

**Exploring Mechanisms of Change in the Rehabilitation of High-Risk
Offenders**

By

Julia A. Yesberg

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Abstract

The success or failure of many different types of treatment is often measured by one type of outcome. For example, treatment for substance abuse might be judged to have failed if a patient “goes on a bender” some time after completing the programme. The same is true for offender rehabilitation. Treatment success or failure is usually determined by whether or not an offender is reconvicted of a new offence in a specified follow-up period. We know from the literature that offender rehabilitation can have modest but significant effects on reducing recidivism. Yet we know little about what brings about these reductions (i.e., *how* the treatment worked). This thesis explores possible mechanisms of change in offender rehabilitation. I propose that although a reduction in recidivism is an important *long-term* outcome of treatment, there are a number of additional outcomes that have the potential to explain not only *if* but *how* treatment works and why it is unsuccessful in leading to a reduction in reoffending for some offenders.

Study 1 is a typical outcome evaluation of New Zealand’s rehabilitation programmes for high-risk male offenders: the High Risk Special Treatment Units (HRSTUs). I compared the recidivism rates of a sample of HRSTU completers with a comparison sample of high-risk offenders who had not completed the programme (a between-subjects design). I found that relative to the comparison group, treatment completers had significantly lower rates of four different indices of recidivism, varying in severity. The remainder of the thesis explored possible mechanisms of change within the HRSTU sample (a within-subjects design). Study 2 examined *immediate* outcomes of treatment, which I defined as within-treatment change on dynamic risk factors. I found that offenders made significant change on the Violence Risk Scale during treatment, but there was no significant relationship between treatment change and recidivism. Studies 3 and 4 examined *intermediate* outcomes of treatment, which I defined as barriers (risk factors) and facilitators (protective factors) that influence the process of offender re-entry. Study 3 validated an instrument designed to measure

these factors: the Dynamic Risk Assessment for Offender Re-entry (DRAOR). I found that the tool had good convergent validity and reliably predicted recidivism above a static risk estimate. Study 4 used the newly validated DRAOR to test an explanation for the lack of a *direct* relationship between treatment change and recidivism. I tested whether treatment change had an *indirect* relationship with recidivism through its influence on the re-entry process. I found that treatment change was related to a number of re-entry outcomes; however, only two models could be tested for mediation because the re-entry outcomes themselves lacked predictive ability. Nevertheless, findings from Study 4 suggest the re-entry process is an area worthy of further investigation.

Taken together, the findings from this thesis highlight the importance of considering alternative treatment outcomes in addition to whether or not a programme leads to a reduction in long-term recidivism outcomes. Answering the question of *how* treatment works requires an exploration into possible mechanisms of change. This thesis was only a preliminary investigation into such mechanisms; however, the findings have both practical and theoretical implications for the way we conceptualise how treatment programmes work. Developing a greater understanding of mechanisms of change in offender rehabilitation has the potential to lead to the design and delivery of more effective programmes.

Publications from this thesis

- Yesberg, J. A., & Polaschek, D. L. L. (2015). Assessing dynamic risk and protective factors in the community: Examining the validity of the Dynamic Risk Assessment for Offender Re-entry. *Psychology, Crime, & Law*, 21, 80-99. doi: 10.1177/0886260514527824
- Yesberg, J. A., & Polaschek, D. L. L. (2014). What can the DRAOR tell us about high-risk offenders? A preliminary examination. *Department of Corrections Practice Journal*, 2(1), 13-19.
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Other relevant publications

- Polaschek, D. L. L., & Yesberg, J. A. (2015). Desistance in high-risk prisoners: Pre-release self-reported desistance commitment and perceptions of change predict 12-month survival. *Department of Corrections Practice Journal*, 3(1), 24-29.
- Polaschek, D. L. L., Yesberg, J. A., Bell, R. K., Dickson, S. R., & Casey, A. R. (2015). *Comparing treated and untreated high-risk prisoners: What are the effects of treatment at the point of release?* Manuscript submitted for publication.
- Yesberg, J. A., & Polaschek, D. L. L. (2014). Using information from the Violence Risk Scale to understand different patterns of change: An exploratory investigation of intensively treatment life-sentenced prisoners. *Journal of Interpersonal Violence*, 29, 2991-3013. doi: 10.1177/0886260514527824.
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Chapter 1

Designing and Evaluating Effective Offender Rehabilitation

1.1 Introduction

Take a moment to imagine a hypothetical offender named Joseph who has recently been remanded in custody following an aggravated robbery. Joseph is in his early 20s, Māori, and is a member of a criminal gang. Many of his family are also members of criminal gangs, and during his childhood Joseph was exposed to antisocial behaviour, including alcohol abuse and domestic violence. Joseph left school at age 13 and has no formal qualifications or work experience. He has experienced periods of homelessness and has ongoing problems with substance abuse. This is not Joseph's first time in prison; he has engaged in criminal behaviour since his early teens and has numerous convictions for a range of offences, including burglary, theft, domestic assault, resisting police, and wilful damage. He has cycled in and out of prison since the age of 17 on a number of short sentences. However, if convicted for this aggravated robbery, he could receive a sentence of up to 14 years. And, even if he is released, there is a high chance he will be back in prison within months, weeks, or even days, because Joseph is considered to be at high-risk of reoffending.

Although comprising only a small proportion of the offender population, high-risk offenders commit the majority of crime. Just 20-30% of offenders commit 80% of all crime (Andrews & Bonta, 2003). As a result, these offenders are frequently imprisoned. Presently, there are 8,000 people being managed in prison and 36,000 people on community-based sentences (New Zealand Department of Corrections, 2014). For many of the 8,000 people in prison, this is not their first sentence of imprisonment, nor will it be their last. A study of high-risk male prisoners in New Zealand found that, on average, men were aged 15 at the date of their first recorded arrest, had 74 prior convictions and had served 7 previous terms of imprisonment by a mean age of 27 (Wilson, 2004). Research examining the recidivism rates of released

prisoners in New Zealand showed that high-risk offenders' odds of returning to prison were as great as 60% within the first 100 days of release (Nadesu, 2007), suggesting that not only do these offenders commit the majority of crime, they do so very quickly after release. Hence, prison is often described as being analogous to a revolving door for these offenders. The financial cost is huge. A single high-risk offender will cost the New Zealand taxpayers \$3 million across their lifespan (Cheng, 2011). Furthermore, the cost for victims is immeasurable; victims of crime suffer both physically, materially, and psychologically. It follows that much effort goes into trying to break this cycle and rehabilitate those offenders, like Joseph, who cause the most harm to themselves, their family, and society.

The last few decades have seen a renewed interest in offender rehabilitation, and a wealth of research has accumulated related to psychological interventions with offenders. Many correctional agencies now devote considerable resources to the delivery of a wide range of offender rehabilitation programmes (e.g., programmes for violent and sexual offenders, drug and alcohol interventions). All of these programmes share the goal of reducing reoffending by targeting factors that predict criminal behaviour, and that are amenable to change. Empirical research evaluating these programmes—including numerous meta-analyses—has demonstrated that offender rehabilitation can have a modest but significant effect on reducing recidivism (e.g., Hanson, Bourgon, Helmus, & Hodgson, 2009; Lipsey, 2009; Marshall & McGuire, 2003; Polaschek, 2011; Wilson, Bouffard, & MacKenzie, 2005).

These programme evaluations typically assess how interventions delivered between times A and B affect recidivism outcomes at time C (see Figure 1).¹ If there are significant reductions in recidivism at time C, then the intervention is deemed to have been effective (Porporino, 2010). However, it is not clear from this type of evaluation design what brings about these reductions in recidivism (i.e., the mechanisms of change). This thesis critiques the typical approach to evaluating offender interventions.

¹ In the current thesis I focus only on programmes delivered in prison.

I propose that although a reduction in recidivism is an important *long-term* outcome of treatment, there are a number of alternative outcomes that have the potential to explain not only *if* but *how* treatment works.

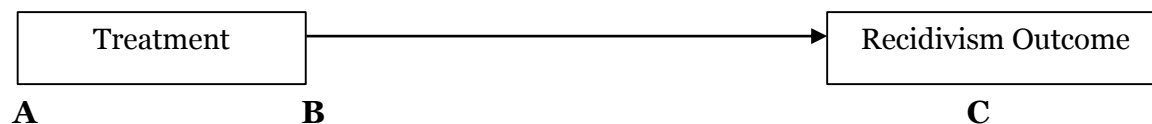


Figure 1. Typical Outcome Evaluation

The general introduction is split into two parts. Chapter 1 describes the “what works” movement and the development of effective offender rehabilitation. I then discuss problems with the way evaluations of programmes are typically designed and suggest two alternative treatment outcomes. First, consistent with prior research, I propose that an alternative treatment outcome is whether offenders made changes in the areas targeted by the programme (i.e., between times A and B). I use the term *immediate* outcome to refer to within-treatment progress on dynamic risk factors. Second, I propose another approach to examining treatment effects: exploring the process of offender re-entry (i.e., between times B and C). I use the term *intermediate* outcomes to refer to factors that influence the re-entry process. Chapter 2 introduces these alternative outcomes of treatment and discusses the relevant literature supporting their inclusion in treatment outcome evaluations as possible mechanisms of change. Chapter 2 ends by setting out the structure and research aims of this thesis.

1.2 What Works with Offenders?

Today, the place for offender rehabilitation in corrections as an effective strategy for reducing recidivism is well established. Yet only a few decades ago the prevailing wisdom was that “nothing works” with offenders. This belief was prompted by a review of the offender programme evaluation literature by Robert Martinson (1974), an American sociologist, who determined that “the rehabilitative efforts that

have been reported so far have had no appreciable effect on recidivism” (p. 25). He went on to pose the question: “Does nothing work?” (p. 48). The answer to this question was widely interpreted to be no. As a result, the field of correctional research became preoccupied with attempting to show what does not work with offenders: an exercise in “knowledge destruction” (Cullen & Gendreau, 2001, p. 313).

Responding to the “nothing works” movement, researchers in the 1980s and 1990s, spurred on by a number of influential Canadian psychologists, commenced the process of “knowledge construction” (i.e., showing what does work; Cullen & Gendreau, 2001, p. 313). Hundreds of empirical studies and meta-analyses on the effects of offender rehabilitation have been published since this time and professional ideology has shifted from “nothing works” to “what works” (Smith, Gendreau, & Swartz, 2009). More specifically, research has focused on what works best, for whom, under what circumstances, and why (Lipsey & Cullen, 2007). We now know from this research that offender rehabilitation can have a modest but significant effect on reducing recidivism. But we also know there is considerable variability in the effects of treatment based on a number of variables, including programme features, to whom the treatment is offered, and how it is implemented. As a result of the “what works” literature, a series of empirically validated principles now guide offender rehabilitation.

1.2.1 Risk-Need-Responsivity Model

The best-known series of principles is the foundation of the Risk-Need-Responsivity model of effective interventions (RNR; Andrews & Bonta, 2010; Andrews, Bonta, & Hoge, 1990). The RNR model was first published in its full form in 1994 and was strongly influenced by the “what works” movement (Polaschek, 2012). The three key principles of the model state that: (1) programmes should match offenders’ risk levels with the degree of intervention, and higher-risk offenders should receive more intensive treatment (*risk*), (2) programmes should target features that contribute to offending (e.g., dynamic risk factors/criminogenic needs; *need*), and (3) programmes should recognise that offenders have a wide range of learning styles and abilities, and

interventions should be designed and delivered in a manner that enhances offenders' abilities and helps them to learn and change (*responsivity*). In addition to the 3 key principles, 15 other principles make up the RNR model, including *overarching principles* (e.g., basing programmes on empirically solid psychological theory and delivering services with respect for the offender), additional *clinical principles* (e.g., assessing strengths to enhance responsivity and employing structured assessment of RNR factors), and *organisational principles* (e.g., community-based interventions are preferable).

1.2.1.1 Risk Principle. The risk principle identifies *whom* to target for interventions. First, it suggests that people differ from each other in their likelihood of engaging in criminal behaviour, and that criminal behaviour can be predicted using a range of factors, including previous behaviour and current attributes. Second, it states that more resources should be directed to those at highest risk of engaging in criminal behaviour. Myriad studies and meta-analyses have confirmed that brief or narrowly focused interventions have little or no effect on high-risk offenders (e.g., Lowenkamp, Latessa, & Holsinger, 2006). Furthermore, programmes that focus on lower risk offenders, or that mix high and low risk clients, can increase recidivism rates for the lower risk offenders (e.g., Andrews & Dowden, 2006; Lowenkamp & Latessa, 2005).

1.2.1.2 Need Principle. The need principle identifies *what* to target in rehabilitation. It directs interventions to target criminogenic needs: dynamic factors that are the direct causes of criminal behaviour. Andrews and Bonta (2010) identify eight major risk/need factors (the 'Central Eight'), which are divided into the 'Big Four' (antisocial attitudes, antisocial associates, antisocial personality, and a history of antisocial behaviour) and the 'Moderate Four' (family/marital circumstances, social/work, leisure/recreation, and substance abuse), based on the strength of their association with recidivism. The need principle states that criminogenic needs should be targeted in treatment rather than non-criminogenic needs (e.g., self esteem, trauma); or, at the least, the ratio of criminogenic needs to non-criminogenic needs

should be optimised (Andrews & Bonta, 2010). Programmes that target multiple criminogenic needs bring about the greatest reductions in recidivism (Gendreau, French, & Taylor, 2002).

1.2.1.3 Responsivity Principle. Finally, the responsivity principle is the *how* of offender rehabilitation. The principle is divided into two parts: general and specific responsivity. General responsivity refers to programming modalities that work best with offenders. In particular, social learning and cognitive-behavioural approaches are recommended; these approaches have been shown to produce the greatest reductions in criminal behaviour (Dowden & Andrews, 2000; Lipsey, 2009). Specific responsivity refers to individual differences among offenders in the styles and modes of treatment they respond to. It states that treatment providers should identify potential barriers to treatment and design and deliver programmes in ways that are most conducive to individual's learning styles, motivations, and abilities (Andrews & Dowden, 2006).

