always consistent or strong. These studies do suggest that treatment engagement and completion are important factors in the relationship between program participation and recidivism; however, compliance with reentry programs can be an issue. For instance, of the participants in the Preventing Parolee Crime Program (PPCP), only 40% met at least one treatment goal (Zhang et al., 2006). Although Serious and Violent Offender Reentry Initiative program participants participated in more total programs in the community, they participated in a lower proportion of referred services than individuals in the comparison group (Bouffard & Bergeron, 2006). This raises important questions as to how to increase compliance and engagement in reentry programs, and what program characteristics may result in higher rates of completion.
In addition, there has been an increased appreciation of the role that the risk-need-responsivity model may play in reentry programs. Turner and Petersilia (2011) qualitatively compared RNR-based, ecological, and “certain and swift sanction” models of reentry, and concluded that employing the RNR principles in reentry programs would be effective in aiding the transition of offenders to the community. They recommended that attention be paid to the risk principle when determining intensity of services, and that the need and responsivity principles be considered when identifying specific interventions or treatment targets. This underscores the potential importance of the RNR model as applied to reentry programming, especially as reentry programs become increasingly common.

**Offender Perception of Risks and Needs**

As a result of many years of large scale studies and investigations, researchers have a strong understanding of the factors related to criminal recidivism. The “central 8” risk factors include criminal history, antisocial personality pattern, procriminal attitudes, procriminal associates, family and marital relationships, education and employment, leisure and recreation, and substance abuse (Andrews, Bonta, & Wormith, 2006). However, to date, research has not examined the perceptions of offenders regarding risk factors for offending behavior. This raises two interesting questions: Do offenders have an understanding of general risk and need factors? How well do offenders understand their own risk factors for offending behavior? Though the role of insight/self-awareness has received a great deal of attention in the mental health and substance abuse literature, a literature search reveals that little research has examined this type of awareness among offenders. When the role of awareness does appear in the offender-related literature, literature searches suggest that it is primarily focused on sexual offenders.
The mental health literature regarding insight has focused on potential correlates and outcomes of individuals with impaired insight. For instance, studies have suggested that individuals with low levels of insight into their illness may have poor attitudes toward medication and treatment, poorer ratings of social skills, and greater rates of substance use (Goldberg, Green-Paden, Lehman, & Gold, 2001). Among sexual offenders, there has been some focus on the relationship between insight and reoffending. For instance, a study of treatment gains among sexual offenders indicated that greater empathy and insight into victim issues was significantly associated with reduced recidivism (Beggs & Grace, 2011). Some risk assessment instruments designed for sexual offenders include insight as a clinical scale (Witt & Schneider, 2005). Still, even among these populations, the role of insight has not been well-described, and even less work has been done to examine the role of insight among general offenders. Another issue is the definition of insight. For instance, the sex offender literature has examined insight as it related to empathy and insight into victims’ experiences (Beggs & Grace, 2011; Witt & Schneider, 2005). The serious mental illness literature has used insight into symptoms (e.g., Goldberg et al., 2001), which has been measured using structured symptom inventories such as the Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein, & Opler, 1987). However, neither of these methods provides a potential measure of offenders’ understanding of their own risk and need factors.

Although little is known about the role of offender self-perceived offense risk (SPOR), it does seem that having a better knowledge of general and specific risk and need factors would help to improve an individual’s engagement in a treatment program. The role of treatment engagement and motivation has received increasing attention in the literature regarding offender treatment and intervention programs. For instance, as noted in the reentry literature, participants
who achieve program goals and complete reentry programs have significantly better outcomes than those who do not achieve program goals. There is other evidence that individuals who do not complete treatment programs may have comparable outcomes to individuals who do not participate in treatment programs, if not greater risk for criminal justice outcomes (McMurran & Theodosi, 2007). In their meta-analysis of predictors of treatment attrition, Olver and colleagues (2011) found that higher levels of motivation and treatment engagement were significantly associated with treatment completion. In addition, they found that treatment attrition was significantly related to general, violent, and non-violent recidivism. Importantly, the researchers found that high-risk, high-need offenders were more likely to drop out of treatment, and these offenders may also be more likely to have low levels of motivation and treatment engagement. This suggests that improving these “treatment responsivity indicators” may have an important impact on treatment completion and, as a result, recidivism. It should be noted, though, that treatment engagement may have been defined differentially across studies, and studies included in the meta-analysis may have used different measures of motivation. Similarly, the role of motivation for treatment has been examined in the sexual offender treatment literature, though there seems to be inconsistent evidence regarding the relationship between treatment motivation and risk of recidivism (Hanson & Morton-Bourgon, 2005). In part, this may be due to the multiple methods used to operationalize motivation, ranging from self-report instruments to clinical ratings to single global measures. It may also be due to the multiple definitions of motivation, which include willingness to participate in treatment, motivational ratings, and cognitive distortions such as minimizing or denial (Tierney & McCabe, 2002). Therefore, although this line of research is growing, studies of a strong methodological rigor are needed to
better understand the relationship between treatment engagement, motivation, attrition, and criminal justice outcomes.

Although the role of self-understanding is not known general offenders, it does seem that understanding of general and personal factors that increase the risk of future offending could help to improve an individual’s motivation and engagement in a treatment program. For instance, for an offender to have a foundational understanding of the central 8 risk factors could provide a context for participation in a treatment program, and helping an individual to understand his (or her) own risk factors could help him (or her) better understand the rationale behind the interventions to which he was assigned and their intended purposes. In addition, if an individual better understands the areas that he needs to improve to reduce the risk of future criminal activity and reconviction, he or she may be more motivated to actively participate and complete programs designed to target those areas. As little research has been done to examine this question, an important first step would involve assessing how well individuals understands their own risk factors for future offending and the criminogenic needs that should become treatment targets.

**Current Study**

Although the effectiveness of the full RNR model has been supported among correctional programs, research is needed regarding the individual RNR principles of risk, need, and responsivity, in part due to the inconsistent support across studies. In addition, empirical studies have only begun to examine the role of RNR as implemented on an individual, rather than programmatic, basis. Though the role of the risk principle in matching individuals to treatment of a particular intensity has been the subject of multiple studies, matching individuals into programs based on their specific criminogenic needs has only recently started to receive
attention. In general, our understanding of the effectiveness of RNR (as implemented on an individual offender basis) in reducing recidivism remains limited. The study will examine the relationship between RNR adherence and recidivism to determine whether targeting an individual’s criminogenic needs and matching service intensity to an individual’s risk level is an effective way of providing treatment to prevent future offending behavior.

Describing this relationship has a number of implications for both practice and theory. First, it would contribute to the limited body of research that has started to examine RNR as applied to individual offenders, and help us understand whether this theory is as important for case management and risk reduction as it is for designing treatment programs. Second, if RNR is found to be effective within this reentry context, this research has the potential to provide a theoretical framework that could be applied to all reentry programming. Having an empirically supported model of reentry programming would impact provision of services, provide avenues for future research, and potentially have implications for government funding and policy. With respect to practice, if it is found that greater levels of RNR adherence reduce recidivism, this would have important implications for facilities with respect to assessment administration and treatment planning. Finally, the resources available for correctional programming are limited, and the number of individuals under the supervision of the criminal justice system is substantial. Therefore, maximizing the effectiveness of correctional programs, and being deliberate in providing services to offender populations, will help to ensure that these limited resources are maximally effective. A recent study conducted a cost-benefit analysis of correctional services, with a particular focus on programs that adhere to the principles of RNR (Romani et al., 2011). The researchers found that correctional interventions were not significantly different in daily cost per offender from traditional punishments. However, when comparing total costs (i.e., taking
into account the length of stay), inappropriate services – defined as services that do not adhere to the principles of risk, need, and responsivity – were twice as costly as appropriate services, and three times more costly than traditional punishment. Even more notably, in a comparison of mean cost for a 1% reduction in recidivism, appropriate service (defined as treatment adhering to the RNR principles) was substantially less costly ($2.80) than inappropriate service ($19.67) or traditional punishment ($40.43). This suggests that existing resources may be more effectively allocated to reduce recidivism without increasing the cost of services.

In addition, no work has been done to examine the understanding that offenders have of their own risk and need factors. Accordingly, this study aims to provide an initial investigation of the role that this self-perceived offense risk may play in whether or not an offender commits a future crime. Answering this question may help to identify some basic elements that a treatment program may be able to incorporate to increase its effectiveness. For instance, if understanding one’s own risk and need factors is found to play a significant role in an offender’s success following completion of a treatment program, a curriculum could be designed to teach offenders about risk and need factors and some of the basics of the research that has identified these areas. Then, following administration of an assessment such as the Level of Service/Case Management Inventory (LS/CMI; Andrews, Bonta, & Wormith, 2004), which is designed to identify an offenders deficits within these known risk and need factors, a procedure could be designed to share these results with an offender, explain how treatment will be designed to target these needs, and to give the offender an active role in his own treatment. Adding these types of elements may be a way to help offenders to understand their needs and their treatment, and may increase an offender’s success once back in the community. This is consistent with recommendations cited in a recent concluding chapter (Dvoskin, Skeem, Novaco, & Douglas,

Finally, this study aims to compare the method of measuring adherence to the RNR model developed for the purposes of this research to that method developed by Vieira and colleagues (2009) (i.e., calculating the proportion of needs present that were targeted to overall needs that were present). It is hypothesized that the measure of adherence developed for this study will provide a more nuanced way of determining the extent to which criminogenic needs were targeted by services or interventions. In addition, Vieira and colleagues were not able to measure adherence to the risk principle, and the RNR Treatment Adherence Rating Form designed for this study enables a rating of degree to which offenders’ treatment intensity matches their risk level. Because both methods are experimental, and there is not a current standard method of determining how well an individual’s needs were met, it is important to determine the most effective way to capture this aspect of treatment.