1.2.1.4 Theoretical Basis of RNR Model. The RNR model is grounded in a General Personality and Cognitive Social Learning (GPCSL) perspective of human behaviour, and includes a more specific theory of the central mechanisms of criminal conduct: the Personal, Interpersonal, and Community-Reinforcement (PIC-R) perspective (Andrews & Bonta, 2010). This theory states that criminal behaviour is influenced at the personal level (e.g., personality patterns conducive to crime, such as impulsivity), the interpersonal level (e.g., exposure to antisocial models), and the community level (e.g., cultural factors that reward engagement in crime). Patterns of criminal behaviour are acquired and become established through the interaction of these individual and environmental variables. Furthermore, the PIC-R argues that crime is outcome-oriented and variations in criminal behaviour reflect the balance of the rewards and costs for criminal and non-criminal alternatives (Andrews & Bonta, 2010). Hence, programmes that make systematic attempts to alter patterns of criminal behaviour by ameliorating deficits, and that shift the balance of rewards and costs for criminal and non-criminal behaviour so that non-criminal alternatives are favoured,

should result in a reduction in criminal behaviour (McGuire et al., 2008; Salisbury, 2013).

1.2.1.5 Empirical Support for RNR Model. The RNR principles and their underlying theories guide many correctional services in the selection of clients, the kinds of interventions provided, and the manner in which treatment is delivered. Encouragingly, the extent of adherence to the RNR principles has been shown to predict whether or not a programme is associated with positive outcomes. Interventions that adhere to the 3 key principles have shown reductions in recidivism of up to 26%, while programmes that adhere to only 1 or 2 of the principles show smaller effect sizes (Andrews & Bonta, 2010). What's more, programmes that have low RNR-adherence have been shown to have negligible or even negative effects on recidivism (effect sizes of $-.06$ to $.14$ for programmes with no or low adherence to RNR; Andrews & Bonta, 2010).

1.2.2 Other Models of Rehabilitation

Although the RNR model is the most widely used and empirically validated framework of offender rehabilitation, other models have been proposed. The Good Lives Model (GLM; Ward & Brown, 2004) is the most popular alternative to RNR and has been applied mostly to sexual offender treatment (Willis, Ward, & Levenson, 2014). The GLM—described by its authors as a strength-based rehabilitation framework—assumes that all people strive to obtain *primary goods* (e.g., autonomy, relatedness, a healthy life; Ward & Brown, 2004). Criminal behaviour arises when an individual struggles to obtain primary goods in a prosocial way, and resorts to antisocial or criminal means to obtain them (e.g., achieving the primary good of relatedness through gang membership). Thus, GLM treatment teaches offenders how to acquire primary goods pro-socially (Ward & Stewart, 2003). Although it lacks the robust empirical support that the RNR model has, the popularity of the GLM—and a focus more broadly on positive psychology and strengths-based approaches—is growing (Huynh, Hall, Hurst, & Bikos, 2014; Wormith et al., 2007). For the remainder of this thesis, when I

refer to offender rehabilitation I am referring to RNR-based treatment because this framework guides the rehabilitation of high-risk offenders in New Zealand.

1.2.3 Summary

In summary, the concerted efforts of a number of researchers in the 1980s and 1990s encouraged the proliferation of the “what works” literature. We now know from this research how best to design and deliver programmes to maximise their effectiveness. Specifically, we know that cognitive-behavioural interventions should target high-risk offenders and attend to multiple criminogenic needs, while responding to individual differences in how people learn and respond to treatment. The next section introduces and critiques the current approach to how we measure treatment effectiveness.

1.3 Measuring Treatment Efficacy

1.3.1 Outcome Evaluations

Several methodologies have been employed to measure the effectiveness of offender rehabilitation. Random assignment is considered to be the most methodologically rigorous approach (Lösel, 2001; Rice & Harris, 2003), which involves taking a group of offenders and randomly allocating them to treatment or not. In these randomised controlled trials (RCTs), each offender has an equal chance of being selected for each condition (Friendship, Falshaw, & Beech, 2003). However, this type of experimental design can rarely be fulfilled in correctional settings (Lipsey & Cullen, 2007), and some authors argue that ethical considerations inherent in denying offenders treatment make RCTs unsuitable for offender programme evaluations (Marshall & Marshall, 2007). Furthermore, random allocation does not necessarily result in two equivalent groups (Marques, Wiederanders, Day, Nelson, & van Ommeren, 2005; Rice & Harris, 2003), the findings may lack generalisability to real-world therapeutic settings (Harkins & Beech, 2007), and threats to validity may still emerge in these experiments (Lösel, 2001).

One issue that researchers face with RCT designs is how to deal with treatment dropouts. One approach to analysis is Intention to Treat (ITT), where comparisons are based on the original randomly assigned groups, rather than the treatment actually received (Hollin, 2008). An alternative approach is Treatment Received (TR) in which treatment dropouts are removed from the experimental condition. There has been debate regarding the most appropriate methodology to use in offender treatment evaluations. An ITT design may underestimate the positive effects of treatment, but a TR design threatens the integrity of the RCT by violating the principles of randomisation (Hollin, 2008).

An alternative approach to evaluating offender interventions is a quasi-experimental design (QED), which most often involves taking a group of offenders who have been through treatment and retrospectively matching them to a group of untreated offenders on risk of reoffending and other risk-related variables (e.g., age; Lipsey & Cullen, 2007; Polaschek & Collie, 2004). Matching may be done on a case-by-case basis or using statistical methods, such as propensity matching (see D'Agostino, 1998 for a description of this method). A prospectively matched comparison group is more advantageous because it enables researchers to collect similar data for both groups and to control for more variables (Friendship et al., 2003), but retrospective matching is more common. However, despite matching the two groups on a number of key variables related to their propensity to reoffend, as Hollin (2008) notes, “the absence of randomization allows the probability of some systematic variation between groups” (p. 95). Thus, QEDs may be subject to biases resulting from differences in some extraneous variables that were not measured and were not criteria for matching. Although it is widely agreed that RCTs have higher internal validity than QEDs “valid conclusions can, nevertheless, be drawn from well-designed quasi-experimental studies” (McGuire et al., 2008, p. 26). Furthermore QEDs may have more external validity than RCTs (i.e., their findings may be more easily applied to the real world).

1.3.2 Recidivism as an Outcome Measure

Whichever the methodological design used—randomised or quasi-experimental—after the two groups of offenders have been identified, conclusions about the effectiveness of the treatment are drawn based on similarities or differences in the outcomes of each group (see Figure 1). A reduction in recidivism has long been viewed as the ultimate outcome or goal of treatment (Hanson, 1997). Using the methodology presented in Figure 1, treatment is deemed “effective” if the treated group recidivate at a significantly lower rate than the comparison group. Recidivism is usually defined as an official conviction for a new offence during a specified follow-up period (although, as I will discuss in the next section, there are inconsistencies in this definition across evaluations).

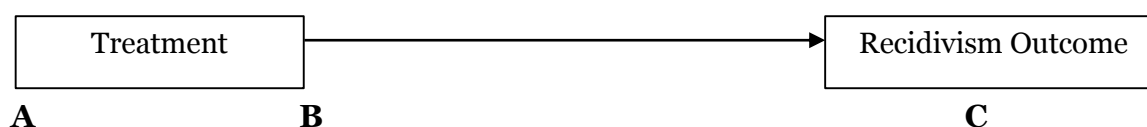


Figure 1. Typical Outcome Evaluation

There are a number of reasons why recidivism is such a popular measure of treatment effectiveness. The first is the relative ease with which recidivism data can be obtained (Friendship et al., 2003; Maltz, 1984). Reconviction data are systematically recorded by correctional agencies and require little effort or time to extract.² Another reason for the widespread use of recidivism as an outcome measure is its association with an underlying concern of public safety (Harris, Lockwood, Mengers, & Stoodley, 2011). Society wants to be assured that the criminal justice system is protecting them from future harm by reducing rates of reoffending, and as a result, reducing the number of new victims. Evidence of reductions in recidivism is also required for

² Of course, the ease with which recidivism data can be collected varies across different jurisdictions. In New Zealand, we have one national records system; however, in the United States there are many different jurisdictions, which have their own systems and definitions of recidivism, making it difficult to collect comparable data across states.

treatment programmes' accountability to governments and funders (i.e., taxpayers). Correctional agencies are often under pressure to produce evidence of the effectiveness of their interventions based on whether or not they reduce recidivism, and as a result reduce the huge cost of imprisoning and managing reoffenders.

Although a reduction in recidivism is obviously an important outcome of offender rehabilitation, there are a number of concerns with using recidivism as the *only* measure of treatment success. Some of these concerns relate to inconsistencies in the definition and measurement of recidivism. Other concerns are more conceptual and theoretical in nature. The following section discusses these concerns and introduces alternative treatment outcomes that form the basis of this thesis.

1.3.3 Problems with Treatment Outcome Studies

1.3.3.1 Methodological Issues. As previously discussed, the most methodologically rigorous outcome evaluations use either a randomised or quasi-experimental design with comparable control groups. Yet the requirements of these designs are rarely fulfilled in the offender treatment evaluation literature. As Lösel (2001) notes, “practical constraints frequently do not permit an optimal design” (p. 74). Thus, most studies are not RCTs, and many are low-quality QEDs. Common issues affecting the quality of QEDs include using non-equivalent treatment and comparison groups, or comparing treatment completers to treatment dropouts (Hollin, 2008). Clearly these issues threaten the internal validity of outcome evaluations. Therefore, it is important to bear in mind when reviewing the literature that outcome evaluations vary in their quality and that conclusions should only be drawn from RCTs or good-quality QEDs with equivalent treatment and comparison groups.

Another methodological issue resides in differences in the way in which recidivism is measured across studies. As Maltz (1984) noted in his seminal book titled *Recidivism*, “recidivism has been defined on an *ad hoc* basis, without consideration of its true meaning; and it has been measured in ways remarkable for their inconsistency” (p. 1). Most studies use official convictions for a new offence, while others use any

arrests regardless of conviction, and occasionally studies use self-reported reoffending (Fortune & Lambie, 2006; Harris et al., 2011; Wormith et al., 2007). And even if two studies do use the same definition (e.g., official convictions for a new offence), there may be other differences within jurisdictions that are not accounted for. For example, policy shifts within correctional agencies may mean that at any given time an offender is more or less likely to be convicted of an offence (Maltz, 1984). Take the New Zealand case of Graeme Burton, a high profile convicted killer who committed another murder while on parole in 2006, six months after his release from prison. This incident led to increased public concern about the release of high-risk offenders on parole and to internal reviews by the Community Probation Service (New Zealand Herald, 2009). Following the Burton case, probation officers were authorised to tighten up on their management of offenders and there was less leniency regarding issues of non-compliance. This change within probation would likely have resulted in more convictions for parole violations than before the Burton incident.

Another issue is the “dark figure” of crime: the large amount of unreported or undiscovered crime. Offending behaviour can go undetected for various reasons, including the reluctance of the victim to come forward or the offender not being apprehended. The New Zealand Crime and Safety Survey (Ministry of Justice, 2010) found that only a third of victims reported crime they experienced to the Police. Crime reporting behaviour was especially low for sexual crimes, with the victims often feeling too ashamed or embarrassed to come forward. Underreporting of crime or lack of apprehension leads to a conservative estimate of true recidivism rates when official records are used, and as Friendship et al. (2003) note, “few studies of recidivism have been able to tap into reoffending that is not detected by authorities” (p. 116). Another problem is the magnitude of base rates. Possibly for the reasons cited above (e.g., underreporting), sexual recidivism in particular is recognised as having relatively low base rates (e.g., 13%; Hanson & Bussiere, 1998). Low base rates make it much harder to detect significant differences and can possibly mask treatment effects (Day, Vess, &

Ward, 2012). Furthermore, sexual recidivism may be detected after a lengthy period of time following release from prison. Therefore, these studies are often drawing conclusions about the effect of treatment on behaviour that is detected many years later.³

A final methodological issue to note is that in most treatment evaluations, all recidivism events are given the same weight (Friendship, Beech, & Browne, 2002; Maltz, 1984). Recidivism is usually expressed as a dichotomous event (all or nothing), which does not take into account the severity or frequency of the subsequent offending. For example, a conviction for murder or serious aggravated wounding is given the same weight as a conviction for a minor assault, or even a conviction for shoplifting if violent recidivism is not analysed separately. Furthermore, recidivism is usually measured by the *first* reoffence after release rather than the *number* of reoffences in the follow-up period. As such, recidivism rates are likely to be very crude indices of treatment effectiveness (Day, Bryan, Davey, & Casey, 2006; Marshall & McGuire, 2003).

1.3.3.2 Theoretical and Conceptual Issues. Perhaps more significant than the methodological concerns, are the theoretical and conceptual issues with using recidivism as the sole measure of treatment effectiveness. The assumptions that underpin offender rehabilitation are that: (1) offenders have problems, which are directly related to their criminal behaviour, (2) we have the ability to identify these problems accurately, (3) these problems will be “fixed” or at least mitigated as a result of evidence-based treatment, and (4) offenders’ criminal behaviour will reduce as a result of mitigating the problems (Maltz, 1984). A reduction in recidivism is often identified as the ultimate goal of offender rehabilitation. Accordingly, in typical outcome evaluations, offenders who do not recidivate in the follow-up period are deemed to be treatment “successes”, while offenders who do recidivate are considered treatment “failures”. But this is a very limited view of treatment success; success is

³ These issues are less of a concern with high-risk offenders who have high base rates of recidivism and who reoffend quickly following release (Nadesu, 2007).

viewed merely as not having been convicted of an offence. Not to mention that total desistance from crime is an unrealistic goal for most high-risk offenders. As Maltz (1984) suggests, the main question of any programme evaluation should be “to what extent were treatment group members rehabilitated?” (p. 10). However, the author argues that in typical evaluation research, the question addressed is not “Did the treatment mitigate the problems addressed by the programme?” but rather “Did the programme (somehow) reduce the post-release criminality of its participants?” (p. 10). Consequently, while recidivism outcomes can tell us whether a programme achieved its ultimate goal of reducing criminal behaviour, they do not tell us *how* the treatment worked.

I propose in this thesis that a reduction in recidivism should be viewed as a *long-term* outcome of treatment, which is consistent with the literature identifying recidivism as the ultimate goal of offender rehabilitation (e.g., Hanson 1997). But, reductions in recidivism are achieved by fulfilling more *immediate* and *intermediate* outcomes—outcomes that have the potential to explain *how* treatment works (i.e., possible mechanisms of change). This approach to offender treatment evaluation—that is, exploring the effect of treatment on intervening or mediating variables—is consistent with the approach taken in other areas of Prevention Science (e.g., drug prevention, prevention of heart disease; see MacKinnon, 2008; MacKinnon & Dwyer, 1993).