To consider these questions, this study focused on individuals who completed a treatment program at a privately-owned community correctional facility in Trenton, NJ. This facility is designed as a reentry treatment program, and aims to better prepare offenders for community reintegration following release from prison.

This study has three primary hypotheses:

(1) The overall RNR adherence of participants’ treatment, as measured by the RNR Treatment Adherence Rating Form, is negatively associated with one-year recidivism.
(2) The concordance between offender-identified and LS/CMI-identified risk and need factors, as measured by the correlation of responses on the Risk Need Perception Survey with scores on the respective subscales of the LS/CMI, is negatively related to one-year recidivism risk.

(3) The RNR Treatment Adherence Rating Form will yield a more sensitive measure of adherence to the RNR model than the methodology used by Vieira and colleagues (2009), as indicated by a higher effect size in the relationship between each score and recidivism.

Method

Participants

This study utilized the sample of participants recruited for a previous study (Brooks Holliday, 2011). This sample included 71 participants who completed assessments at both time points in the previous study: within two weeks of intake, and within the week prior to transfer or release.

This sample consisted of those residents of the Albert “Bo” Robinson Assessment and Treatment Center (to be described in further detail below) who came from a New Jersey Department of Corrections (DOC) facility, including state prisons and other halfway houses. There are two primary groups of DOC residents that were included in the study: (1) those who were transferred to Bo Robinson directly from a New Jersey state prison, and (2) individuals who were transferred from another halfway house in New Jersey for administrative purposes or after being charged with violating the program rules at the respective halfway house (though in many cases, the charges were dismissed). Though individuals classified as transfers had already spent time at another halfway house, they had not formally been discharged to community supervision.
Residents from the county jail, and those who have violated parole and were subsequently placed at Bo Robinson, were excluded. Excluding these two populations ensured that all study participants have already been sentenced, as a number of residents from the county system are awaiting a court date. It also ensures that participants are coming directly from a residential community release program, rather than from the community (which is the case with many parole violators). In addition, ability to speak and understand English was required of participants.

The participants of this study were recruited from the group of residents who arrived at Bo Robinson between April 5 and June 2, 2011. From the total group of individuals who arrived during this period, residents were randomly selected to be invited to participate using a random number generator (random.org). Of the 148 residents who were invited to participate, 94 consented to be in the study, and 54 declined to participate or did not meet criteria.

Of the 94 study participants, 13 were returned from the facility for violating program rules, and 7 were paroled or transferred to a halfway house before being seen for a follow-up assessment. Two were removed to the program for disciplinary problems and then were returned to the facility, and these individuals were also considered ineligible to complete the study. One participant declined to complete the second assessment point. Accordingly, the total sample of treatment completers who are included in the current study is $N = 71$.

The majority of the study participants were transferred to a halfway house upon completion of the program. However, a small number (three study completers, and one who was paroled before being seen for a second assessment) reached their parole eligibility or maximum sentence date while at the facility, and were released directly to the community. Those who were transferred to a halfway house did so following a prescribed classification process.
Approximately four weeks into each resident’s stay at the facility, the assessment department conducts an interview and testing, including administration of the Level of Service/Case Management Inventory (LS/CMI; Andrews et al., 2004). Following this assessment meeting, the respective assessment counselor writes a comprehensive report describing the findings of the interview and measures that were administered, and makes a recommendation regarding the degree of additional treatment from which he or she believes each resident would benefit. This report is then read to the DOC chairperson at the DOC weekly classification meeting, which uses the findings to identify the most appropriate halfway house for the resident’s next placement.

Each halfway house in New Jersey offers a slightly different constellation of treatment programs and services, including domestic violence treatment, work release programming, and the ability to enroll in college courses. Based on treatment needs and proximity to the resident’s home, the DOC selects a halfway house for that individual, and the resident is transferred when bed space becomes available (which may be immediately, or may be after a delay of a few weeks).

**Program**

Participants were recruited from the Albert “Bo” Robinson Assessment and Treatment Center in Trenton, NJ. This facility is operated by Community Education Centers, Inc., which provides treatment programs and reentry services for correctional populations nationally (Community Education Centers, Inc., 2005). Bo Robinson provides assessment and treatment services to three primary populations: individuals under the custody of the New Jersey Department of Corrections; individuals awaiting sentencing or serving sentences in both Mercer and Gloucester Counties, New Jersey; and individuals who have violated conditions of their parole or were paroled directly from the prison to Bo Robinson by the Parole Board. The facility serves approximately 850 males and females, though the majority of the residents are male. To
be eligible for release to the CEC facility, offenders must have no history of adult arson or sexual offenses, be 24 months or fewer from their parole eligibility date, and be on minimum-security status. Residents of the facility have a variety of current charges, including drug-related offenses, violent crimes, and property crimes.

Programming at Bo Robinson involves a variety of activities, and the treatment milieu follows the Modified Therapeutic Community model (Sacks, Sacks, & Stommel, 2003). Residents attend daily lectures that follow a curriculum based on rational emotive behavior therapy (REBT). Additionally, they complete assignments related to REBT during a personal application time each day, attend sessions that are facilitated by other residents, participate in weekly group counseling sessions that are led by program staff, and attend biweekly individual counseling sessions with a personally assigned counselor. Residents also have access to a variety of specialty programs, including Narcotics Anonymous/Alcoholics Anonymous; Life Skills, which teaches vocationally-relevant skills; Relapse Prevention; Anger Management; GED courses; parenting classes; and spirituality services. The primary goals of the program are to reduce recidivism when residents are released to the community, and to better prepare residents for successful integration into the community (such as obtaining employment) (CEC, Inc., 2005).

Within three days of arrival, a member of the clinical staff, who typically has been assigned as a certain resident’s senior counselor, conducts an intake interview of each resident. This structured interview taps a number of areas, including demographic information, current charge, and information related to social support, current/past drug and alcohol use, education, and vocational skills. At the end of the intake interview, the senior counselor conducting the interview creates the resident’s treatment plan. The treatment plan is divided into six primary sections: criminality, psychosocial, addiction, education/employment, medical, and financial.
The treatment plan typically includes all standard program activities (e.g., daily lecture, journaling, personal application), and also includes any specialty programs to which the resident has been assigned. However, some specialty programs are small and closed groups, and as a result, an individual may be placed on a waiting list for that particular service until the next group begins. These specialty programs, which typically meet once or twice per week, are assigned based on any needs that the counselor perceives the resident to have, potentially on any self-identified needs, and on results of the LS/CMI when they become available.

During their stay in the program, residents participate in programming on weekdays during the day and evenings. Each resident meets with their senior counselor once every two weeks for an individual counseling session, and for a small group counseling session once a week. This group counseling session comprises 15-20 residents from a counselor’s caseload.

**Measures**

**Level of Service/Case Management Inventory.** The LS/CMI is an assessment of static risk factors and dynamic needs, and is designed to both generate an estimate of offender risk and aid in treatment planning and case management (Andrews, Bonta, & Wormith, 2004). The instrument was normed on 135,791 adult male and female offenders, and is indicated for use with male and female offenders over the age of 16. The instrument comprises 11 sections. The first eight sections are considered the “core,” and include questions related to general risk and need factors, specific risk and need factors, prison experience factors, and other client issues (such as financial or health considerations). The final three sections are the Case Management Protocol, which includes a case management plan, progress record, and discharge summary. Section 1 (“General Risk/Need Factors”) contains 43 items that determine the risk/need score. The eight subscales of the LS/CMI reflect the “central 8” risk factors: criminal history, including
past and current offense information; education/employment, including past achievements and current educational or employment factors; family/marital, including relationships with family and family criminal history; leisure/recreation, including use of free time and participation in organized activities; companions, including relationships with anticriminal and prosocial individuals; alcohol/drug problems, including past and current use and associated issues; procriminal attitude/orientation, including attitudes toward crime, attitudes toward convention, and attitudes toward current sentence and treatment; and antisocial pattern, including early/diverse antisocial activity, criminal attitudes, and pattern of generalized trouble. Items are coded as either yes/no, or on a four-point scale (with 0 being “very unsatisfactory” and 3 being “very satisfactory”).

The LS/CMI is frequently used in correctional settings to determine offender risks and needs, and is considered to be a part of the fourth generation of risk assessment tools (Andrews & Bonta, 2006). The tool is psychometrically sound with respect to internal consistency (for Section 1, Cronbach’s alpha is estimated between .89 and .94; for the subcomponents of Section 1, alpha ranges from .39 to .89). Test-retest/inter-rater reliability ranged from poor to very good, depending on the subcomponent; for instance, criminal history had a test-retest reliability of $r = .91$, while procriminal attitude/orientation had a reliability of $r = .16$. However, the LS/CMI is an assessment designed to be sensitive to changes in dynamic criminogenic needs, which may explain the change from test to retest.

Risk/need classifications are based on an individual’s Section 1 scores. Cut-off scores for Very Low, Low, Medium, High, and Very High-risk are provided by the authors of the tool. Section 1 of this instrument was completed for study participants within two weeks of arrival at the facility, and again within one week prior to departure from the facility.
RNR Treatment Adherence Rating Form. Based on each resident’s LS/CMI scores and clinical records, data were coded and a determination was made as to the degree to which the resident’s treatment adhered to the risk-need-responsivity theory. To measure adherence, the RNR Treatment Adherence Rating Form was developed for use in the previous study. This form has its foundation in the description of the RNR model provided in Andrews and Bonta’s *The Psychology of Criminal Conduct, 4th Edition* (2006), which describes the theory and practical considerations related to RNR. Additionally, the codebook used by Andrews and Dowden for the meta-analyses described earlier was obtained from D.A. Andrews (D. A. Andrews, personal communication, May 2, 2009). Although this codebook was developed to measure the extent of RNR adherence on a programmatic level, it provides a useful model for measuring adherence on an individual level. Finally, the LS/CMI was used in the development of the tool, and individual scores on various items of the LS/CMI are an important component of the measure.