So what are these alternative outcomes? Firstly, offender rehabilitation is theorised to reduce recidivism via a reduction in the factors that led individuals to engage in criminal behaviour in the first place (i.e., dynamic risk factors or criminogenic needs; Andrews & Bonta, 2010). An *immediate* or proximal treatment outcome, therefore, is whether offenders made changes in the areas they were meant to demonstrate change in during the programme (i.e., between times A and B; see Figure 2; Hanson, 1997). For example, did the programme reduce the dynamic risk factors that were targeted for change (e.g., association with criminal peers, attitudes towards authority, alcohol or drug use, impulse control)? And, were these within-treatment

changes related to reductions in recidivism (i.e., were they a mechanism by which treatment reached its long-term goal)? Immediate outcomes, such as within-treatment change, are rarely incorporated into treatment evaluation research so we are left to make inferences about how the treatment worked and why it was unsuccessful in leading to a reduction in recidivism for some offenders.



Figure 2. Outcome Evaluation Including Immediate Outcomes

In addition to neglecting immediate outcomes of treatment, typical outcome evaluations also ignore what I refer to as *intermediate* outcomes. In other words, they ignore the period of time *between* treatment completion and recidivism (i.e., between times B and C; see Figure 3). Depending on jurisdictional policies, following the successful completion of treatment, most offenders will sooner or later be released back into the community. This initial period of release from prison—otherwise known as “re-entry”—is a particularly challenging time for offenders, and recidivism rates are at their peak (Nadesu, 2007). The re-entry period is considered to be a crucial phase in the process of desistance from crime (Göbbels, Ward, & Willis, 2012). Research has identified a number of barriers (i.e., risk factors) and facilitators (i.e., protective factors) to re-entry, which are both internal to the individual (e.g., negative mood) and external to the individual (e.g., living situation; Serin & Lloyd, 2009). But, despite the recognition that the re-entry process is a critical time for offenders, there is a distinct gap between the literature on offender rehabilitation and on re-entry. No empirical

research that we know of has examined how treatment is related to the process of offender re-entry.

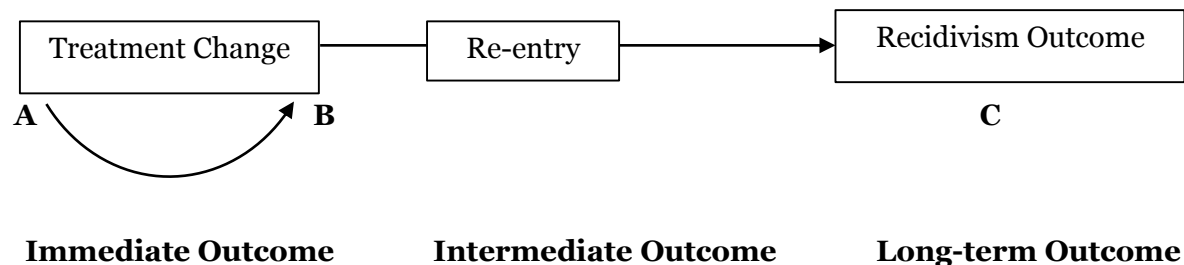


Figure 3. Outcome Evaluation Including Immediate and Intermediate Outcomes

1.4 Summary

In summary, recidivism is an important *long-term* outcome of treatment; however, evidence of a reduction in recidivism tells us very little about *how* the treatment worked. In particular, typical outcome evaluations ignore the *immediate* outcomes of treatment, such as change in dynamic risk, and neglect the influence of *intermediate* outcomes (i.e., factors that influence the re-entry process). Without consideration for these additional outcomes, we do not get an accurate picture of how treatment works, who is benefiting the most from treatment, why it is unsuccessful in leading to a reduction in recidivism for some offenders, and what could be done to maximise the effects of treatment. These issues form the basis of the current thesis. The next chapter introduces the mechanisms of change that I propose are important for increasing our understanding of how treatment works: *immediate* and *intermediate* outcomes of treatment. In doing so, we move from a focus on a between-subjects comparison (i.e., comparing a treated group with an untreated group) to a within-subjects design (i.e., examining variability within treatment completers in their response to treatment).

Chapter 2

Exploring Mechanisms of Change

2.1 Introduction

Treatment success or failure is usually determined by one type of outcome: whether or not an offender is reconvicted of a new offence in a specified follow-up period. But, as just discussed, this finding tells us little about what brought about these reductions. In other words, it does not provide us with any information about mechanisms of change. This chapter introduces two potential mechanisms or outcomes of treatment that are neglected in typical outcome evaluation research. *Immediate* outcomes in this thesis refer to within-treatment changes on dynamic risk factors. Reducing these factors has been identified as the central mechanism by which treatment works (i.e., *need* principle; Andrews & Bonta, 2010). However, as Monahan and Skeem (2014) argue “there rarely is any demonstration that the proposed mechanism of behaviour change (i.e., reduction in the targeted risk factor) explains (i.e., causes) the reduction in recidivism” (p. 161). *Intermediate* outcomes in this thesis refer to factors that influence the process of offender re-entry.⁴ I draw on theories of desistance from crime that suggest that re-entry period is an important phase in the process of giving up crime (Göbbels, Ward, & Willis, 2012). This chapter introduces the relevant research on immediate and intermediate outcomes before setting out the structure and research aims of this thesis.

2.2 Treatment Change as an Immediate Outcome

The presumed mechanism that underlies effective offender rehabilitation is the reduction of dynamic (i.e., changeable) factors that cause and maintain criminal behaviour (*need* principle; Andrews & Bonta, 2010). Therefore, a more immediate or

⁴ Some researchers use the term “intermediate outcome” to refer to within-treatment changes (e.g., Andrews, Bonta, & Wormith, 2006; Wilkinson, 2005). In my opinion, the term “intermediate” is more relevant for information gathered in the period *between* treatment completion and recidivism, given that the definition of intermediate is “in the middle”.

proximal indicator of treatment effectiveness is whether offenders change in the areas they are meant to demonstrate change in during the programme (i.e., their treatment targets; Hanson, 1997). And, if within-treatment change on dynamic risk factors is indeed the mechanism that underpins the relationship between treatment and recidivism, then offenders who show more change in treatment should be less likely to reoffend than offenders who show less change. But empirical support for the link between within-treatment change and recidivism is scarce. Monahan and Skeem (2014) suggest, “the most compelling form of evidence that a risk factor was causal would be a randomized controlled trial in which a targeted intervention was shown to be effective in changing one or more variable risk factors, and the resulting changes were shown to reduce the likelihood of post-treatment recidivism” but they note “it is nearly impossible to locate such randomized controlled tests of causal risk factors for recidivism” (p. 161).

2.2.1 Measuring Treatment Change

Many studies have examined whether targeted dynamic risk factors reduce over the course of treatment. In order to empirically examine change in these factors, we first need to be able to measure change accurately. Typically, participants are assessed prior to treatment on a range of areas related to their offending (e.g., offence-supportive thinking, impulse control, antisocial associates), and then re-assessed on the same variables following treatment, to determine progress or change. Treatment progress is most often assessed empirically using offender self-report (Polaschek, Bell, Calvert, & Takarangi, 2010). Research using psychometric self-report measures has found significant pre- to post-treatment changes on dynamic risk factors, in areas such as antisocial attitudes, cognitive distortions, anger expression and anger control, and impulsivity (e.g., Beggs & Grace, 2011; Hildebrand & de Ruiter, 2012; Hudson, Wales, Bakker, & Ward, 2002; Marques, Wiederanders, Day, Nelson, & van Ommeren, 2005; Polaschek & Dixon, 2001; Woessner & Schwedler, 2014).

More recently, within-treatment change has been assessed using clinician-rated risk assessment tools, designed specifically to identify relevant dynamic risk factors and to measure change in these factors over time (Douglas & Skeem, 2005). The Violence Risk Scale (VRS; Wong & Gordon, 2000) is one such tool. Developed to identify and measure progress on violence risk, the VRS incorporates a modification of the Transtheoretical Model of Change (TTM; Prochaska, DiClemente, & Norcross, 1992): the most common model of change used in offender assessment and in correctional programmes (Anstiss, Polaschek, & Wilson, 2011; Day, Bryan, Davey, & Casey, 2006). The VRS adaptation of the TTM assumes that offenders progress through five identifiable stages of change: in the *Pre-contemplation* stage people have no awareness of their problem; in the *Contemplation* stage they acknowledge the problem and are considering change; *Preparation* involves people committing to change and making preliminary attempts to alter the problem behaviour; in *Action*, people show consistent positive change in the problem behaviour; finally, in *Maintenance* people are consolidating change and working on relapse prevention strategies across relevant high-risk situations. The VRS assesses the amount of progress made during treatment by identifying progress from one stage to another, on up to 20 different dynamic risk items. Scores on the items themselves are predictive of both violent and non-violent recidivism (Wong & Gordon, 2006). An equivalent tool is available for use with sexual offenders: the Violence Risk Scale-Sexual Offender Version (VRS-SO; Olver, Wong, Nicholaichuk, & Gordon, 2007).

Do these clinician-rated dynamic risk tools also demonstrate significant pre-post treatment change? Studies examining change on the VRS and VRS-SO have found that scores change significantly over the duration of treatment (Lewis, Olver, & Wong, 2013; Olver, Christofferson, Grace, & Wong, 2013; Olver et al., 2007). For example, one study found that offenders changed an average of 4.75 points on the VRS, which is equivalent to a single stage shift (e.g., preparation to action) on 10 dynamic risk factors for violence (Lewis et al., 2013). Similar results have been found with other clinician-

rated measures (e.g., the HCR-20; de Vries Robbé, de Vogel, Douglas, & Nijman, 2014). These findings suggest that treatment *can* alter dynamic risk factors.⁵ But in order to determine mechanisms of change, research needs to demonstrate that altering these factors leads to reductions in recidivism (i.e., establish that they are causal risk factors; Kroner & Yessine, 2013; Monahan & Skeem, 2014).

2.2.2 Linking Treatment Change to Recidivism Outcomes

There is surprisingly little research linking within-treatment change and recidivism. Serin, Lloyd, Helmus, Derkzen and Luong (2013) reviewed 378 cognitive skills, violence reduction, and substance abuse studies measuring treatment change and found that only 17 of these studies attempted to link within-treatment change to recidivism outcomes, and just 10 showed a significant association between recidivism and at least one change measure. The authors concluded “it remains relatively unexplored whether individual-level changes are reliably associated with reduced risk for recidivism” (p. 33). Most of the studies reviewed by Serin et al. were based on psychometric self-report measures, suggesting that offender’s own evaluations of change may not be externally valid. Consistent with Serin et al.’s review, a number of recent studies not included in their paper have also found little or no relationship between offender self-reported change and reductions in recidivism (Barnett, Wakeling, Mandeville-Norden, & Rakestrow, 2013; Kroner and Yessine, 2013; Olver, Kingston, Nicholaichuk, & Wong, 2014; Woessner & Schwedler, 2014). However, a study by Beggs and Grace (2011) found that self-reported change on psychometric measures of sexual interests and anger/hostility significantly predicted recidivism, and other research has found that change on some domains of a self-report measure is associated with reduced recidivism (e.g., Hudson et al., 2002).

Research examining change in externally rated measures shows similarly inconclusive results. Positive relationships between within-treatment change and

⁵ Although, technically, without a measure of change over time for a control group, we cannot determine whether the change was brought about by the programme. This limitation will be discussed later on in the thesis.

recidivism have been found in only a handful of studies. In a study of 150 treated, mostly high-risk, violent offenders with significant psychopathic personality traits, Lewis et al. (2013) found that after controlling for pre-treatment levels of risk, offenders who made more change on VRS items during treatment were significantly less likely to reoffend on release than those who made less progress. Similar results have been found using the VRS-SO with both Canadian and New Zealand samples: that is, more change was associated with lower rates of sexual recidivism after controlling for pre-treatment risk levels (Beggs & Grace, 2011; Olver et al., 2013; Olver et al., 2007). All of the above studies used ratings of change made retrospectively by researchers who were external to the treatment process. The majority of studies using ratings made by clinicians have found no relationship between within-treatment change and recidivism (Barbaree, 2005; Langton, Barbaree, Harkins, & Peacock, 2006; Seager, Jellicoe, & Dhaliwal, 2004; Quinsey, Khanna, and Malcolm, 1998). For example, one study using a sample of male sexual offenders found that clinician evaluations of treatment change, such as enhanced victim empathy, were not associated with reductions in recidivism (Seager et al., 2004).

2.2.3 Why Treatment Change is not Reliably Linked to Recidivism

The lack of empirical research finding a relationship between treatment change and recidivism is surprising, given that change in dynamic risk factors is thought to be the central mechanism by which treatment reduces long-term recidivism outcomes. However, there are a number of possible explanations. The most commonly cited reasons have to do with the measurement of treatment change, especially accuracy and predictive validity of change measurements. Concerns about accuracy most often centre on offender self-report (Brown, Amand, & Zamble, 2009; Mills, Loza, & Kroner, 2003; Polaschek, et al., 2010), while predictive validity has also sometimes been a problem with clinician-rated change measures (Marques et al., 2005; Looman, Abracen, Serin, & Marquis, 2005). Another methodological issue is that in many of these change studies, a baseline measure of risk is not taken into account. Research has found that

individuals with higher pre-treatment scores make more change in treatment than people with lower scores because they essentially have more room to change (Beggs & Grace, 2011; Hudson et al., 2002; Olver et al., 2014). As a result, the lack of a relationship between change and recidivism could simply be because of the higher underlying risk of those who change the most in treatment. Studies that do control for pre-treatment levels of risk—either by adding them as a covariate in the analyses or by creating residualised change scores—have found significant relationships between within-treatment change and recidivism (e.g., Beggs & Grace, 2011; Olver et al., 2007). But other studies have found no relationship, even when controlling for baseline risk, suggesting this methodological issue is not fully accounting for the inconclusive results (Klepfisz, O'Brien, & Daffern, 2014).