An initial version of this Rating Form was developed for use in the previous study, and was completed for all program participants. However, to better capture all aspects of the risk-need-responsivity theory, an updated version of this measure was developed for use in the current study. As with the previous version, many of the items ask only for factual information or information that are taken directly from the LS/CMI; however, given the complexity of some of the rating criteria, inter-rater reliability of the final summary score was calculated.

The updated RNR Treatment Adherence Rating Form (see Appendix B) consists of three sections: risk factors, need factors, and responsivity factors. The Risk Factors section includes total LS/CMI score and associated risk level, primary offense, length of stay, and number of interventions in which the individual participated. The final item in this section asks for the rater to select the degree to which the risk principle was followed, with scores ranging from 0
(“Not/Mostly not”) to 2 (“Mostly yes/yes). The section pertaining to the Need Factors asks the rater to determine (a) in which need category (i.e., very low, low, medium, high, very high) a client scored on each criminogenic need, (b) the degree to which that need was targeted in a planned intervention, and (c) the degree to which this level of intervention is consistent with the risk category. To rate the extent to which a need was targeted, the raters were provided a rubric to make a rating of 0 (“No or mostly no”) to 2 (“Yes or mostly yes”). To help increase the reliability of this judgment, the rubric outlines specific criteria for each score (0, 1, or 2) within each criminogenic need. Similarly, to rate how consistent the intervention level is with a respective need level, the raters selected a score ranging from 0 (“No or mostly no”) to 2 (“Yes or mostly yes”). Guidelines for this rating were also provided to the raters to maximize inter-rater reliability. The Responsivity Factors section of the tool asks which specific responsivity factors are present for an individual, as tapped by Section 5 of the LS/CMI, and this information was obtained from participant records. Finally, the last item on the RNR Treatment Adherence Rating Form prompts the rater to sum the scores of the items reflecting adherence to the risk principle, and appropriateness of interventions provided for each criminogenic need. The mean of these items represents a final summary score judgment about the overall level of RNR Treatment Adherence. It is important to note that although this measure operationalizes adherence to the RNR model by examining programs in which residents participated, it does not measure adherence on the part of intervention providers (e.g., with what fidelity do anger management instructors provide the intervention?). Offender interventions often emphasize program and client adherence, rather than treatment integrity. In part, this is because psychotherapy is less likely to improve criminal justice outcomes, and more likely to improve mental health. Although improving mental health is important, the criminal justice system must
also consider public safety, and the focus of most offender interventions is reduction of recidivism. As a result, most research and interventions emphasize providing services and programs that target known criminogenic needs and ensuring that offenders receive the necessary services, rather than emphasizing the provider treatment fidelity. Some research has demonstrated the importance of certain provider qualities, such as effective reinforcement and disapproval, effective use of authority, modeling, and problem-solving (Dowden & Andrews, 2004). However, Dowden and Andrews (2004) also found that most studies do not include details regarding provider or service characteristics. Therefore, the treatment integrity of the services in this treatment program is beyond the scope of the current study, but will be considered in the interpretation of the results of this investigation.

Prior to initiating this study, the inter-rater reliability of the final summary score (item #11: What is the overall level of RNR Treatment Adherence?) was calculated using the intraclass correlation with a sample of $N = 6$ files. Inter-rater reliability was measured at 0.94.

**TCU Criminal Thinking Scale.** The Texas Christian University (TCU) Criminal Thinking Scales (CTS) (Knight, Garner, Simpson, Morey, & Flynn, 2006) aims to assesses criminal thinking (TCU Institute of Behavioral Research, 2005a). Its scales include Entitlement; Justification; Personal Irresponsibility; Power Orientation; Cold Heartedness; and Criminal Rationalization. This measure was normed on more than 3,266 clients from 26 correctional programs. There are 37 questions on the CTS, with responses ranging from 1 (“Disagree Strongly”) to 5 (“Agree Strongly”). The coefficient alphas for the scales range from .68 (Cold Heartedness) to .81 (Power Orientation). Test-retest reliability was calculated with a subsample of 322 participants, one week after the first administration, and ranges from .66 (Cold Heartedness) to .84 (Criminal Rationalization). This scale is administered by the facility within
the first week of the majority of residents’ stays. It was also administered as part of the time 2 assessment for study participants.

**TCU Criminal Justice Client Evaluation of Self and Treatment (CEST).** The Texas Christian University (TCU) Criminal Justice Client Evaluation of Self and Treatment (CJ CEST) (Garner, Knight, Flynn, Morey, & Simpson, 2007) assesses client needs and treatment performance. This measure includes scales related to treatment motivation, psychological functioning, social functioning, therapeutic engagement, and social network support. The intake version of this measure, the TCU Criminal Justice Client Evaluation of Self and Treatment – Intake (CJ CESI) measure is administered to the majority of the residents of Bo Robinson within their first week at the facility, and is designed to “provide a baseline for monitoring offender performance and psychosocial changes during treatment” (Institute of Behavioral Research, 2011). The Social Support Scale of the TCU CJ CEST was administered as part of the time 2 assessment for study participants. The TCU CJ CEST was normed on a sample of more than 3,266 clients from 26 corrections-based programs (TCU Institute of Behavioral Research, 2005). There are a total of 115 questions, with responses ranging from 1 (“Strongly Disagree”) to 5 (“Strongly Agree”).

**Leisure time assessment.** During their time 1 study assessment, residents completed a short questionnaire regarding their prospective use of leisure time post-release. This questionnaire included a checklist of potential uses of leisure time, and participants were asked to select the five activities in which they anticipated spending the most time. If a particular activity was not listed, participants had the option of writing in additional responses to include in their five choices.
**Risk Need Perception Survey.** This survey was designed by the researchers to determine two things: (1) how well study participants understand general risk and need factors, and (2) how well study participants understand their own risk and need factors. This survey consists of two, 30-item questionnaires. The first questionnaire, which taps general understanding, begins with the prompt, “Which of these factors do you think may increase the chance that a person will commit a crime in the future?” This is followed by a list of factors, some of which are known predictors of future offending behavior (e.g., “Criminal history,” “Use of drugs or alcohol”), some of which may be better defined as responsivity factors (e.g., “Mental illness,” “Racial or ethnic background”), and others of which have no known relationship to criminal offending (e.g., “Sexual prowess,” “Athleticism”). For each item, the participant was asked to determine whether he thought the factor was “Not Important,” “Possibly Important,” or “Definitely Important,” in determining whether someone commits a future crime.

The second measure, which taps understanding of one’s own risk and need factors, begins with the prompt, “Which of these factors do you think are present for **you** that may increase your risk of committing a crime again in the future?” The same list of factors was used for this second questionnaire, though items were reworded to reflect the personal nature of the survey (e.g., “*Your* education level” [emphasis added]). Again, for each item, the participant was asked to select whether he thought the factor was “Not Important,” “Possibly Important,” or “Definitely Important,” in increasing his own risk of future offending. The study relies on the results of the second questionnaire only. More specifically, the concordance between the participant-identified risk/need factors and those risk/need identified by the LS/CMI was measured to determine how well each participant understands his own risks and needs.

**Procedure**
Upon entry to Bo Robinson, residents admitted from the Department of Corrections Population were randomly selected to participate in this study by assigning a randomly generated number to each participant. Each participant met with one of four research assessors, and the nature of the study and participation in the study was described. For those who expressed interest in participating, the informed consent form was provided and reviewed, and any additional questions were answered. At that point, informed consent was obtained from those residents who still expressed interest in participation. Within two weeks of their entry, participants were administered an LS/CMI interview by one of the four research assessors. These assessors were all students in a doctoral program in clinical psychology. Section 1 of the LS/CMI was scored by the primary researcher (SBH) for all participants. In addition, participants completed the questionnaire related to the prospective use of leisure time. For 71 of the study participants, the Risk/Need Perception Survey was also completed at this time (as full approval for this instrument was not obtained until after recruitment had begun).

During their stay at Bo Robinson, residents participated in the typical program activities as described earlier. The length of stay of residents from the Department of Corrections is approximately 60-70 days. As noted before, upon release from the facility, most study participants were placed in a halfway house, though others (n = 4) were released directly to the community.

Within one week prior to release from Bo Robinson, study participants were administered the second set of measures. This included Section 1 of the LS/CMI; the TCU Criminal Justice Client Evaluation of Self and Treatment Social Support Scale; and the TCU Criminal Thinking Scales. Also, those participants who did not complete the Risk/Need Perception Survey during
the first assessment point completed it as part of this battery \((n = 15)\). Two participants also completed the Risk/Need Perception Survey at another point during their stay at the facility.

After each participant was released, his treatment and assessment records were obtained. This included each resident’s treatment plan, which is updated approximately every 30 days; information on criminal history; the results of the TCU instruments administered by the facility; and the official facility-administered LS/CMI (to compare the responses on the criminal history section to that completed by the research assessors, and to obtain information about responsivity factors), among others. These materials were used with the assessment results to complete the modified version of the RNR Treatment Adherence Rating tool.

In addition, recidivism data was obtained for all study participants through the New Jersey Department of Corrections. For the purposes of this study, recidivism was defined as rearrest. Recidivism data were collected for two outcome periods – one year post-release for each participant, and for the period of time from release to November 30, 2012.

**Data Analysis**

The inter-rater reliability of the RNR Treatment Adherence Rating Form was assessed using the intraclass correlation. Although strict objective criteria were outlined for the assessment of each item, this was measured for the final summary score (item #11: What is the overall level of RNR Treatment Adherence?). For this item, the intraclass correlation was measured at 0.94. Several steps were taken to maximize inter-rater reliability. First, the two research assistants who completed the RNR Treatment Adherence Rating Form underwent a comprehensive training process. In addition to providing education regarding the theoretical foundation of the form and the current study, raters received a manual outlining the criteria for rating each of these items (see Appendix C). They were also provided sample file ratings to
demonstrate how the rating criteria should be employed, and as a reference to us in their own ratings. Prior to completing this Form for study participants, the raters completed practice forms under the supervision of SBH, and any inconsistencies with the manual were used as teaching points for all raters until reliability reached a level of at least 0.80 (as measured by the intraclass correlation). One file was randomly selected from every twelve files for all raters to complete. Prior to beginning the study, it was established that additional training would be conducted if inter-rater reliability was less than .80 at any measurement point, until reliability reached the .80 level. In addition, although reliability was good between raters, each Form was checked by the research assistant who did not work on that file or by SBH.

To test the first hypothesis and determine whether RNR adherence is a significant predictor of one-year recidivism, a logistic regression analysis was conducted, with the alpha level set at .05. Other potential contributors to the relationship between RNR adherence and recidivism were tested as predictors in this model to control for their influence, including age and risk level.

To test the second hypothesis, regarding the concordance between offender-identified and LS/CMI-identified risk and need factors and its potential role in predicting one-year recidivism, concordance was first calculated. This was accomplished by calculating the Spearman correlation between each participant’s response on the risk/need survey for each of the risk/need factors and the participant’s subscale categorical score for each respective subscale on the LS/CMI. For some risk/need domains, there were multiple corresponding items on the risk/need survey. When this was the case, the items were summed and the mean was used. This correlation coefficient represents the concordance between offender- and LS/CMI-identified risks and needs. Then, to determine whether this is a significant predictor of recidivism, a
second logistic regression was conducted. Because an individual’s risk level, or the presence of robust risk factors (such as criminal history or alcohol/drug problem) may affect the degree to which concordance is related to recidivism, total LS/CMI score was tested as a moderator of this relationship. Length of stay was also tested as a predictor within this model. It is notable that the degree of intellectual understanding of one’s risk factors is not necessarily the same as being motivated to change those factors. The present survey does not capture this motivational aspect, which was taken into consideration when interpreting the results of this hypothesis.

Finally, to test the third hypothesis, the match score between each participant’s criminogenic needs and interventions intended to target those needs was calculated using the method employed by Vieira and colleagues (2009). Criminogenic needs were considered to be present if an individual scored in the medium, high, or very high-risk in that area on the LS/CMI. This means that an individual may have from 0 to 7 criminogenic needs, where criminogenic needs are defined as the dynamic subscales of the LS/CMI (i.e., education/employment, family/marital, leisure/recreation, companions, alcohol/drug problem, procriminal attitude/orientation, and antisocial attitudes). Next, the number of present needs for which the participant received at least one intervention was calculated to identify the number of these needs that were matched. Finally, to calculate the “Vieira-style match score,” the total number of matched needs was divided by the number of present needs. Subsequently, the relationship between the summary score on the RNR Treatment Adherence Rating Form and recidivism, and the relationship between the Vieira-style match score and recidivism, was examined using a point biserial correlation. In addition to testing for significance with alpha set at .05, and the effect size for each correlation was calculated using $R^2$. The effect sizes for the two methods of measuring adherence were compared to determine which was a stronger predictor of recidivism.
Because the score yielded by the RNR Treatment Adherence Rating Form is on a different scale than the match scores yielded by the method of Vieira et al. (2004), these scores were be standardized for use in this hypothesis.

**Results**

Data were analyzed using IBM SPSS Statistics 20. As noted above, a sample of 71 participants was included in analyses. The mean age of participants was 35.61 (SD = 9.10). For additional demographic characteristics, see Table 1. The mean length of stay of participants was 73.38 days (SD = 18.78), and ranged from 27 to 126 days.

The mean LS/CMI total score upon entry to the facility was 22.01 (SD = 5.16), which is within the high risk range, although scores ranged from 9 (low risk) to 31 (very high risk). Upon release, the mean LS/CMI total score was 20.72, with scores ranging from 8 to 30. Sixty-eight percent (n = 48) of the participants endorsed use of substances (SD = 5.01), with marijuana the most common drug of choice. Participants were incarcerated for a range of charges, including drug and alcohol charges (49.30%; n = 35), firearms charges (19.72%, n = 14), violent crime (14.08%, n = 10), property crime (11.27%, n = 8), violations of community supervision (4.23%, n = 3), and eluding (1.41%, n = 1).

As noted, recidivism data were available for two time frames: one year post-release, and the time period between release and November 30, 2012. Within the one year follow-up period, eight individuals were rearrested (11.27%). Seven of these participants had one rearrest, and one was arrested twice. Crimes included burglary (n = 1), arson (n = 1), narcotics (n = 4), theft by unlawful taking (n = 1), weapons charge (n = 1), robbery (n = 1). Of these individuals, three were convicted of their charges, and one had his case downgraded and remanded to municipal court. The remaining four had not reached the conviction stage in their cases. For purposes of
reporting results, analyses based on recidivism during this time frame will be referred to as *One-Year Recidivism*.

In addition, recidivism data were available through November 30, 2012. By this date, the mean time since release was 501.01 days ($SD = 29.04$), and with a range of 456 to 568 days. Within this follow-up period, a total of 11 participants had been rearrested (15.49%). In addition to the charges named above, additional charges included obstruction ($n = 1$), theft by unlawful taking ($n = 1$), and narcotics ($n = 1$). None of these cases had yet reached the conviction stage. For purposes of reporting results, analyses using this follow-up data will be referred to as *Sixteen-Month Recidivism*.

**Hypothesis 1.**

**One-Year Recidivism.** Overall level of RNR adherence ranged from 0.50 to 1.63, with a mean level of adherence of 1.13 ($SD = 0.21$). A logistic regression was conducted including level of RNR adherence as a single predictor. This revealed that level of RNR adherence was not significantly related to recidivism within one year ($\chi^2 = 0.13, df = 1, b = 0.66, W = 0.13, p = 0.72$). Controlling for age, the model remained non-significant ($\chi^2 = 0.20, df = 2, p = 0.90$), and neither RNR adherence nor age were significantly associated with recidivism ($b_{rnr} = 0.73, W_{rnr} = 0.15, p = 0.70; b_{age} = 0.01, W_{age} = 0.07, p = 0.79$). A subsequent logistic regression was conducted, including level of RNR adherence and risk level upon entry to the facility as predictors; however, the overall model was non-significant ($\chi^2 = 2.64, df = 2, p = 0.27$), and neither variable was significantly related to recidivism ($b_{rnr} = 1.13, W_{rnr} = 0.31, p = 0.58; b_{lscmi} = 0.14, W_{lscmi} = 2.07, p = 0.15$). A secondary regression was conducted with level of RNR adherence and LS/CMI upon release from the facility; again, the model was non-significant ($\chi^2 = 1.25, df = 2, p = 0.54$), and neither variable was significantly related to recidivism ($b_{rnr} = 0.91$, $b_{lscmi} = 0.14, W_{lscmi} = 2.07, p = 0.15$).
As an exploratory analysis, categorical risk level was tested as a moderator of the relationship between RNR adherence and rearrest, as was found in Luong and Wormith (2011). Categorical LS/CMI scores upon entry and upon release were dichotomized into medium and high (including high and very high) risk categories, due to the small number of individuals in the low risk category (n = 1 upon entry, and n = 2 upon release). The medium risk category was selected as the referent. Analyses revealed that neither categorical LS/CMI score upon entry nor categorical LS/CMI score at release was a significant moderator of the relationship. Using LS/CMI scores upon entry, the model was non-significant (χ² = 4.78, df = 3, p = 0.19), and all variables included in the model yielded a p-value of 1.00. Using LS/CMI scores upon release, the model was non-significant (χ² = 3.33, df = 3, p = 0.34), as was the interaction effect (b_{interaction} = -2.11, W = 0.14, p = 0.71).

**Sixteen-Month Recidivism.** A logistic regression was conducted including level of RNR adherence as a single predictor, which revealed no significant relationship between RNR adherence and recidivism (χ² = 0.23, df = 1, b = 0.77, W = 0.23, p = 0.64). Controlling for age, the model remained non-significant (χ² = 0.43, df = 2, p = 0.81), and neither RNR adherence nor age were significantly associated with recidivism (b_{mr} = 0.88, W_{mr} = 0.29, p = 0.59; b_{age} = 0.02, W_{age} = 0.21, p = 0.65). Next, a logistic regression including level of RNR adherence and risk level upon entry to the facility was conducted. The overall model was non-significant (χ² = 4.03, df = 2, p = 0.13), and neither variable was significantly related to recidivism (b_{mr} = 1.31, W_{mr} = 0.52, p = 0.47; b_{lscmi} = 0.15, W_{lscmi} = 3.06, p = 0.08). A secondary regression was conducted with level of RNR adherence and LS/CMI upon release from the facility; again, the model was non-
significant ($\chi^2 = 2.23, \text{df} = 2, p = 0.33$), and neither variable was significantly related to recidivism ($b_{\text{rnr}} = 1.10, W_{\text{rnr}} = 0.39, p = 0.53; b_{\text{lscmi}} = 0.10, W_{\text{lscmi}} = 1.81, p = 0.18$). (For complete model data, see Table 3).