Finally, *statistically* significant change is not sensitive to the presence of dysfunction post-treatment, and the amount of change an individual made does not tell us whether the problem was gone (or had reached “normal” levels) by the end of treatment (Nunes, Babchishin, & Cortoni, 2011; Wakeling, Beech, & Freemantle, 2013). Thus, measures of *clinically* significant change—that is, whether an offender is in the functional range at the end of treatment (Kazdin, 2003)—might have better predictive validity. One study examining clinically significant change in the domains of sexual deviance, socioaffective functioning and problems with self-regulation found that change was associated with significant reductions in violent recidivism (Wakeling et al., 2013).

Other explanations are more conceptual in nature. Research that attempts to link within-treatment progress to long-term recidivism outcomes ignores a number of important points regarding: (1) the nature of behaviour change and (2) the process by which offenders are thought to desist from crime. Firstly, the Transtheoretical Model of Change is based on a theory of change that assumes that behaviour change is not a discrete event but a process of qualitatively distinct stages through which people progress (Casey, Day, & Howells, 2005; Prochaska, et al., 1992). An important aspect of

the TTM is the recursive and cyclical nature of the progression through stages; movement from pre-contemplation to maintenance typically involves periods of relapse back to earlier stages (usually at least 3 times) before permanent change is achieved (Prochaska, et al., 1992). But surprisingly little is known about what happens to progress once offenders leave treatment. We conducted a study following up on the treatment progress of a sample of 35 life-sentenced treatment completers, using the VRS (see Yesberg & Polaschek, 2014). Results from this pilot study showed that patterns of change during treatment did not necessarily parallel patterns post-treatment, and that some offenders slid back into old behaviour in the months following treatment.

Only two other studies that we know of have investigated what happens to progress after treatment. Polaschek and Dixon (2001) evaluated an intensive residential programme for violent offenders and found that, although all participants showed reduced scores on anger expression and improved scores on wellbeing during the programme, the scores of men who were reconvicted following release had returned to approximately pre-programme levels during two years of follow-up, whereas men who were not reconvicted continued to improve after the programme. Another study assessed the impact of cognitive-behavioural interventions for low-moderate and high-risk sexual offenders by rating the Goal Attainment Scaling (GAS) for Sexual Offenders—a measure of clinical and motivational dimensions of treatment—at pre-treatment, post-treatment, and after 3 months of community follow-up (Stirpe, Wilson, & Long, 2001). Both groups made progress during treatment evidenced by improved GAS scores; however, at follow-up only the low-moderate group of offenders continued to show improvements. Taken together, these findings suggest that not taking into account patterns of change after the programme ends—both before and after men are released back into the community—may well explain why little previous research has been able to find a relationship between treatment change and recidivism. As Serin et al. (2013) write, “the primary goal of any treatment is to initiate change that is

sustained beyond programme duration; change is only meaningful if success is extended past release” (p. 50).

Secondly, theories of desistance from crime suggest that desistance does not occur instantaneously, and often involves a number of false starts (Walker, Bowen, Brown, & Sleath, 2014). Like all behaviour change, desistance is thought of as a gradual process that involves the interaction of multiple factors that influence the transition out of crime (Serin & Lloyd, 2009). Research has examined the various factors that influence desistance. Some authors argue that it is the social environment that determines whether or not an offender will desist from crime. For example, Sampson and Laub (1993) argue that an increase in informal social controls and structured routine activities—the result of key ‘turning points’ (e.g., work, marriage)—explains desistance. Other researchers argue that change in an offender’s mindset—so-called ‘cognitive transformation’ processes—contributes more to desistance than structurally induced change (Giordano, Cernkovich, & Rudolph, 2002; Maruna, 2001). It is now widely recognised that progress from persistent offending to desistance from crime is the result of a complex interaction between external and internal factors (LeBel, Burnett, Maruna, & Bushway, 2008). As Walker et al. (2014) write, “desistance is a dynamic process where internal and external variables, and environment, social and psychological processes interact” (p. 5).

There are a number of phases in the process of moving from active offending to non-offending, including the period of re-entry from prison back into the community. Göbbels, Ward and Willis’ (2012) Integrated Theory of Desistance from Sexual Offending (ITDSO) suggests that there are four phases in the desistance process: (1) decisive momentum (initial desistance), (2) rehabilitation (promoting desistance), (3) re-entry (maintaining desistance), and (4) normalcy (maintaining desistance over a long period of time). According to the ITDSO, in the decisive momentum phase, the offender experiences a significant life event that acts as a catalyst for change. The offender begins to see his offending behaviour as problematic and becomes open to

change (Göbbels, Willis, & Ward, 2014). During the rehabilitation phase, offenders reconstruct their identities, acquire strategies to successfully live a pro-social life, and overcome internal and external obstacles (e.g., dynamic risk factors). The third phase of the ITDSO is re-entry from prison back into the community. Göbbels and colleagues (2012) identify a number of factors that act as facilitators (e.g., high expectations, positive social capital, social network) and barriers to re-entry (e.g., lack of employment, housing, association with criminal peers, loss of pro-social relationships). The authors suggest that successful re-entry is dependent on an offender maintaining a commitment to change, in spite of the many challenges faced during this time. The final phase of the ITDSO is an extension of the re-entry phase where an offender has maintained his commitment to change and has desisted from crime for a long period of time. Göbbels and colleagues (2014) write that a “successful re-entry phase facilitates the ex-offender’s achievement of long-term desistance” (p. 356). Therefore, understanding how rehabilitation influences the subsequent phases of the desistance process—in particular, the re-entry phase—should increase our understanding of the mechanisms by which rehabilitation leads to long-term reductions in recidivism and the achievement of desistance.

2.2.4 Summary

In summary, using recidivism as the sole measure of treatment effectiveness is limited and does not answer the question of *how* treatment works. Some research has begun to investigate immediate outcomes of treatment, such as change in dynamic risk factors. However, the relationship between treatment change and recidivism is unreliable at best. In order to investigate *how* treatment works, Kroner and Yessine (2013) suggest three essential research questions: (1) To what extent does cognitive-behavioural treatment reduce criminal recidivism (long-term outcome)? (2) How much change occurs as a result of treatment (immediate outcome)? and (3) Is treatment change related to reductions in criminal recidivism (immediate outcome linked to long-term outcome)? These questions will be addressed in Studies 1 and 2 of the current

thesis. Study 1 compares the long-term recidivism outcomes of a treatment and comparison sample of high-risk male offenders. Study 2 investigates within-treatment change, and examines the relationship between this immediate outcome and recidivism. The second half of this thesis extends Kroner and Yessine's (2013) proposed research questions by examining factors involved in the process of offender re-entry: that is, exploring the third phase of the ITDSO (Göbbels et al., 2012). In extending Kroner and Yessine's research questions, I propose a fourth question for investigating mechanisms of change in offender rehabilitation: Can the re-entry process explain the relationship between treatment change and recidivism (intermediate outcome as a mediator between immediate and long-term outcomes)? Next, I introduce the context of offender re-entry and the intermediate outcomes I will be using to investigate this last question.

2.3 The Re-entry Process as an Intermediate Outcome

The transition from prison to the community, often referred to as “re-entry”, is a challenging time for parolees, and reoffending rates are at their peak during this period (Burnett, 2009; LeBel et al., 2008). In New Zealand, about half of all high-risk offenders released into the community return to prison in the first 12 months, and of those, half do so in the first 100 days (Nadesu, 2007). Successful re-entry⁶ is dependent on an offender's ability to deal with a number of challenges during this period, including securing suitable accommodation, obtaining stable employment, and finding prosocial support in the community (Baldry, McDonnell, Maplestone, & Peeters, 2006; Naser & La Vigne, 2006; Shinkfield & Graffam, 2009). Research has identified a number of internal and external factors that will determine whether or not an offender will re-enter the community successfully (LeBel et al., 2008). Some of these factors act as facilitators to the re-entry process (*protective factors*; e.g., high expectations,

⁶ In this thesis I define re-entry success and failure as the absence or presence of a recidivism event in the follow-up period.

positive social capital, social network), whereas others act as barriers (*risk factors*; e.g., lack of employment, housing, association with criminal peers, loss of pro-social relationships; Göbbels et al., 2012). Göbbels and colleagues (2014) suggest that a problematic re-entry process is likely to increase the risk of recidivism by hampering “the translation of therapy benefits to life after incarceration or a community sentence” (p. 354). Therefore, understanding what happens during re-entry is crucial for understanding how offender rehabilitation is related to recidivism and why little previous research has found a relationship between treatment change and recidivism. The following section describes the different factors that influence the re-entry process (i.e., risk and protective factors) and introduces a tool used by Community Probation Services in New Zealand to measure these factors: the Dynamic Risk Assessment for Offender Re-entry (DRAOR; Serin, Mailloux, & Wilson, 2012).

2.3.1 Predicting Re-entry Success or Failure

Decades of research have focused on how to predict criminal behaviour accurately. The first generation of risk assessment consisted mostly of unstructured professional judgments of the likelihood of reoffending. This approach relied solely on a clinician’s evaluation of risk, there were no formal guidelines for integrating empirically based risk factors, and agreement between clinicians tended to be low (Mills, Kroner, & Morgan, 2011; Webster, Douglas, Eaves, & Hart, 1997). Second, third, and fourth generation risk assessment, on other hand, incorporate empirically derived risk factors into a probabilistic statement of risk (i.e., an actuarial assessment), leading to a more objective estimation of risk (e.g., Static-99; Hanson & Thornton, 2000; RoC*RoI; Bakker, Riley, & O’Malley, 1999). For a characteristic to be considered a risk factor it needs to statistically correlate with recidivism and precede recidivism in time (Monahan & Skeem, 2014). There are a number of different types of risk factors, which can be distinguished by their nature as well as their utility in the management and treatment of offenders. All risk factors are relevant for risk *prediction*; by definition, they are characteristics that are related to recidivism. But, only a subset of risk factors—

the ones that are amenable to change—are useful for risk *reduction* (Douglas & Skeem, 2005; Monahan & Skeem, 2014). The evolution of risk assessment over time has moved from a prediction-oriented to a reduction-oriented approach. In addition, more recently, risk assessment has shifted from a solely deficit-oriented approach to an approach that incorporates strengths (i.e., protective factors). Below, I outline the different types of factors most relevant for predicting re-entry outcomes and introduce a tool used by Community Probation Services in New Zealand to measure these factors.

2.3.1.1 Static Risk Factors. Second generation instruments tend to be atheoretical and consist primarily of static risk predictors. Static risk factors are variables that cannot be changed by individual effort and are not personalised to the offender's current psychological or social circumstances. For example, because offenders who are younger are more likely to re-offend, age is often considered to be a static risk factor. Monahan and Skeem (2014) divide static risk factors into *fixed markers* and *variable markers*. They define fixed markers as risk factors that are unchangeable (e.g., gender) and variable markers as those that can change, but not through intervention (e.g., age). Empirically derived static risk factors are robust predictors of re-offending and individual studies and meta-analyses have confirmed their superior predictive ability over clinical judgment when predicting violent and sexual recidivism (e.g., Hanson & Morton-Bourgon, 2009). However, despite their utility for risk prediction, because they cannot be changed by intervention, actuarial tools based on static factors provide little guidance for risk management or intervention and do not *explain* the source of risk (Mann, Hanson, & Thornton, 2010).

2.3.1.2 Dynamic Risk Factors. Third and fourth generation instruments are also actuarial but incorporate dynamic risk factors or criminogenic needs (e.g., criminal attitudes, emotional volatility; the Violence Risk Scale, Wong & Gordon, 2000). Unlike static risk factors, dynamic risk factors have the potential to change over time or through appropriate intervention, can provide information about specific targets for intervention or risk management, and are potentially more psychologically meaningful

(Hanson, Harris, Scott, & Helmus, 2007; Mann et al., 2010). Monahan and Skeem (2014) distinguish between dynamic risk factors that are *variable* and those that are *causal*. Variable risk factors differ from variable markers (e.g., age) because they can be changed by intervention. Causal risk factors are defined as variable risk factors that, when changed, can be shown to alter the risk of recidivism. Monahan and Skeem note that there is little empirical research identifying causal risk factors. Nevertheless, tools that incorporate dynamic risk factors show similar levels of predictive accuracy to static risk tools and have modest incremental validity (e.g., Allan, Grace, Rutherford, & Hudson, 2007; McDermott, Edens, Quanbeck, Busse, & Scott, 2008; Olver et al., 2007; Thornton, 2002).

Some dynamic risk factors are stable, enduring characteristics of the individual that have the potential to change over months or years (e.g., impulse control, peer associations). These *stable dynamic* risk factors are also referred to in the literature as criminogenic needs because they are the types of factors targeted in offender rehabilitation programmes. Andrews and Bonta's (2010) research has identified the factors most strongly associated with criminal behaviour (the Big Four or Central Eight risk factors, outlined in Chapter 1), 7 of which are stable dynamic (e.g., antisocial attitudes, antisocial associates). Stable dynamic risk factors have a number of uses in addition to recidivism prediction: they can guide case management and be used to measure change during offender rehabilitation or other interventions aimed at creating enduring improvements.

Other dynamic risk factors are acute characteristics that are thought to change rapidly and signal immediate risk of recidivism (e.g., intoxication, negative mood; Hanson & Harris, 2000). *Acute dynamic* risk factors are conceptualised as highly transient environmental and intrapersonal stresses, conditions, or events that immediately precede recidivism (Hanson et al., 2007). Although static and stable dynamic risk factors are important for predicting long-term recidivism outcomes, acute risk factors are thought to be important for predicting imminent recidivism, and as a

result, more useful for the day-to-day management of offenders (i.e., during re-entry). Thus, not only are stable and acute dynamic risk factors useful for risk *prediction*, unlike static risk factors, they are thought to also have utility for risk *reduction* (Douglas & Skeem, 2005).

Dynamic risk factors have been conceptualised in other ways in the literature. For example, in their framework of the sexual offence process, Beech and Ward (2004) argue that stable dynamic risk factors can be understood as psychological traits or vulnerabilities that play a causal role in the sexual offence process, whereas acute dynamic risk factors act as triggering events or contextual risk factors (e.g., victim access). They suggest that acute dynamic risk factors interact with stable dynamic risk factors to generate states (e.g., deviant thoughts and fantasies) likely to lead to sexual offending. Mann et al. (2010) propose another way of conceptualising dynamic risk factors, which they label *psychologically meaningful* risk factors. They argue that stable dynamic risk factors can be thought of as “individual propensities, which may or may not manifest during any particular time period” (p. 194). Like Beech and Ward’s (2004) traits, they describe individual propensities as enduring characteristics that lead to predictable expressions of thoughts, feelings, or behaviours through interactions with the environment.