Again, as an exploratory analysis, categorical risk level was tested as a moderator of the relationship between RNR adherence and rearrest. However, analyses revealed that neither categorical LS/CMI score upon entry nor categorical LS/CMI score at release significantly moderated the effect. Using LS/CMI scores upon entry, the model was non-significant ($\chi^2 = 6.75, \text{df} = 3, p = 0.08$), and all variables included in the model yielded a $p$-value of 1.00. Using LS/CMI scores upon release, the model was non-significant ($\chi^2 = 3.95, \text{df} = 3, p = 0.27$), as was the interaction effect ($b_{\text{interaction}} = -4.66, W = 1.14, p = 0.29$).

**Hypothesis 2.**

Prior to conducting analyses, the concordance between offender perceptions of risk factors and LS/CMI-rated risk factors was calculated for each participant. Due to the method of calculation, complete data were available for 65 participants. Concordance scores, represented by a Spearman correlation, ranged from -0.66 to 0.58, with a mean score of 0.02 ($SD = 0.29$). This suggests that there is a wide range of variability in the level of concordance between one’s self-perceived and LS/CMI-rated risk factors. The distribution of concordance scores is reflected in Figure 1.

**One-Year Recidivism.** An initial logistic regression was conducted to test the relationship between concordance scores and one-year recidivism. This revealed that there was not a significant relationship between concordance and recidivism, $\chi^2 = 0.25, \text{df} = 1, b = -0.75, W = 0.25, p = 0.62$. A second logistic regression was conducted to determine whether initial LS/CMI score moderates the relationship between concordance and recidivism. Prior to
conducting this analysis, the LS/CMI score variable was centered. However, this model was non-significant, $\chi^2 = 1.01$, df = 3, $p = 0.80$, and no significant interaction effect was detected, $b = 0.06$, $W = 0.03$, $p = 0.87$. Similarly, when using centered LS/CMI score prior to release, no significant interaction effect was identified; $\chi^2 = 0.93$, df = 3, $p = 0.82$; $b = 0.09$, $W = 0.06$, $p = 0.81$. Adding length of stay to the model failed to provide any additional predictive power. (For complete model data, see Table 4).

**Sixteen-Month Recidivism.** An initial logistic regression revealed no significant relationship between concordance scores and sixteen-month recidivism, $\chi^2 = 0.10$, df = 1, $b = -0.39$, $W = 0.10$, $p = 0.76$. A second logistic regression was conducted to test LS/CMI scores upon entry to the facility as a moderator. Again, centered LS/CMI scores were used in these analyses. Results demonstrated that there was no significant moderator effect, $\chi^2 = 2.13$, df = 3, $p = 0.55$; $b_{interaction} = 0.19$, $W_{interaction} = 0.32$, $p = 0.57$. When LS/CMI score prior to release was tested, the interaction remained non-significant, $\chi^2 = 2.19$, df = 3, $p = 0.53$; $b_{interaction} = 0.28$, $W_{interaction} = 0.72$, $p = 0.40$. As with the one-year recidivism analysis, adding length of stay to the model failed to provide any additional predictive power. (For complete model data, see Table 5).

**Hypothesis 3.**

Prior to conducting analyses, Vieira-style match scores were calculated for each participant by calculating the ratio between the number of criminogenic needs that were present and targeted with an intervention by the total number of criminogenic needs that were present. Match scores ranged from 0 to 1, with a mean of 0.75 ($SD = 0.21$). To determine whether scores on the RNR Treatment Adherence Rating Form and Vieira-style match scores were correlated, a Pearson correlation was conducted. This revealed that there was a significant association
between the two measures of RNR adherence, $r = 0.47$, $p < 0.01$. For purposes of comparison, both the RNR adherence ratings and match scores were standardized to $z$-scores.

**One-Year Recidivism.** A point biserial correlation revealed no significant correlation between standardized level of RNR adherence and one-year recidivism, $r = 0.04$, $p = 0.73$; similarly, there was no significant correlation between standardized match score and one-year recidivism, $r = -0.02$, $p = 0.86$. Given the very small effect size associated with each measure ($R^2 = .0016$ and .0004, respectively), it appears that neither is a predictor of recidivism within this sample.

**Sixteen-Month Recidivism.** A point biserial correlation revealed no significant correlation between standardized level of RNR adherence and sixteen-month recidivism, $r = 0.06$, $p = 0.64$; similarly, there was no significant correlation between standardized match score and one-year recidivism, $r = -0.06$, $p = 0.65$. Again, given the very small effect size associated with each measure ($R^2 = .0036$ for both), it appears that neither is a predictor of recidivism within this sample.

**Discussion**

This study examined the predictors of criminal recidivism among residents of a brief reentry program in New Jersey. The study aimed to address two primary questions: whether greater adherence to the RNR model resulted in improved outcomes post-release, and whether the level of understanding that offenders have of their own risk factors is related to post-release success.

To explore the relationship between adherence to the RNR model and recidivism, a measure was designed to assess adherence to this model and yield a summary adherence score (the RNR Treatment Adherence Rating Form). In addition, the method used by a previous
investigation of the RNR model among youth offenders (Vieira et al., 2009) was tested as an alternative measure of RNR adherence. Recidivism was operationalized in two ways: rearrest within one year of release, and rearrest in the period from an individual’s release to November 30, 2012. Results demonstrated that level of RNR adherence was not a significant predictor of recidivism in either time period, even when controlling for age, LS/CMI score upon entry to the program, or LS/CMI score prior to release from the program. Secondary analyses demonstrated that the level of RNR adherence as measured by the RNR Treatment Adherence Form was significantly correlated with the Vieira-style match score; however, neither was significantly associated with recidivism.

To examine the relationship between an offender’s understanding of his own risk factors and recidivism, a survey was designed to assess offender perceptions of personal risk factors. A concordance score was calculated to operationalize the level of agreement between these self-identified factors and factors identified by the LS/CMI. Initial analyses demonstrated no significant relationship between level of concordance and one-year or sixteen-month recidivism. Subsequent analyses tested both initial LS/CMI score and LS/CMI score prior to release as moderators of the relationship between concordance and rearrest, but no significant effect was detected. Controlling for length of stay failed to improve the predictive power of the model.

Regarding the relationship between adherence to the RNR model and recidivism, there are several factors that may explain the lack of significant effects. For one, there was not an authoritative data source that could be used to determine in which interventions participants were enrolled. A combination of facility records and participant self-report were used to make these determinations, although it’s possible that these sources of data underestimated the number of individuals who participated in some programming, or overestimated the number who
successfully completed a particular program (versus completing only a small proportion of the sessions of a group). In addition, as noted above, it was beyond the scope of this study to determine if particular interventions were being implemented with fidelity. Another factor that may account for the lack of significant relationship is the relatively small proportion of participants who were rearrested within the outcome period. Many residents of the reentry program are released to a halfway house rather than directly to the community. Although some programs utilize a work release model, others are secure facilities. Therefore, some participants may have spent less time living in the community than is captured by the one-year follow-up period. Finally the source of recidivism data may also contribute to the results. Rearrest data were collected from the publicly accessible database maintained by the State of New Jersey. It may be that a broader definition of recidivism – e.g., the inclusion of technical violations or revocations from halfway houses – would yield different results.

However, it is also important to interpret these results within the context of the wider literature on the RNR model. As described above, there has been little work examining the application of RNR to individuals, and even less among adult offender populations. Although the literature regarding implementation of RNR on a programmatic level has demonstrated that adherence to the need principle is generally associated with better outcomes, the effect of the risk principle has been less consistently supported. Also, when a significant impact of RNR has been demonstrated, the effect size is often small to moderate in magnitude. As such, these results may suggest something about the effectiveness of RNR within this population or model of intervention. For instance, it may be that a brief program (approximately 10 weeks) does not provide a sufficient dosage of intervention for a population of offenders who are largely moderate to high risk. Also, a previous study established that although there were interventions
to target each criminogenic need, the nature of this program was such that only four criminogenic needs had the potential to change as a result of participation: education/employment, family/marital, antisocial attitudes, and antisocial pattern (Brooks Holliday, 2011). It may be that programs that allow participants the opportunity to improve in more domains have more lasting effects on long-term outcomes.

Relatedly, it may be that there is a “dosage” consideration related to the need principle. For instance, official records suggested that several of the participants in the current study did not complete each session of a given specialty program. When this was the case, a threshold was established such that participants must have attended at least 80% of the sessions for a given program to be considered “completed.” However, this raises an interesting question regarding the larger issue of dosage with respect to criminogenic needs. Previous studies have not examined the length or intensity of particular services designed to target criminogenic needs. However, there is evidence that for some criminogenic needs, there may be a minimum dosage that must be obtained before lasting improvements are seen. For instance, research suggests that a minimum of six to twelve months of participation in treatment is necessary for “clinically meaningful reductions” in drug use to be observed (Marlowe, DeMatteo, & Festinger, 2003, p. 154). The possibility that there is a similar treatment-response curve for other criminogenic needs should be considered.