Despite these differing conceptualisations of dynamic risk factors, what resonates in each framework is the importance of recognising more enduring trait-like characteristics as distinct from characteristics that can change rapidly and may have little relationship to long-term recidivism potential. The empirical designation of a dynamic risk factor as either stable or acute (or trait versus state) requires a longitudinal research design to examine variability in scores over time as well as the relationship between change in risk and recidivism. Few of these studies currently exist. One study that tested the properties of different types of dynamic risk factors is Hanson et al.’s (2007) Dynamic Supervision Project. Trained probation officers in Canada and two states in the US (Iowa and Alaska) scored their clients’ ($N = 991$) stable

and acute dynamic risk factors over time in the community (every reporting session for the acute factors and 6-monthly for the stable factors over a maximum period of three years). They found that both stable and acute dynamic risk factors contributed to recidivism prediction, but changes on these factors were not significantly related to recidivism. Additionally, they found that the average acute rating over a 6-month period was more predictive than the acute score closest to recidivism. The authors concluded that acute risk factors appeared to be measuring enduring characteristics rather than signalling the timing of a new offence. Further research is needed both to establish the clinical utility of dynamic risk instruments, and to shed more light on the theoretical properties of the different categories of factors (i.e., static, stable, acute).

2.3.1.3 Protective Factors. More recently, there has been a growing interest in considering factors whose presence may *decrease* the likelihood of recidivism: that is, improve re-entry outcomes and promote desistance. Most offenders at some point in their “criminal careers” will go through relatively crime-free periods and some will even cease offending for good (Maruna, LeBel, Mitchell, & Naples, 2004). A number of factors (referred to in the literature as protective factors) have been identified as predictors of re-entry success. Researchers have argued that to more accurately predict recidivism—and, especially, to help explain why some offenders do not reoffend despite the presence of myriad risk factors—assessment should focus not only on offenders’ risks but also on their strengths or resources (de Ruiter & Nicholls, 2011; Farrington, 2007; McNeill, Farrall, Lightowler, & Maruna, 2012; Serin, Lloyd, & Hanby, 2010; Ullrich & Coid, 2011). They argue that considering protective factors alongside risk factors will lead to a more balanced and accurate appraisal of an individual’s likelihood of reoffending.

Protective factors have been conceptualised in divergent ways in the literature and currently there is no agreement as to exactly what these factors represent. Several theoretical models about the nature of protective factors have been proposed, which suggest there may be three distinct types of protective factors: (1) factors that buffer the

effect of risk (i.e., factors that are only protective in the presence of risk factors; e.g., self-control) (2) factors that are mirror images of risk (i.e., the opposite of risk factors; e.g., being in a positive relationship as opposed to a negative one) and (3) factors that are independent of risk (i.e., a factor with no corresponding risk factor; e.g., life goals; Lodewijks, de Ruiter, & Doreleijers, 2010; Spice, Viljoen, Latzman, Scalora, & Ullman, 2013; Thornton, 2013; Ullrich & Coid, 2011). The origins of these different conceptualisations are theoretical, and there is little empirical research to support the distinction between them; therefore, we are not yet in a position to determine into which of these categories particular protective factors fall.

Recently, in his doctoral thesis, de Vries Robbé (2014) proposed a model on the mechanisms of protective factors for violent recidivism. He suggests that there are four mechanisms by which protective factors reduce risk of violence (see Figure 4). The first is the *risk reducing effect*, whereby protective factors have a diminishing effect on risk factors and indirectly lead to a reduced likelihood of violence (e.g., professional care, which may influence responsiveness to treatment and exposure to destabilisers). The second is the *moderator effect*, similar to the buffer model, in which protective factors have a mitigating effect on the relationship between specific risk factors and violence (e.g., the influence of self-control on risk factors like substance use or negative attitudes). The third is the *main effect* where protective factors have a direct effect on the likelihood of violence (e.g., work, leisure activities). De Vries Robbé suggests that when a protective factor has a main effect, it provides protection in general for the total amount of risk that is present rather than influencing specific risk factors. Lastly, the *motivator effect* is defined as the positive and stimulating influence that protective factors have on each other: certain protective factors, if present, may enhance other protective factors. De Vries Robbé suggests that although some factors may influence violence risk through one of the mechanisms, most factors work through different mechanisms simultaneously.

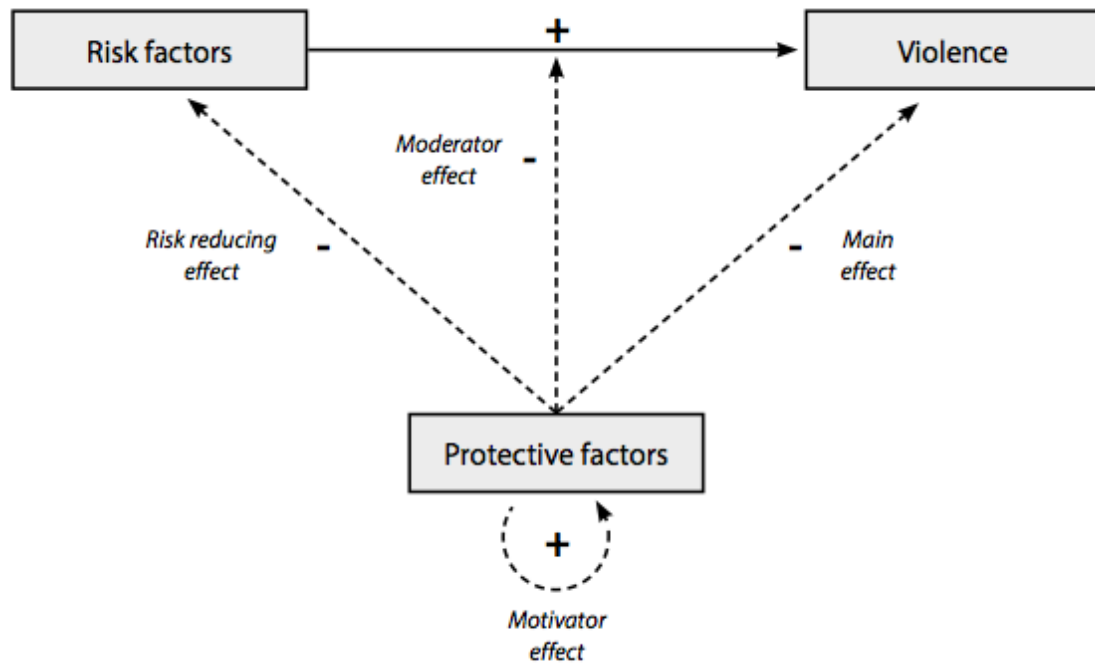


Figure 4. De Vries Robbé's (2014) Model on the Mechanisms of Protection

Despite the differing conceptualisations of protective factors, research has shown that these factors are predictive of lower rates of violent recidivism and aggression (Desmarais, Nicholls, Wilson, & Brink, 2012; Lodewijks et al., 2010; Rennie & Dolan, 2010), and that they add incrementally to the prediction of violent and sexually violent recidivism over and above risk factors (e.g., de Vries Robbé, de Vogel, & de Spa, 2011; de Vries Robbé, de Vogel, & Douglas, 2013; de Vries Robbé, de Vogel, Koster, & Bogaerts, 2014). However, as Ullrich and Coid (2011) note, “despite the simultaneous inclusion of risk and protective factors in assessment...protective factors are still ambiguous with regard to their relationship to risk factors, and no empirical research is available on how these factors are interrelated with each other and affect outcome” (p. 382). Thus, the jury is still out on whether the inclusion of factors that are termed “protective” in risk assessment is purely a semantic exercise (e.g., rewording risk factors in positive language), or reflects the identification of genuinely new domains with the potential to enhance predictive validity and the achievement of desistance. Below I introduce a tool used by Community Probation Services in New

Zealand to measure parolees' stable and acute dynamic risk factors and protective factors; in this thesis, this tool will be used to measure intermediate outcomes.

2.3.2 The Dynamic Risk Assessment for Offender Re-entry

Developed by Serin (2007) in Canada, the Dynamic Risk Assessment for Offender Re-entry (DRAOR; Serin et al., 2012) is a dynamic tool designed to facilitate the assessment of recidivism risk in the community and to inform case planning and risk management. The DRAOR comprises 19 items, divided into 3 subscales: stable dynamic risk factors, acute dynamic risk factors, and protective factors (see Figure 5).⁷ The items were derived and theoretically organised into three subscales based on a review of the literature on violent offender risk assessment and on desistance. The dynamic risk items were influenced by Hanson and Harris' (2000) research on stable and acute risk factors for sexual offending (e.g., the Stable and Acute risk measures; Hanson et al., 2007), but modified to relate to general and violent offenders. The acute factors were developed as proximal indicators of risk state (Douglas & Skeem, 2005), and the stable factors reflect criminogenic needs, as described by Andrews and Bonta (2010). The protective factors were taken from the desistance literature and were included because of the growing interest in considering factors that predict re-entry success. Of note, the protective factors were developed independent of Ullrich and Coid's (2011) research, but are markedly similar to those empirically validated by their research (personal communication, R. C. Serin, 25 June 2013).

⁷ Descriptions and relevant research relating to the 19 items can be found in Appendix A.

Stable Subscale	Acute Subscale	Protective Subscale
Peer associations	Substance abuse	Responsive to advice
Attitudes towards authority	Anger/hostility	Prosocial identity
Impulse control	Opportunity/access to victims	High expectations
Problem-solving	Negative mood	Costs/benefits
Sense of entitlement	Employment	Social supports
Attachment with others	Interpersonal relationships	Social control
	Living situation	

Figure 5. Dynamic Risk Assessment for Offender Re-entry Original Three-Subscale Structure

The DRAOR was piloted by Community Probation Services in 2008 and was fully implemented in New Zealand in April 2010. All offenders released from prison onto probation oversight are scored on the DRAOR multiple times during their term of parole. The supervising probation officer scores the DRAOR at their discretion, but typically during every reporting session. Depending on offenders' risk levels and how long they have been on parole, offenders may report to their probation officer twice weekly to fortnightly. The DRAOR is designed as both a risk prediction and a risk reduction tool. The regular monitoring of risk and protective factors can lead probation officers to better judge when an individual is at risk and determine how and when to intervene to mitigate that risk (Douglas & Skeem, 2005). Continuous reassessment using the DRAOR assists probation officers in identifying fluctuations in scores that may signal immediate or impending failure. Initial validity and reliability research (discussed further in Chapter 5) suggests all three DRAOR subscales show good

predictive validity, above a static risk estimate. However, no research has examined the utility of the DRAOR for risk reduction.⁸

2.3.3 Linking Treatment and Offender Re-entry

So what can the factors that influence the process of offender re-entry tell us about the effects of treatment? In particular, can a consideration of the re-entry process explain why little research has established an empirical link between within-treatment change and recidivism? We have not found any empirical research that examines how treatment is related to the process of offender re-entry, despite re-entry being a crucial phase in the process of desistance from crime (Göbbels et al., 2012; Serin & Lloyd, 2009). As Friendship, Falshaw and Beech (2003) note, in typical outcome evaluations “following release, the focus of the follow-up evaluation is subsequent reconviction. No assessment is made, for either the treatment or comparison groups, of other dynamic factors which may contribute to reconviction post-release” (p. 119). An alternative and novel approach to examining treatment effects, and the focus of Studies 3 and 4, is to consider these *intermediate* outcomes (i.e., stable and acute dynamic risk factors and protective factors that influence the process of re-entry). Linking rehabilitation and re-entry—two important phases in the process of desistance from crime—has the potential to add to our understanding of the mechanisms through which treatment brings about reductions in recidivism and facilitates desistance from crime.

2.4 Introduction to the Current Research

This thesis examines the effects of intensive rehabilitation with a sample of high-risk offenders released onto parole in New Zealand. Study 1 examines whether treatment completion reduces long-term recidivism outcomes. I compare a treatment and comparison group on four indices of recidivism, varying in severity (between-subjects design). The remainder of the thesis examines possible mechanisms of change

⁸ Our research team at Victoria University has a project underway exploring how probation officers use the DRAOR for risk reduction. The project will examine how DRAOR scores change over the course of parole and the extent to which probation officers respond to any short-term increases in risk (i.e., by implementing an appropriate intervention).

(within-subjects design). In other words, I ask the question: *how* does treatment reduce long-term outcomes? Study 2 explores immediate outcomes of treatment, which I define as change in dynamic risk factors. Using the treatment sample from Study 1, Violence Risk Scale ratings before and after treatment are used to measure change and the relationship between change and recidivism is examined. Studies 3 and 4 focus on the period of offender re-entry: a crucial phase in the process of desistance from crime (Göbbels et al., 2012). Study 3 uses a combined sample of treatment and comparison offenders to validate a tool used by probation officers to predict re-entry success and failure and to inform case planning and risk management. Study 4 uses the same treatment sample from Study 2 to examine whether the re-entry process can contribute to our understanding of treatment effects. That is, can factors measured during the process of re-entry *explain* the relationship between treatment change and recidivism? Developing a better knowledge of how treatment works—especially through examining its effect on subsequent phases of the process by which offenders desist from crime—is essential for making programmes more effective.

Chapter 3

Study 1: Recidivism as a Long-Term Treatment Outcome

3.1 Introduction

As previously discussed, high-risk offenders comprise only a small proportion of the offender population yet they commit the majority of crime. Thus, they make the ideal target for management and intervention—the idea being that interventions will have maximum impact if they target the people who do the most damage. As research on the effectiveness of rehabilitation has accumulated, correctional agencies have devoted more and more resources to the delivery of a wide range of offender rehabilitation programmes. For example, in New Zealand, programmes are available for offenders who sexually offend against children or adults, for offenders who are prone to violence, and for offenders who have significant substance abuse problems. Included in these programmes are four dedicated units for high-risk male offenders: the High-Risk Special Treatment Units (HRSTU). This initial study is an examination into the effects of the HRSTUs on long-term recidivism outcomes. It provides a starting point for exploring mechanisms of change in the remainder of the thesis. I begin by briefly recapping what we know works with offenders before introducing the treatment model of the HRSTUs.

3.2 What Works with Offenders?

The “what works” research literature has demonstrated that offender rehabilitation can have a modest but significant effect on reducing recidivism (e.g., Hanson, Bourgon, Helmus, & Hodgson, 2009; Lipsey, 2009; Marshall & McGuire, 2003; Polaschek, 2011; Wilson, Bouffard, & MacKenzie, 2005). This literature has also identified the ‘essential ingredients’ in these programmes that predict whether or not they are effective (Polaschek, 2012), including key programme features, to whom the treatment is offered, and how it is implemented. The best-known and most empirically

validated series of principles that guide offender rehabilitation form part of the Risk-Need-Responsivity (RNR) model (Andrews & Bonta, 2010). As already described in Chapter 1, the RNR principles are based on theories of social learning and state that: (1) interventions should target those at highest risk of reoffending (*risk*), (2) programmes should focus on reducing an offender's criminogenic needs or dynamic risk factors (*need*), and (3) programmes should be designed and delivered in ways that are most conducive to individuals' learning styles, motivations, and abilities (*responsivity*). Research has shown that the extent of adherence to the three main RNR principles predicts whether or not a programme is associated with reductions in recidivism. Interventions that adhere to all three principles have shown absolute reductions in recidivism of up to 26% (i.e., 26 fewer treated men recidivated per hundred than in the comparison group), while programmes that adhere to only one or two of the principles show smaller effect sizes (Andrews & Bonta, 2010).

3.3 Measuring Treatment Effectiveness

As discussed in Chapter 1, the typical approach to measuring treatment effectiveness is to take a group of offenders who have been treated and compare their rate of recidivism to a group of offenders who have not been treated (Lipsey & Cullen, 2007; see Figure 1). The most methodologically rigorous approach to selecting the treatment and comparison groups is through a randomised controlled trial (RCT) or a quasi-experimental design (QED) in which the two groups are matched on a number of variables related to their propensity to reoffend (Lösel, 2001). If there are significant reductions in recidivism for the treatment group, then the intervention is deemed to have been effective. Recidivism is usually measured by one type of outcome: for example, the presence or absence of an official reconviction during a specified follow-up period. Sometimes several indices of recidivism are compared. For example, some studies examine general versus violent or sexual recidivism (e.g., Cortoni, Nunes, & Latendresse, 2006), and occasionally recidivism is analysed as a count (i.e., the number

of reoffences in a given time period). Naturally, variations in the type of recidivism measure used make it difficult to compare results across studies (Wormith et al., 2007). Nevertheless, positive conclusions about the effectiveness of treatment can be drawn from well-designed outcome evaluations (i.e., either a RCT or a QED with comparable treatment and comparison groups). Next, I introduce the treatment model of New Zealand’s rehabilitation programmes for high-risk offenders (the HRSTUs) and discuss previous outcome evaluations of the programmes.

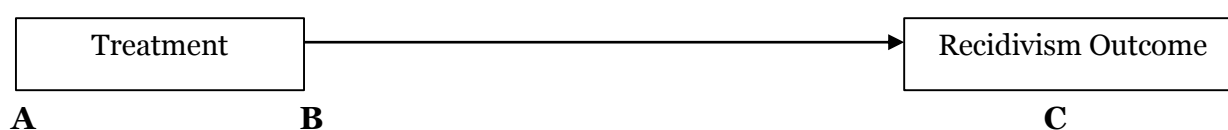


Figure 1. Typical Outcome Evaluation

3.4 New Zealand’s High Risk Special Treatment Units

New Zealand has four HRSTUs, which are intensive prison-based interventions for male offenders. The first of these units—the Rimutaka Violence Prevention Unit (VPU; now known as Te Whare Manaakitanga)—was opened in 1998 and targeted repeat violent offenders. During 2008 and 2009, three similar units were opened throughout the country⁹ and together these four units now aim to treat approximately 150 high-risk, often violent, male prisoners annually (Polaschek & Kilgour, 2013). The original VPU focused specifically on high-risk offenders with serious violent histories, but in 2011 it was aligned with the newer HRSTUs to also take in offenders with less serious histories of violence (Kilgour & Polaschek, 2012).

3.4.1 Treatment Model

The treatment model of the HRSTUs brings together a structured, closed-group cognitive-behavioural therapy (CBT) intervention with a hierarchical democratic

⁹ Karaka at Waikeria Prison; Puna Tatari at Spring Hill Corrections Facility; Matapuna at Christchurch Men’s Prison. There are also two units that cater for men with convictions for sexual offences against children—Kia Marama at Rolleston Prison and Te Piriti at Auckland Prison; they are not discussed further here.

therapeutic community approach. The group intervention, and the therapeutic community overall, are based on the principles of social learning theory. The programmes provide individualised treatment in a group context and teach knowledge and skills directly in a fixed, sequenced number of treatment sessions. Below, I describe the therapeutic community, the core treatment programme, and what happens to men once they complete the programme.

3.4.2 Therapeutic Community

The HRSTUs are set within a modified therapeutic community of change (Whitehead, 2014). The communities “promote a philosophy that includes communalism, group decision-making, positive peer-group influence, a focus on interpersonal behaviour, and incorporate Māori and Pacific cultural practices and values” (Polaschek & Kilgour, 2013, p. 13). Staff and prisoners are collectively responsible for upholding core community values of respect, support, self-responsibility, unity, and openness (Van Rensburg et al., 2009). Programme participants are expected to take on the role of a responsible community member and are encouraged to engage in functional interactions with other group members, custodial staff and therapeutic staff. The community provides a setting for participants to practice and generalise new skills outside of the therapy room. Custodial staff are informed of individual offenders’ treatment plans and monitor behaviour change closely. Weekly community meetings provide an opportunity for treatment participants to take ownership of any behaviour that has undermined the treatment process; or, in contrast, to be praised by other group members or staff for positive behaviour (Polaschek & Kilgour, 2013).

3.4.3 Core Treatment Programme

The core treatment programme is delivered to groups of 10 men by therapist pairs, usually consisting of a psychologist and a rehabilitation worker. Men attend group sessions for approximately 250 hours over 25 weeks. The programme starts with a module on Whakawhanaungatanga, which involves getting to know one another and

developing engagement and a working group culture (King, Creamer, Tiller, & Williams, 2007). Offenders are oriented to the programme content and aims and build basic skills needed to successfully participate in treatment, such as giving and receiving feedback, managing conflict, and communication and listening skills (Polaschek & Kilgour, 2013). Offenders' histories, offence-related cognitions, attitudes, beliefs, and offence patterns are then examined where programme participants identify the events, thoughts, feelings, and behaviours that led to their offending. They define who they want to be in the future by identifying key characteristics of their intended pro-social identity (the "new me") and develop a personalised treatment plan (King et al., 2007).

The next phase of the treatment programme focuses on knowledge and skill building. Participants learn skills that will enable them to live pro-socially in the community, including problem-solving, perspective-taking, assertiveness, and conflict resolution (Polaschek & Kilgour, 2013). Modules focus specifically on managing negative emotions (e.g., anger) and impulses, on reducing substance use and substance related beliefs, managing antisocial influences and developing socially competent behaviour (King et al., 2007). The final part of treatment focuses on preparing men for release. In addition to basic release planning (e.g., working out where they are going to live, what employment options are available), offenders develop a personalised safety plan in which they identify potential high-risk situations and learn coping strategies to manage them. The final phase of treatment also involves men completing their new self-script and identifying goals for their future pro-social life (King et al., 2007). In addition to the group treatment, individual psychological treatment may be provided for offenders with problems that make it hard for them to fully participate in group sessions (e.g., social anxiety), and additional interventions may also be provided for Māori that focus on specific cultural needs (Polaschek & Kilgour, 2013).

3.4.4 Post Treatment

After completing the core treatment programme, men may stay in the unit prior to release or be moved back into a mainstream unit. Men who remain in the unit attend

a maintenance group and may take leading roles in the unit (e.g., as mentors, chairing community meetings). Preferably, men remain in the unit following the programme and are released directly into the community. The average stay in one of the units is 10 to 12 months.

3.4.5 Programme Evaluations

The HRSTUs adhere to the Risk-Need-Responsivity model of effective interventions: they are intensive programmes that target high-risk offenders, they use CBT-based treatment sessions to systematically target multiple dynamic risk factors, and they provide individualised treatment for offenders with complex needs and responsivity issues. In addition, the therapeutic community environment provides the opportunity for treatment participants to practice and generalise new skills outside of the treatment setting. Outcome evaluations from the HRSTUs are limited but positive overall. A quasi-experimental outcome evaluation from the first seven years of the Violence Prevention Unit found a modest treatment effect for high-risk offenders (Polaschek, 2011). Each of the 112 treated offenders in the sample was manually matched to an untreated offender on ethnicity, static risk, date of release, and age. There was a 13% reduction in reconvictions for any new offence for treatment completers (i.e., 83% of treatment completers and 95% of their matched comparisons recidivated, meaning that 12 fewer treated men recidivated per hundred than in the comparison group; effect size = .19). There was a 14% relative reduction in violent recidivism (i.e., 62% of treated and 72% of comparison men recidivated violently), although this difference was non-significant (effect size = .11). A more recent evaluation of the newer HRSTUs —also a quasi-experimental design in which the comparison group was selected via propensity matching—found a positive but non-significant reduction in recidivism for treatment completers (Kilgour & Polaschek, 2012).

3.5 Study Objectives

This study is a quasi-experimental investigation of recidivism outcomes for New Zealand's HRSTUs. It compares the reconviction rates of a sample of HRSTU completers with a sample of similarly high-risk offenders who have not completed the programme. Several indices of recidivism are examined, varying in severity from breaching a parole condition to committing a serious violent offence. Despite the problems outlined in the general introduction associated with focusing solely on recidivism as a treatment outcome, this study provides a starting point for examining the question of *how* treatment works in the remainder of the thesis. That is, first we need to determine that the programme is effective at reducing recidivism, before examining mechanisms of change. I also extend typical outcome evaluations in this study by exploring potential mediating variables that are related to treatment participation.

3.6 Method

3.6.1 Sample

The sample for this thesis was taken from a large longitudinal research project conducted by our research team at Victoria University: the Parole Project.¹⁰ The project has been running since November 2010 and in 2014 is in its final phases of data collection. The project was designed to prospectively follow high-risk offenders in New Zealand for 12 months after their release from prison. Two samples of prisoners about to be paroled were recruited for this study: (1) HRSTU treatment completers and (2) other high-risk men who had not completed a HRSTU. Prisoners were interviewed prior to their release (within 6 weeks) and were interviewed again 2 months, 6 months, and 12 months following release. The purpose of the Parole Project is to increase our understanding of the rehabilitation and reintegration of high-risk offenders.

¹⁰ Except for Study 3, which includes additional offenders from the HRSTUs not in the Parole Project.

3.6.1.1 Treatment Sample. Treated offenders were drawn from men who completed one of the HRSTUs while on a sentence of at least two years imprisonment and who were released from prison onto parole between December 2010 and November 2013.¹¹ Of the 193 men who completed a HRSTU and were approached to take part in the research, 151 men consented (see Figure 6).¹² Although the programme was designed for offenders to complete just prior to release, in reality, many HRSTU completers spend a number of months in prison after the programme, often being transferred to mainstream units throughout the national prison system. The average number of days from treatment completion to release was 254 ($SD = 305$ days).¹³

Demographic information and criminal history data for the 151 treatment completers are presented in Table 1. When they entered the programme, these men had a mean 74% likelihood of returning to prison in the five years following release.¹⁴ The majority identified as Māori (62%), 29% as New Zealand European, 7% as Pasifika, and the remainder identified as Other European, Asian, or Other. Sample members ranged in age from 19 to 56 years at the time they were released from prison, with an average age of 33 years. They had an average of 67 previous convictions including 5 for violence. They were aged 16 on average at the date of their first conviction and 19 at the date of their first violent conviction. The index offence for two-thirds of the sample was a violent offence. Of these 66%, 27% of the offences were aggravated robbery or robbery by assault, 14% were some form of minor assault, 30% were serious injury or

¹¹ In this thesis, all forms of post-release community supervision where offenders report to a probation officer are referred to as “parole”, whether they were granted early release by the Parole Board or released at the end of their sentence. New Zealand legislation requires that all those released after two or more years in prison will be subject to post-release supervision (i.e., parole) of at least six months.

¹² Ten men took part in an equivalent programme for adult sexual offenders. The programme was housed in the same prison units as the HRSTUs, but the content is tailored specifically to sexual violence (see Wilson, Kilgour, & Polaschek, 2013).

¹³ The number of days between treatment completion and release did not predict any recidivism outcome. But, it did predict who was granted early release by the NZPB; treatment completers who were released before sentence-end spent significantly fewer days in prison following the programme.

¹⁴ Based on the static risk instrument used by the New Zealand Department of Corrections: the RoC*RoI (Bakker, Riley, & O'Malley, 1999). The RoC*RoI is expressed as a probability and represents an offender's estimated risk of reconviction leading to reimprisonment over five years in the community. RoC*RoI scores range from 0 (low) to 1.0 (very high).

wounding, 15% were murder, manslaughter, or attempted murder, and the remainder were threatening to kill, kidnapping, or rape.

Ten treated men were sentenced to life imprisonment for their index offence(s), and two were sentenced to preventive detention.¹⁵ The remaining 139 men had determinate sentence lengths ranging from 1.6 to 15 years ($M = 4.2$ years).¹⁶ At release, they had served an average of 4.7 years in prison and 79% were released before their sentence end date (i.e., were granted early parole), while 21% were released at the end of their sentence.¹⁷ The average length of parole they were to complete was 395 days.

The 42 HRSTU completers who were approached but then declined to take part in the research had an average RoC*RoI of .72 ($SD = .16$), were on average 33 years of age ($SD = 8.5$) at release, and had served an average of 1574 days ($SD = 1141$) in prison. Of the prisoners who declined, 62% identified as Māori, 19% as NZ European, 12% as Pacific, and 7% Other European or Asian. Their index offences were violent (52%), property (24%), drug (5%), sexual (14%) and other (5%). Treated offenders who declined participation did not differ significantly from the treatment sample on RoC*RoI ($t[191] = .61, p = .54, 95\% \text{ CI} = -.03, .06, d = .09$), age at release ($t[191] = -.30, p = .76, 95\% \text{ CI} = -3.38, 2.48, d = .04$) or days served ($t[191] = .46, p = .65, 95\% \text{ CI} = -435.6, 697.2, d = .07$), nor did they differ on ethnicity ($\chi^2 = 4.90, p = .18, \Phi = .16$).