Given the variability in the empirical evidence regarding RNR, it is important to consider the factors that may also contribute to the effectiveness of the model. In addition to elements such as treatment fidelity and sufficient dosage, there are other variables that may be at play, such as site-specific factors. As described, a multi-site study found support for RNR at one site, but identified the opposite trend at the second site (Taxman & Thanner, 2006). Site-related
considerations may include average length of treatment, level of monitoring, and availability of opportunities for the offender to interact with the community. In addition, staff-related characteristics should be considered. Some research has explored the impact of staff characteristics on recidivism. These included “effective use of authority,” or a “firm but fair” approach (p. 204); modeling and reinforcing appropriate behaviors, as well as expressing appropriate disapproval for undesired behaviors; modeling and teaching problem solving skills; leveraging community resources to the benefit of a client; and use of strong interpersonal skills, including warmth, empathy, and directive communication (Dowden & Andrews, 2004). These factors were significantly related to client outcomes (with the exception of advocacy); moreover, programs that were consistent with RNR were more effective when they also exhibited at least one of these important staff characteristics. As such, the role of staff characteristics may be another important consideration.

Finally, it is worthwhile to note that although the meta-analytic studies of RNR have yielded generally positive results, studies of individual programs have yielded larger variability, as have the more recent adherence studies. In part, this may be due to the nature of the meta-analyses – rather than including studies that aimed to study RNR, these meta-analyses largely pulled from more general correctional literature and attempted to identify whether the components of RNR were present. It would be interesting to compare these results to a meta-analysis that would include studies that had the primary aim of examining RNR. However, it may also be that the variability in effects on the individual level is related to the issue of applying more group-level or nomothetic data to the individual case. On average, if the RNR model were implemented as a case management strategy to a large sample of individuals, significant effects
may be detected. However, with a smaller sample or individual case, there may be much more variability.

With respect to the secondary focus of this study, the results regarding the impact of an offender’s understanding of his personal risk factors are interesting, particularly given the lack of previous research in this area. A recent study (utilizing the sample from the current study) demonstrated that there is a discrepancy between factors that offenders endorse as generally associated with increased risk, and those that they endorse as personally relevant (Brooks Holliday et al., 2012). Moreover, preliminary analyses in the current study demonstrated that there was a wide range of levels of understanding. However, there was no evidence that level of understanding is associated with recidivism, even when considering the role of risk level as a potential moderator and the influence of other variables (i.e., length of stay in the program).

In part, this lack of difference may be accounted for by other factors that have already been described. Specifically, the low recidivism rate may play a role, as may the relatively small sample size (complete concordance data were only available for 65 participants). There may also be additional variables that were not considered that mediate the relationship between understanding and recidivism, such as rate of treatment completion. Alternatively, it may be that an individual’s insight into his own risk factors is a responsivity factor, and although important to consider when planning treatment, not a factor contributing to risk of future offending. Given the understudied nature of this question, there are many aspects that could be the target of additional research.

It is important to acknowledge the limitations of this study. For one, the completion of the RNR Treatment Adherence Form was dependent on data regarding the services that participants completed during their time at the reentry facility. As described, there was not an
authoritative source of this data; instead, multiple sources of data (including records and self-report) were amalgamated to determine which programs an individual had completed. It is possible that these data sources did not completely capture participation in programming at the facility, which would affect the overall rating of RNR treatment adherence and the Vieira-style match score. Similarly, although some official records were available for review when completing the LS/CMI (especially the criminal history section), participant self-report was a primary source of data. Therefore, LS/CMI scores may have been influenced by any inaccuracies in participant self-report. In addition, the survey used to assess offender perceptions of risk factors was a pilot version of the instrument. Since that time, focus groups have been conducted to provide feedback on the instrument and refinements have been made, but it may be that the version used in the current study contained some questions or wording that was confusing to participants.

The method of operationalizing recidivism and collecting follow-up data is another limitation to the current study. As noted, there were many participants who were released to a halfway house, rather than directly to the community. Although some of these halfway houses may have provided residents with the opportunity to spend time in the community within two weeks of their arrival (e.g., work release programs), others have a treatment component that must be completed before the resident is eligible for work release. Therefore, although the follow-up period ranged from 365 to 568 days, it may be that participants remained in a structured treatment phase of the facility for some proportion of that period. These individuals may have had less opportunity to be rearrested. In addition, although rearrest is somewhat more broad than other measures of recidivism (e.g., reconviction, reincarceration), it is also somewhat limited.
Different results may have been obtained with a longer follow-up period or a different definition of recidivism (e.g., technical violations, return from a halfway house to a more secure facility).

In spite of these limitations, this study provides a foundation for future investigations. There remain a limited number of studies examining the implementation of RNR as a guide for individual case management, rather than a guide for program-level intervention planning. Over the past few years, there has been an increase in the level of attention afforded to researching the individual application of RNR (e.g., Vieira et al., 2009; Luong & Wormith, 2011; Vitopolous et al., 2012), although many of these studies have focused on juvenile offenders. It remains important to determine what factors maximize the effectiveness of the RNR model. These may include program-level factors, such as minimum lengths of stay that are necessary to yield an improvement, or level of security/supervision (e.g., secure facilities versus reentry facilities versus community supervision). It may also include more individual-level factors, such as type of offender or gender.

Moreover, many of the studies that have examined the individual implementation of RNR (including the current study) have rated adherence to the RNR model, rather than examining the prospective implementation of a program that follows this model. Ideally, future research will examine the latter. This may involve assessing an individual upon entry to a program; using information about risk level to determine a priori what the intensity of services should be, including length of stay and frequency of program participation; using information about criminogenic needs to match individuals into services that specifically target those needs that are present, while not assigning them to superfluous services; and considering individual responsivity factors, such as motivation or gender, when providing those services.
In addition, this study provides an important basis for future examinations of the role of offender insight into one’s own risk factors. As noted, a refined version of the Risk Need Perception Survey has been developed, and this may provide a more sensitive measure of offender perceptions. Future research may also involve the identification of potential mediating variables, such as treatment completion or motivation. Additionally, some preliminary research has begun to determine whether inaccurate offender perceptions may be improved via the provision of structured feedback. It will be interesting to determine whether these perceptions can be improved, and whether improvement in these perceptions has any impact on post-release success. Other research may examine other types of offender perceptions, such as the accuracy of estimates regarding their own risk of recidivism, and whether these perceptions are predictive of actual post-release outcomes. Finally, it may worthwhile to determine what contributes to offender perceptions of their own risk factors, and whether there are certain variables that are associated with an improved understanding (e.g., lower level of risk, IQ, time spent in the criminal justice system).

In conclusion, this investigation makes an important contribution to the RNR literature, as well as providing a preliminary examination of the role that an offender’s perceptions regarding his own risk factors may play in predicting post-release success. Although no significant effects were detected, these results further underscore the need for additional research examining these questions. They also support the importance of better describing the conditions that should be in place to ensure that RNR is maximally effective. Moreover, even if offender perceptions do not play a role in the prediction of recidivism, it may be that attention to this question improves offender motivation and treatment completion, and contributes to success in this way. Given that questions of offender rehabilitation have important implications for the
allocation of limited fiscal and personnel resources, as well as public-safety related consequences, it is important to continue to pursue these questions to better inform treatment planning and policy.
List of References


Do


Appendix A: Tables and Figures

Table 1. Demographic Data ($N = 71$)

<table>
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<tr>
<th>Category</th>
<th>Proportion ($n$)</th>
<th>Category</th>
<th>Proportion ($n$)</th>
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<td>16.90% (12)</td>
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Table 2. Relationship between RNR Adherence and One-Year Recidivism

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<th>df</th>
<th>p value</th>
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Table 3. Relationship between RNR Adherence and Sixteen-Month Recidivism

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Table 4. Relationship between Concordance Scores and One-Year Recidivism

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<td>1</td>
<td>0.72</td>
<td>0.55</td>
<td>(0.02-14.31)</td>
</tr>
<tr>
<td>LS/CMI, entry</td>
<td>0.09</td>
<td>0.11</td>
<td>0.73</td>
<td>1</td>
<td>0.39</td>
<td>1.09</td>
<td>(0.89-1.35)</td>
</tr>
<tr>
<td>Interaction, Concordance*LS/CMI</td>
<td>0.04</td>
<td>0.37</td>
<td>0.01</td>
<td>1</td>
<td>0.91</td>
<td>1.04</td>
<td>(0.50-2.15)</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>0.01</td>
<td>0.02</td>
<td>0.29</td>
<td>1</td>
<td>0.59</td>
<td>1.01</td>
<td>(0.97-1.06)</td>
</tr>
</tbody>
</table>

†Analysis uses centered variables
Table 4 (continued)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>Wald (W)</th>
<th>df</th>
<th>p value</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 5: Interaction between Concordance and Risk Level upon Release, Accounting for Length of Stay</strong>†</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-3.21</td>
<td>1.85</td>
<td>2.99</td>
<td>1</td>
<td>0.08</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Concordance</td>
<td>-0.63</td>
<td>1.68</td>
<td>0.14</td>
<td>1</td>
<td>0.71</td>
<td>0.53</td>
<td>(0.02-14.27)</td>
</tr>
<tr>
<td>LS/CMI, release</td>
<td>0.08</td>
<td>0.10</td>
<td>0.62</td>
<td>1</td>
<td>0.43</td>
<td>1.09</td>
<td>(0.89-1.33)</td>
</tr>
<tr>
<td>Interaction, Concordance*LS/CMI</td>
<td>0.06</td>
<td>0.36</td>
<td>0.03</td>
<td>1</td>
<td>0.87</td>
<td>1.06</td>
<td>(0.53-2.14)</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>0.01</td>
<td>0.02</td>
<td>0.23</td>
<td>1</td>
<td>0.63</td>
<td>1.01</td>
<td>(0.97-1.06)</td>
</tr>
</tbody>
</table>

†Analysis uses centered variables
Table 5. Relationship between Concordance Scores and Sixteen-Month Recidivism