¹⁵ In New Zealand, life-sentences can be imposed for murder, manslaughter or Class A drug dealing. Life-sentenced prisoners must serve a minimum period of 10 years, or 17 years in more severe cases, before they can be considered for parole; in the community they remain on parole for life and can be recalled to prison at any time. Preventive detention in New Zealand is also a life sentence, but the minimum non-parole period is five years and it can be imposed for any sexual or violent offence where it is likely the individual will reoffend if released.

¹⁶ These numbers are based on official sentence lengths, which may not represent the amount of time spent in prison. For example, many prisoners are incarcerated on remand while they await sentencing. Time spent in remand is often subtracted off the sentence given and is therefore not reflected in the official sentence length, which is why some sentence lengths are less than two years.

¹⁷ If offenders are released at their sentence end date, only standard conditions are imposed (e.g., report in person to a probation officer, reside at an approved address, take part in a rehabilitative and reintegrative needs assessment). However, if they are granted early parole (i.e., released before their sentence end date) the Parole Board may impose a number of additional special conditions (e.g., attend a post-release Board hearing to monitor compliance, remain at a specified residence at all times or at times specified by the Board, submit to electronic monitoring).

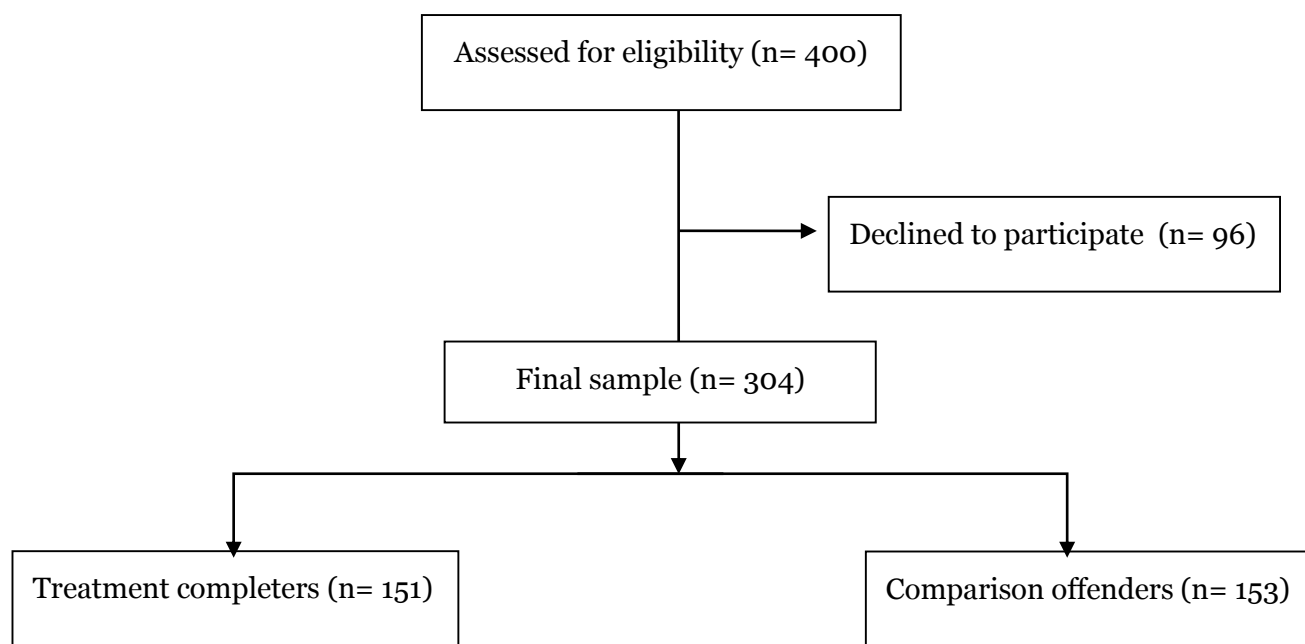


Figure 6. CONSORT Flow Chart of Study 1 Sample

3.6.1.2 Comparison Sample. Comparison offenders were drawn from a sample of men who met the following eligibility criteria: over 19 years of age, high static risk ($RoC \times RoI > .60$), sentenced to at least 2 years imprisonment, and released from prison onto parole around the same time as the treatment sample (November 2010 to June 2013). The comparison group included HRSTU non-completers, men who completed the programme on a previous sentence (and then were reconvicted), and men who participated in lower intensity programmes (e.g., the Medium Intensity Rehabilitation Programme, the Dependency Treatment Unit). Of the men eligible for participation in the research, 207 were invited to take part and 153 consented.

Seventy-seven percent of the comparison sample reported when interviewed that they had taken part in some form of treatment on their current prison sentence. The most common treatment for the comparison group was one-on-one psychological treatment (32% of the sample). Twenty-five percent had completed the Dependency Treatment Unit, 18% had completed a Medium Intensity Rehabilitation Programme, 15% had resided within a Māori Focus Unit, 9% in a Faith Based Unit, 10% had taken

part in a Short Motivational Programme and 9% in a Restorative Justice Programme.¹⁸ Ten men in the comparison sample were HRSTU non-completers on this sentence, 4 had completed the programme on a previous sentence, and 3 had taken part in an equivalent treatment programme for child sex offenders.¹⁹

Table 1 presents demographic and criminal history data for the comparison sample. Their average estimated risk of returning to prison within five years of release was equivalent to the treatment sample (74%). They were aged 31 on average at the time of release (range 19-60). The majority of comparison men identified as Māori (67%), 25% as New Zealand European, 5% as Pacifica, and 3% identified as Asian. The comparison sample had an average of 70 previous convictions including 5 for violence. They were aged 16 on average at the date of their first conviction and 19 at the date of their first violent conviction. The index offence for 59% of the sample was a violent offence: 28% aggravated robbery or robbery by assault, 26% assault, 32% serious injury or wounding, 2% murder, and 12% threatening to kill, kidnapping, or rape.

Two were sentenced to life imprisonment. Sentence lengths of the 151 men on determinate sentences ranged from 8 months to 14.5 years ($M = 3.5$ years). At the time of release, comparison offenders had served an average of 3.6 years in prison. Of those on fixed-length sentences, 31% were released before their sentence end date, while 69% were released at the end of their sentence. The average length of parole they were to complete was 256 days.

Of the comparison men approached to take part in the research, 54 offenders declined. They had an average RoC*RoI of .72 ($SD = .06$), were on average 32.1 years of age ($SD = 9.8$), and had served an average of 1092 days ($SD = 777$) in prison. Of this group, 61% identified as Māori, 17% as NZ European, 19% as Pacific, and 4%

¹⁸ Appendix C presents one-year reimprisonment outcomes for some of these programmes, taken from the Department of Corrections Annual Reports for the years 2011-2014 (around the time the current sample was recruited). As shown in the appendix, the Special Treatment Unit for child sex offenders and the Medium Intensity Rehabilitation Programme had a significant effect on reducing reimprisonment outcomes.

¹⁹ Some research has found that non-completers have poorer outcomes than people who never start treatment (Polaschek, 2011). However, removing the HRSTU non-completers from the comparison sample did not affect the results of this study so they were retained in the sample.

Australian. Their index offences were violent (43%), property (37%), drug (11%), and other (9%). Comparison men who declined did not differ significantly from those who took part on RoC*RoI ($t[205] = 1.83, p = .07, 95\% \text{ CI} = -.00, .05, d = .26$), age at release ($t[205] = -.74, p = .46, 95\% \text{ CI} = -3.83, 1.75, d = .12$) or days served ($t[205] = 1.03, p = .30, 95\% \text{ CI} = -187.3, 597.5, d = .14$), but they did differ on ethnicity ($\chi^2 = 11.19, p = .01, \Phi = .23$). More Māori and Pacifica men and fewer NZ European men declined to take part in the research compared to those who consented.

Table 1

Means, Standard Deviations and Percentages for Treatment and Comparison Demographic Variables

	Treatment (N=151)	Comparison (N=153)					
	<i>M (SD)</i>		<i>t</i>	df	<i>p</i>	<i>d</i>	95% CI
RoC*RoI	.74 (.14)	.74 (.09)	-.19	302	.854	-.22	[-.03, .02]
Age at release	32.83 (8.5)	31.07 (8.6)	1.80	302	.073	.21	[-.17, 3.7]
No. convictions	67.14 (53.3)	69.52 (50.1)	-.40	302	.689	-.05	[-14, 9.3]
No. violent convs	4.93 (4.4)	4.84 (4.5)	.02	302	.859	.00	[-.91, 1.1]
Age 1st convn	15.95 (2.1)	16.14 (1.6)	-.92	302	.358	-.01	[-.62, .22]
Age 1st violent ^a	18.90 (3.8)	18.78 (3.5)	.28	270	.781	.03	[-.76, 1.0]
Sentence length ^b	1549 (946)	1267 (915)	2.58	288	.010	.30	[67, 497]
Time served	1705 (1759)	1297 (1386)	2.25	302	.025	.26	[51, 765]
Parole length ^b	395 (229)	256 (162)	5.97	288	<.001	.70	[93, 184]
	Percentage of sample		χ^2	df	<i>p</i>	Φ	95% CI
Ethnicity			1.84	3	.607	.08	[-5.7, 15.7]
Māori	62%	67%					
NZ Euro	29%	25%					
Pacifika	7%	5%					
Other	2%	3%					
Violent index	66%	59%	1.20	1	.274	.08	[-3.9, 17.9]
Released early ^c	79%	31%	67.17	1	<.001	.48	[36.4, 56.8]

Note. ^a 32 men had no official violent convictions on record, ^b 14 men were on sentences of indeterminate length (life or preventive detention) and so were excluded from these analyses, ^c Men on life sentences or preventive detention were coded as early release parolees

3.6.2 Recidivism

Recidivism data were extracted from the national conviction records database between October 2013 and September 2014. Time from release from prison to data extraction averaged 811 days ($SD = 315$; range 318 to 1401 days) and was equivalent for the two samples. Several indices of recidivism were examined: breaches of release conditions (i.e., parole violations), any new conviction (excluding breaches of parole, but comprising any other conviction, including those leading to imprisonment, and violent convictions), any violent conviction, and any conviction (including breaches) leading to imprisonment. For each offender, along with dichotomous recidivism data, survival time was calculated. For recidivists, survival time was the number of days between release and the date on which the offence occurred; for non-recidivists, survival time was days from release until the date of data extraction (or until the date men finished parole for breach convictions). Survival time was corrected for any time spent in prison during the follow-up period. For example, an offender may have been convicted and reimprisoned for breaching his parole conditions. He may have served a short sentence in prison before being released back into the community. Survival time for any subsequent convictions would need to be corrected for the number of days spent in prison for the breach offence to more accurately capture time “at risk”.

3.6.3 Procedure

Members of the Parole Project research team—mostly senior PhD students from Victoria University (including me)—recruited the treatment and comparison samples. Participation in the research was voluntary; the treatment sample was recruited through liaison with staff at the HRSTUs and the New Zealand Parole Board, and the comparison sample was selected from spreadsheets obtained from the Department of Corrections of all soon-to-be released offenders finishing a sentence of at least two years imprisonment and with a high future risk of imprisonment rating (see Appendix B for the Parole Project information sheet and consent form). If they consented, prisoners were then interviewed in person (for 1.5 to 3 hours) and completed several

questionnaires. In both samples, the prisoner had either appeared to the Parole Board and had been advised of a release date at the time of the interview, or was nearing his sentence end date. Interviews were completed as close to release as possible (within 6 weeks). Additional data were obtained from the Department of Corrections Integrated Offender Management System (IOMS) database: post-release conviction histories for coding recidivism, along with demographic and criminal history data.

3.6.4 Data Analysis

Before comparing recidivism rates, I examined whether the two samples were equivalent at the point of release. These comparisons explored whether the two groups differed on any variables that might be related to outcome (e.g., static risk, age). Comparisons were made using independent samples *t*-tests and chi-square analyses. Cohen's *d* effect sizes were calculated for the *t*-tests and can be interpreted as 0.2 to 0.3 = small effect, around 0.5 = medium, and greater than 0.8 = large (Cohen, 1992). For the chi-square analyses, phi coefficients are reported: a value of 0.1 is considered a small effect, 0.3 a medium effect and 0.5 a large effect.

Next, I conducted a series of Kaplan Meier survival analyses to examine differences in recidivism rates between the two groups. Kaplan Meier survival analysis is a non-parametric method that takes into account time to recidivism and allows for censored data. For each group, a survival curve is created and significant differences across survival curves can then be tested. Following these analyses, Cox regression survival analysis was performed to examine the effects of any potential confounding variables. Again, Cox regression was used because it is a type of regression that incorporates information regarding follow-up time and controls for differing lengths of follow-up time within the sample (Kleinbaum & Klein, 2012).

Finally, logistic mediated regression was used to examine the effect of potential mediating variables. In this study, these were variables that differed across the two groups but that were likely to be related to the consequences of treatment participation (i.e., not pre-existing). Mediation analyses are used to identify whether a relationship

between two variables is partly or wholly due to the influence of a third variable. Logistic mediation is used when the potential mediator and/or the outcome variable is dichotomous. Following Baron and Kenny's (1986) approach, a series of regressions were run to examine the relationships between a predictor variable, a potential mediator and an outcome variable. In the current study, the potential mediator (parole status; 1=early release, 0=end-of-sentence) and outcome variable (recidivism; 1=recidivist, 0=non-recidivist) were both dichotomous. Because of differences in follow-up time, the outcome variable was re-coded as recidivism within one year of release (1=recidivist, 0=non-recidivist). To obtain standardised coefficients, I used the tools from the website maintained by Nathaniel Herr (<http://www.nrpsych.com/mediation/logmed.html>). The Sobel test was used to examine the significance of the mediation effect (i.e., whether the reduction in the effect of the predictor variable on the outcome variable was significant when the potential mediator was introduced).