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>Wald (W)</th>
<th>df</th>
<th>p value</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1: Concordance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-1.83</td>
<td>0.36</td>
<td>25.82</td>
<td>1</td>
<td>&lt;0.01</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Concordance</td>
<td>-0.39</td>
<td>1.26</td>
<td>0.10</td>
<td>1</td>
<td>0.76</td>
<td>0.68</td>
<td>(0.06-7.99)</td>
</tr>
<tr>
<td>Model 2: Interaction between Concordance and Risk Level upon Entry†</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-1.94</td>
<td>0.40</td>
<td>22.97</td>
<td>1</td>
<td>&lt;0.01</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>Concordance</td>
<td>-0.36</td>
<td>1.42</td>
<td>0.06</td>
<td>1</td>
<td>0.80</td>
<td>0.70</td>
<td>(0.04-11.37)</td>
</tr>
<tr>
<td>LS/CMI, entry</td>
<td>0.12</td>
<td>0.09</td>
<td>1.64</td>
<td>1</td>
<td>0.20</td>
<td>1.13</td>
<td>(0.94-1.35)</td>
</tr>
<tr>
<td>Interaction, Concordance*LS/CMI</td>
<td>0.19</td>
<td>0.34</td>
<td>0.32</td>
<td>1</td>
<td>0.57</td>
<td>1.21</td>
<td>(0.62-2.37)</td>
</tr>
<tr>
<td>Model 3: Interaction between Concordance and Risk Level upon Release†</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-1.91</td>
<td>0.40</td>
<td>22.91</td>
<td>1</td>
<td>&lt;0.01</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>Concordance</td>
<td>-0.52</td>
<td>1.43</td>
<td>0.14</td>
<td>1</td>
<td>0.71</td>
<td>0.59</td>
<td>(0.04-9.74)</td>
</tr>
<tr>
<td>LS/CMI, release</td>
<td>0.11</td>
<td>0.09</td>
<td>1.49</td>
<td>1</td>
<td>0.22</td>
<td>1.17</td>
<td>(0.94-1.33)</td>
</tr>
<tr>
<td>Interaction, Concordance*LS/CMI</td>
<td>0.28</td>
<td>0.33</td>
<td>0.72</td>
<td>1</td>
<td>0.40</td>
<td>1.32</td>
<td>(0.70-2.50)</td>
</tr>
<tr>
<td>Model 4: Interaction between Concordance and Risk Level upon Entry, Accounting for Length of Stay†</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-2.37</td>
<td>1.53</td>
<td>2.41</td>
<td>1</td>
<td>0.12</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Concordance</td>
<td>-0.36</td>
<td>1.43</td>
<td>0.06</td>
<td>1</td>
<td>0.80</td>
<td>0.70</td>
<td>(0.04-11.45)</td>
</tr>
<tr>
<td>LS/CMI, entry</td>
<td>0.12</td>
<td>0.09</td>
<td>1.66</td>
<td>1</td>
<td>0.20</td>
<td>1.13</td>
<td>(0.94-1.35)</td>
</tr>
<tr>
<td>Interaction, Concordance*LS/CMI</td>
<td>0.19</td>
<td>0.34</td>
<td>0.29</td>
<td>1</td>
<td>0.59</td>
<td>1.21</td>
<td>(0.61-2.37)</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>0.01</td>
<td>0.02</td>
<td>0.09</td>
<td>1</td>
<td>0.77</td>
<td>1.01</td>
<td>(0.97-1.05)</td>
</tr>
</tbody>
</table>

†Analysis uses centered variables
<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>Wald (W)</th>
<th>df</th>
<th>p value</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 5: Interaction between Concordance and Risk Level upon Release, Accounting for Length of Stay†</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-2.11</td>
<td>1.53</td>
<td>1.92</td>
<td>1</td>
<td>0.17</td>
<td>0.12</td>
<td>(0.04-9.76)</td>
</tr>
<tr>
<td>Concordance</td>
<td>-0.53</td>
<td>1.43</td>
<td>0.14</td>
<td>1</td>
<td>0.71</td>
<td>0.59</td>
<td>(0.04-9.76)</td>
</tr>
<tr>
<td>LS/CMI, release</td>
<td>0.11</td>
<td>0.09</td>
<td>1.48</td>
<td>1</td>
<td>0.22</td>
<td>1.12</td>
<td>(0.94-1.33)</td>
</tr>
<tr>
<td>Interaction, Concordance*LS/CMI</td>
<td>0.27</td>
<td>0.33</td>
<td>0.68</td>
<td>1</td>
<td>0.41</td>
<td>1.31</td>
<td>(0.69-2.50)</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>0.003</td>
<td>0.02</td>
<td>0.02</td>
<td>1</td>
<td>0.89</td>
<td>1.00</td>
<td>(0.97-1.04)</td>
</tr>
</tbody>
</table>

†Analysis uses centered variables
Figure 1. Distribution of Concordance Scores.
Appendix B: RNR Treatment Adherence Rating Form

Participant # __________

Risk Factor

1. What is the client's total LS/CMI score?
_______________

2. What is the risk level of the individual?
   1 Very Low Risk
   2 Low Risk
   3 Moderate Risk
   4 High Risk
   5 Very High Risk

3. What is the predominant type of current offense reported for the client?
   1 Mixed or undifferentiated offenses
   2 Person/violent crimes (assault, sexual, robbery)
   3 Property crimes (burglary, theft, vandalism)
   4 Drug/alcohol (possession, sale, public intoxication)
   5 Status offenses (runaway, truancy)
   6 Weapons-related offenses
   7 Other _______________

4. What was the client’s length of stay in the facility (in days)?
________

5. How appropriate was the length of stay?
   0 Not appropriate
   1 Moderately appropriate
   2 Appropriate
6. How many types of services/interventions did the client receive or participate in?  
_______

7. Were services appropriate for the level of risk?

<table>
<thead>
<tr>
<th>Criminogenic Need</th>
<th>Service Received?</th>
<th>Was this service needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 = no, 1 = yes</td>
<td></td>
</tr>
</tbody>
</table>

- Education/Employment
- Family/Marital
- Leisure/Recreation
- Companions
- Alcohol/Drug Problem
- Procriminal Attitude/Orientation
- Antisocial Pattern

<table>
<thead>
<tr>
<th></th>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total: ________</td>
<td>Column B Total: ________</td>
<td></td>
</tr>
</tbody>
</table>

Column B/Column A = ______/_______ = ______

Were services appropriate for the level of risk?

- 0  No
- 1  Moderately
- 2  Yes

8. To what degree was the risk principle followed?

- 0  Not/mostly not
- 1  To some extent/moderately
- 2  Mostly yes/yes
Need Factor

9. In the following table, indicate (a) whether the client has a particular criminogenic need (based on those needs in the high or very high category on the LS/CMI), and (b) whether that criminogenic need was targeted with a program or intervention.

<table>
<thead>
<tr>
<th>Criminogenic Need</th>
<th>High or Very High</th>
<th>Medium</th>
<th>Low or Very Low</th>
<th>To what extent was need targeted? (0, 1, 2)</th>
<th>How well does this match the need level? (0, 1, 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Criminal History</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Education/Employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Family/Marital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Leisure/Recreation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Companions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Alcohol/Drug Problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Procriminal Attitude/Orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Antisocial Pattern</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Responsivity Factor

10. According to the LS/CMI, which of the following special responsivity considerations did the client have?

<table>
<thead>
<tr>
<th>Responsivity consideration</th>
<th>Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation as a barrier</td>
<td></td>
</tr>
<tr>
<td>Engaging in denial/minimization</td>
<td></td>
</tr>
<tr>
<td>Interpersonally anxious</td>
<td></td>
</tr>
<tr>
<td>Female-specific issues (such as mothering)</td>
<td></td>
</tr>
<tr>
<td>Cultural issues</td>
<td></td>
</tr>
<tr>
<td>Ethnicity issues</td>
<td></td>
</tr>
<tr>
<td>Low verbal intelligence</td>
<td></td>
</tr>
<tr>
<td>Communication barriers (such as language)</td>
<td></td>
</tr>
<tr>
<td>Mental disorder</td>
<td></td>
</tr>
<tr>
<td>Antisocial personality/psychopathy</td>
<td></td>
</tr>
</tbody>
</table>

Summary Score

11. What is the overall level of RNR Treatment Adherence? (fill in the mean from the next page)
## Final Rating Form

Fill in the values from the corresponding items in the previous sections of the form.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>#8. Risk Principle</strong></td>
<td></td>
</tr>
<tr>
<td>To what degree was the risk principle followed?</td>
<td>___</td>
</tr>
<tr>
<td><strong>#9b. Education/Employment</strong></td>
<td></td>
</tr>
<tr>
<td>How well does this match need level?</td>
<td>___</td>
</tr>
<tr>
<td><strong>#9c. Family/Marital</strong></td>
<td></td>
</tr>
<tr>
<td>How well does this match need level?</td>
<td>___</td>
</tr>
<tr>
<td><strong>#9d. Leisure/Recreation</strong></td>
<td></td>
</tr>
<tr>
<td>How well does this match need level?</td>
<td>___</td>
</tr>
<tr>
<td><strong>#9e. Companions</strong></td>
<td></td>
</tr>
<tr>
<td>How well does this match need level?</td>
<td>___</td>
</tr>
<tr>
<td><strong>#9f. Alcohol/Drug Problem</strong></td>
<td></td>
</tr>
<tr>
<td>How well does this match need level?</td>
<td>___</td>
</tr>
<tr>
<td><strong>#9g. Procriminal Attitude/Orientation</strong></td>
<td></td>
</tr>
<tr>
<td>How well does this match need level?</td>
<td>___</td>
</tr>
<tr>
<td><strong>#9h. Antisocial Pattern</strong></td>
<td></td>
</tr>
<tr>
<td>How well does this match need level?</td>
<td>___</td>
</tr>
</tbody>
</table>

#11. What is the sum of these items?  

______________  

What is the mean of these items?  

_______ / 8 = _________  

(sum)
Appendix C: RNR Treatment Adherence Form Manual

Risk Factor

Question Number 1: What is the client’s total LS/CMI score?

A. This information can be found on the third page of the original LS/CMI form. Enter the total numerical score.

Question Number 2: What is the risk level of the individual?

A. This information can be found on the categorical scoring sheet on the original LS/CMI form. Circle the number of the appropriate risk level.

Question Number 3: What is the most serious type of current offense reported for the client?

A. This information can be found on the top of the intake sheet. Circle the number of the appropriate type of crime. If you do not see the type of crime listed, please circle the “Other” option and fill in the blank.

Question Number 4: What was the client’s length of stay at the facility (in days)?

A. This information can be found on the list of lengths of stay. Copy the number of days the person was at the facility into this blank.

Question Number 5: How appropriate was the length of stay?

A. The ideal lengths of stay for each risk level are:
   - Very Low = less than 30 days
   - Low = 30 days to 49 days
   - Medium = 50 days to 69 days
   - High = 70 days to 89 days
   - Very High = 90 days or more

B. Compare the individual’s length of stay (from Question #4) to these categories, and use the following rules to make this rating:

   Rating a 2
   - If the length of stay matches the desired range exactly

   Rating a 1
   - If the length of stay is off by only one category (e.g., a Low Risk individual has a length of stay that falls in the Medium Risk range)

   Rating a 0
   - If the length of stay is off by two or more categories (e.g., a Low Risk individual has a length of stay that falls in the High Risk range)
Question Number 6: How many types of services/interventions did the client participate in?

A. Reference the list of the participant’s activities. Count the total number of services on this list, and write the total number of activities in this blank.

Question Number 7: Were services appropriate for the level of risk?

A. In Column A, record whether a service was received for the particular criminogenic need. To do this, look at the participant’s list of programs, and follow these rules:
   - Education/Employment
     - If participated in job readiness, GED classes, Life Skills, Entrepreneurship, or held a job, score as 1.
     - If did not participate in any of these, score as 0.
   - Family/Marital
     - If participated in Family Services, child support seminar, or parenting, score as 1.
     - If did not participate in any of these, score as 0.
   - Leisure/Recreation
     - If participated in recreation time or chess club, score as 1.
     - If did not participate in any of these, score as 0.
   - Companions
     - If participated in large lecture or Alumni Association, score as 1.
     - If did not participate in any of these, score as 0.
   - Alcohol/Drug Program
     - If participated in relapse prevention, large lecture, or NA/AA, score as 1.
     - If did not participate in any of these, score as 0.
   - Procriminal Attitude/Orientation
     - If participated in large lecture or anger management, score as 1.
     - If did not participate in any of these, score as 0.
   - Antisocial Pattern
     - If the person received any merits or demerits, score as 1.
     - If the person did not receive any merits or demerits, score as 0.

B. In Column B, determine whether this service was needed.
   a. If the person scored a “0” in Column A, place an “X” in Column B
   b. If the person scored a “1” in Column A:
      i. For a score in the Medium, High, or Very High overall risk category, score as 1.
      ii. For a score in the Very Low or Low overall risk category, score as 0.

C. Sum the numbers in Column A and Column B.

D. Below the table, enter the totals from Column A and B into the formula, and divide the Column B total by the Column A total. Record this number.

E. Were services appropriate for the level of risk?
   Scale: 0 to 2
   a. Rate a 2: If the ratio is \( \geq 0.80 \)
   b. Rate a 1: If the ratio is \( \geq 0.50 \) AND \(< 0.80 \)
   c. Rate a 0: If the ratio is \(< 0.50 \)
**Question Number 8:** To what degree was the risk principle followed?

Scale: 0 to 2

Use the information about how appropriate the length of stay is (Question #5) and how appropriate the service intensity is (Question #7) to make an overall judgment about how well the treatment matched the risk principle. Follow these rules:

**Rating a 2**
- If the individual received a score of 2 for both Question #5 and #7

**Rating a 1**
- If the individual received a score of 2 for Question #5 or #7, and a score other than 2 for the other question
- If the individual received a score of 1 for both Question #5 and #7

**Rating a 0**
- If the individual received a score of 1 for Question #5 or #7, and a score of 0 for the other question
- If the individual received a score of 0 for both Question #5 and #7

---

**Need Factor**

**Question Number 9:**

A. What is the need level? To determine whether a need was Very Low/Low, Medium, or Very High/High, reference the categorical scoring sheet on the original LS/CMI. **Place an X in the box for the appropriate need level.**

B. “To what extent was need targeted?” To rate the extent to which the need was targeted:

   Scale: 0 to 2

   a. First, look at the list of each participant’s activities.
   b. Second, use the following rating rubric to determine whether the rating should be 0 (no programs), 1 (one program), or 2 (at least two programs)

<table>
<thead>
<tr>
<th>Education/Employment</th>
<th>0 (no or mostly not)</th>
<th>1 (to some extent; mixed evidence)</th>
<th>2 (yes or mostly yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual has not participated in any education or employment programs</td>
<td>Individual has participated in one educational or employment program</td>
<td>Individual has participated in at least two educational or employment programs</td>
<td></td>
</tr>
<tr>
<td>Look for: GED classes, Entrepreneurship, Job Readiness, Life Skills, or holding a job at the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Facility</td>
<td>Individual has participated in one program to strengthen family or marital relationships</td>
<td>Individual has participated in at least two programs to strengthen family or marital relationships</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Family/Marital</strong></td>
<td>Individual has not participated in any programs to strengthen family or marital relationships</td>
<td>Look for: <em>Family Services, Parenting class, Child Support Seminar</em></td>
<td></td>
</tr>
<tr>
<td><strong>Leisure/Recreation</strong></td>
<td>Individual has not participated in any programs to improve use of leisure time</td>
<td>Look for: <em>Religious services, chess club, recreation time</em></td>
<td></td>
</tr>
<tr>
<td><strong>Companions</strong></td>
<td>Individual has not participated in any programs to improve companions and associates</td>
<td>Look for: <em>Alumni Association, large lecture</em></td>
<td></td>
</tr>
<tr>
<td><strong>Alcohol/Drug Problem</strong></td>
<td>Individual has not participated in any substance use programming</td>
<td>Look for: <em>NA/AA, large lecture</em></td>
<td></td>
</tr>
<tr>
<td><strong>Procriminal Attitude/Orientation</strong></td>
<td>Individual has not participated in any programs to change procriminal attitudes and beliefs</td>
<td>Look for: <em>Anger management, large lecture</em></td>
<td></td>
</tr>
<tr>
<td><strong>Antisocial Pattern</strong></td>
<td>Individual received zero demerits or merits</td>
<td>Individual received one merit or demerit</td>
<td>Individual received at least two merits or demerits</td>
</tr>
</tbody>
</table>
C. How well does this match the need level?
Scale: 0 to 2

This question is assessing whether the intensity of services is an appropriate match for the level of need that a person has. Remember that low risk/need should indicate low intensity intervention, and high risk/need should indicate higher intensity intervention. To make this rating, you will look at the need level and the rating of the extent to which the need was met. Use the following rules to make this rating:

Rating a 2
- If need is very low/low and extent to which need targeted = 0
- If need is medium and extent to which need targeted = 1
- If need is high/very high and extent to which need targeted = 2

Rating a 1
- If need is very low/low and extent to which need targeted = 1
- If need is medium and extent to which need targeted = 0 or 2
- If need is high/very high and extent to which need targeted = 1

Rating a 0
- If need is very low/low and extent to which need targeted = 2
- If need is high/very high and extent to which need targeted = 0

Responsivity Factor

Question Number 10:

1. To rate number 10, look at the original version of the RNR Treatment Adherence Rating Form in the file. If there is an X or checkmark in any of the boxes, put an X in the corresponding boxes on the updated form.

Overall RNR Adherence

Question Number 11: What is the overall level of RNR Treatment Adherence?

1. Transpose your answers from the first part of the RNR Treatment Adherence Rating Form to the Final Rating Form (i.e., fill in 0, 1, or 2 into the blank next to each item number, based on your respective answers on the RNR Treatment Adherence Rating Form).
2. Sum the total of all eight items, and fill them into the blank in question #11.
3. Fill this sum into the blank labeled “sum”, next to the prompt, “What is the mean of these items?”
4. Divide this sum by eight to take the mean. Fill this number into the final blank, and also enter it onto the bottom of page 3 (in the section labeled “Summary Score”). Include all decimal places.
Vita

Stephanie Brooks Holliday is a fifth year PhD student on internship at the Washington DC Veterans Affairs Medical Center. She received her Bachelor of Science degree in Psychology from Duke University in 2006, and her Master of Science degree from Drexel University in 2011. Her research interests include forensic assessment, risk assessment, and risk reduction models. Her clinical experience has included forensic assessment, correctional interventions, neuropsychological assessment, health psychology interventions, and group and individual therapy with outpatients with serious mentally illness.

Selected Publications


Awards and Honors

American Psychology and Law Association Travel Award, 2012
American Academy of Forensic Psychology Dissertation Grant, 2011
Drexel University College of Arts and Sciences Research Day, 3rd Place, Graduate Humanities/Social Sciences, 2011
American Psychology-Law Society Grant-in-Aid, 2010
Drexel University Dean’s Fellowship, 2008-2010