3.7 Results

3.7.1 Are the Two Samples Equivalent at Release?

Independent samples *t*-tests and chi-square analyses were conducted to examine differences between the two groups. As shown in Table 1, there were no significant differences between the treatment and comparison samples in their level of static risk (RoC*RoI score), age or ethnicity. There were also no significant differences between treated and comparison offenders in their criminal histories (e.g., number of previous convictions, age at first conviction) or in the proportion with violent index offences. But, treated men were serving significantly longer sentences than the comparison men ($p = .010$) and had spent a significantly longer period of time in prison ($p = .025$).²⁰ In addition, significantly more treated offenders were granted early parole

²⁰ *Sentence length* and *days on parole* comparisons do not include the 12 treated and 2 untreated men who were serving sentences of indeterminate length (life sentence or preventive detention).

compared to the comparison offenders (79% vs. 31%; $p < .001$), and as a result treated men had a significantly longer time to serve on parole ($p < .001$). Effect sizes ranged from small for sentence length ($d = 0.30$) and time served ($d = 0.26$) to large for proportion released on early parole ($\Phi = 0.70$). It could be argued that only two of these differences—sentence length and days served—are pre-existing and uncontaminated by treatment completion.²¹ The other two differences are likely to be affected by treatment completion. For example, offenders are more likely to be considered for early release by the parole board if they complete a HRSTU and, as a result, will have longer to serve on parole. These differences will be explored later on in the results.

3.7.2 Are There Differences in Recidivism Rates Between the Two Groups?

Next, I examine whether treatment completers and the comparison sample differ from one another in their rates of recidivism. Recall that offenders were followed up for an average of 811 days and follow-up time was equivalent for the two groups. Table 2 presents reconviction percentages and mean survival days for the two groups. As shown in the table, the rate of breach convictions for the treatment sample (36%) was 29% lower than the rate found for the comparison sample (51%). The rate of new criminal convictions for the treatment sample (66%) was 16% lower than the comparison sample (79%). The treatment sample's rate of new violent convictions (25%) was 24% lower than the comparison sample's (33%). Finally, the rate of reimprisonment for the treatment sample (38%) was 34% lower than the rate found for the comparison sample (58%). Furthermore, the mean survival times in Table 2 show that treated offenders tended to survive longer in the community before reoffending than the comparison sample.

Kaplan-Meier survival analysis was conducted to statistically compare differences between the samples, controlling for time “at-risk”. Kaplan-Meier survival curves are presented in Figures 7-10. For each recidivism outcome, there was a

²¹ Although time served could also be related to treatment completion (i.e., treated men might serve less time because they were more likely to be granted early release), comparison men actually served significantly less time in prison than the treated men, suggesting that this difference was at least partially pre-existing.

statistically significant difference between the two groups. Treated men were less likely to be convicted—and were convicted more slowly—for breaching the conditions of their release, $\chi^2(1) = 18.72, p < .001$, for a new offence, $\chi^2(1) = 14.64, p < .001$, for a new violent offence, $\chi^2(1) = 6.17, p = .013$, and for a new offence or breach leading to a sentence of imprisonment, $\chi^2(1) = 17.66, p < .001$, compared to the comparison sample. The Tarone-Ware statistic of equality was used to test for significance because it has an intermediate weighting scheme and is designed to have good power across a wide range of survival functions; however, the Log-rank and Breslow tests also were significant for each outcome.

Table 2

Percentage Reconvicted and Survival Days: Treatment and Comparison Samples

	Treatment (N=151)		Comparison (N=153)	
	% Reconvicted	Survival days <i>M (SD)</i>	% Reconvicted	Survival days <i>M (SD)</i>
Recidivism outcome				
Breach	36.4%	163.67 (134.24)	51.0%	100.03 (94.14)
Any conviction	65.6%	267.76 (209.18)	79.1%	203.88 (204.29)
Violent conviction	25.2%	379.21 (236.91)	32.7%	252.30 (170.11)
Reimprisonment	38.4%	248.89 (229.05)	57.5%	169.48 (177.16)

Note. The mean survival days presented in the table are for recidivists only.

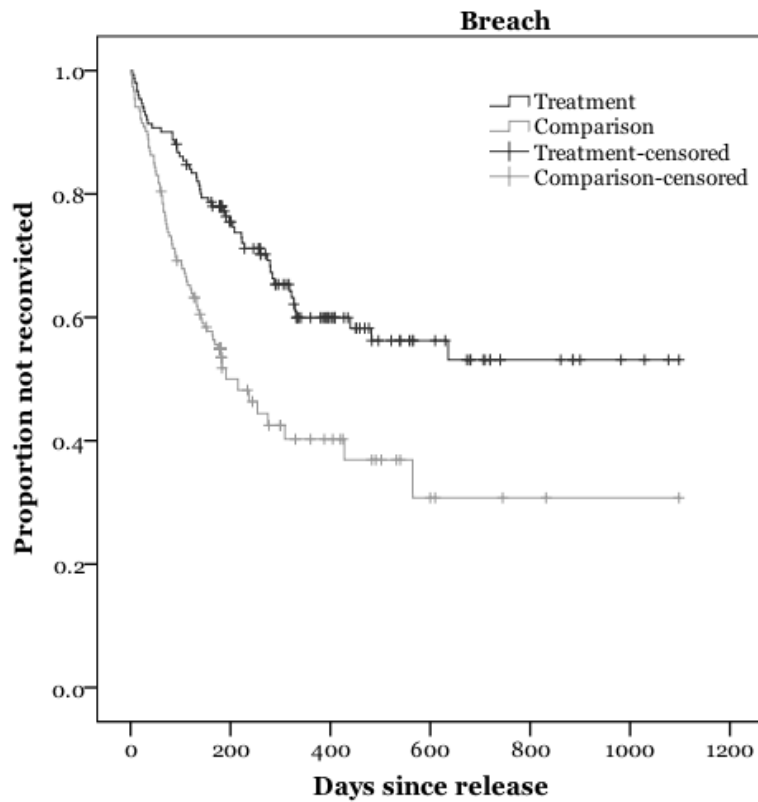


Figure 7. Survival curve of treatment and comparison rates of breaches

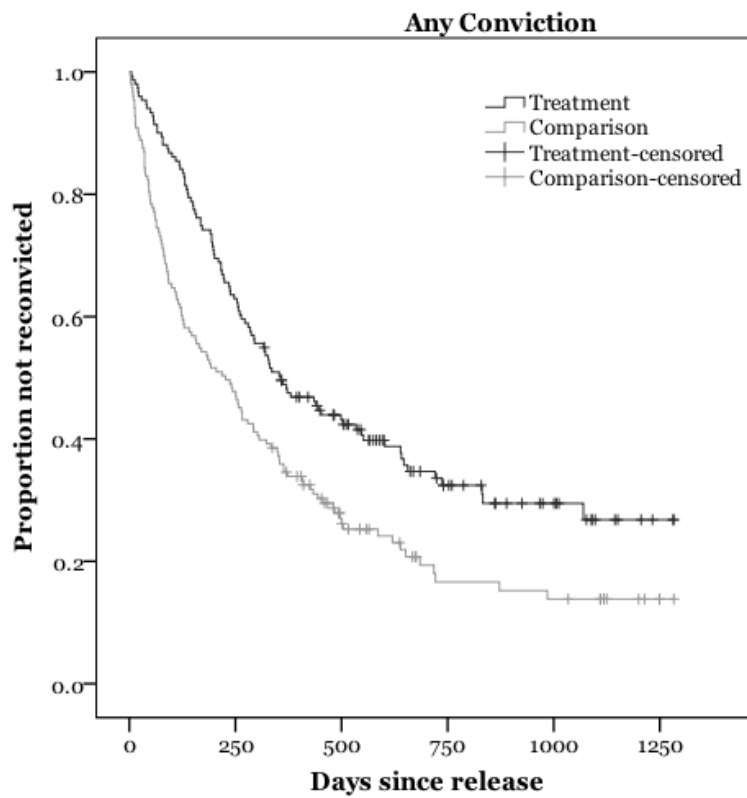


Figure 8. Survival curve of treatment and comparison rates of reconvictions

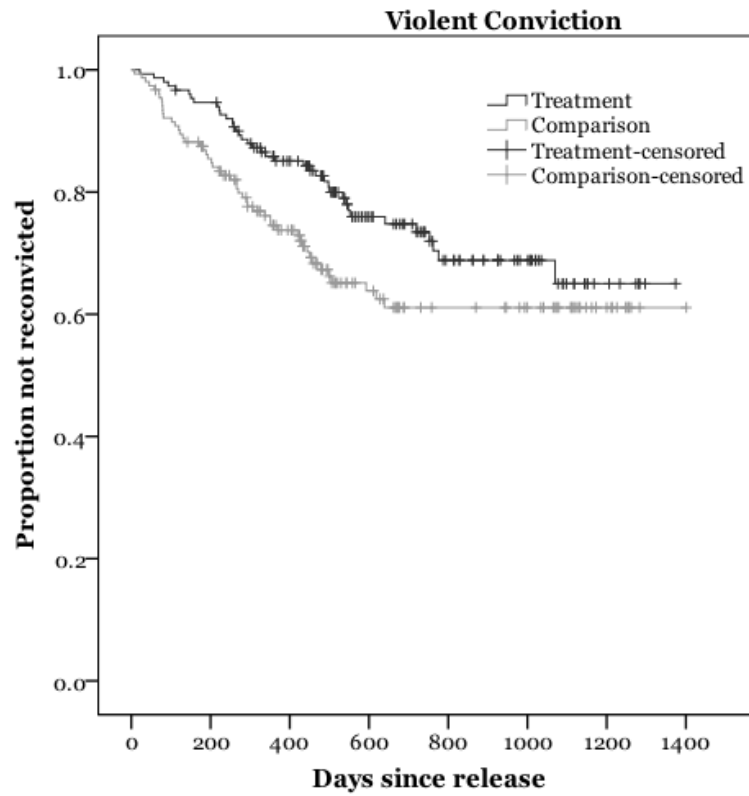


Figure 9. Survival curve of treatment and comparison rates of violent convictions

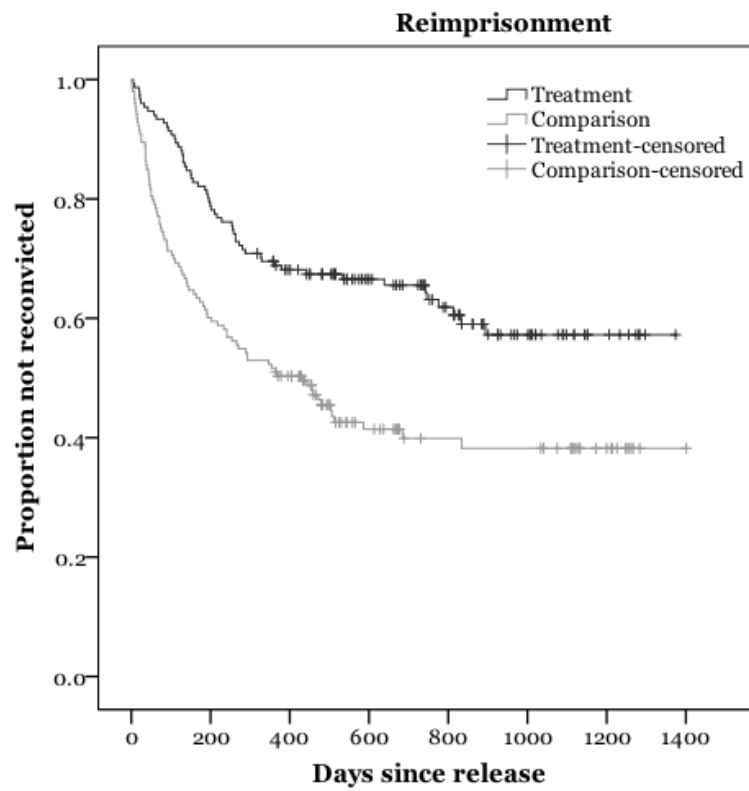


Figure 10. Survival curve of treatment and comparison rates of reimprisonment

The results above suggest that treatment completers were less likely to be reconvicted of all recidivism outcomes than the comparison sample. However, to ensure that the pre-existing differences noted in Table 1—sentence length and time served—were not accounting for these results, a series of Cox regression survival analyses were conducted. The first models tested whether sentence length and days served predicted recidivism on their own. The dependent variable was recidivism and the time variable was days to recidivism for those who reoffended, or total follow-up time for non-recidivists. Sentence length predicted breaches of parole conditions, $\chi^2(1) = 4.80, p = .028$, and any new conviction, $\chi^2(1) = 3.87, p = .049$. Time served only predicted any new conviction $\chi^2(1) = 11.68, p = .001$. Treatment status was then added to the model alongside sentence length and time served as an additional predictor variable. For sentence length, the model itself was significant for breaches, $\chi^2(2) = 19.14, p < .001$, and any new conviction, $\chi^2(2) = 11.48, p = .003$. Treatment status made a significant independent contribution to the prediction of breaches, Wald(1) = 13.39, $p < .001$, $e^b = .503$, 95% CI = .35, .73, and any new conviction, Wald(1) = 7.32, $p = .007$, $e^b = .688$, 95% CI = .53, .90. For time served, the model was significant for any new conviction, $\chi^2(2) = 22.22, p < .001$, and treatment status made a significant independent contribution, Wald(1) = 9.41, $p = .002$, $e^b = .657$, 95% CI = .50, .86). These results suggest that after controlling for these two pre-existing variables, treated offenders were still less likely to be breached and reconvicted of a new offence compared to the comparison sample.

The other significant differences between the two groups noted in Table 1—parole status and parole length—are not independent of participation in treatment. Treatment completion is one variable that the parole board takes into account when considering granting an offender early parole, and parole length is dependent on getting early parole or not (i.e., offenders granted early parole have to complete the rest of their prison sentence and up to six additional months on parole in the community

whereas offenders released at the end of their sentence report for a set time of six months).²² Therefore, parole status was examined as a potential mediator of the relationship between treatment status and recidivism.²³ In other words, is treatment status predicting recidivism because treatment increases the likelihood of early parole and early parole decreases the likelihood of recidivism?

3.7.3 Controlling for Potential Mediators

Logistic mediational analyses were conducted to examine whether the relationship between treatment status and recidivism was mediated by parole status (see Figures 11-14). Because logistic regression require a dichotomous outcome, and therefore does not control for differing lengths of follow-up time, the follow-up time for all participants in these analyses was fixed at one year after release. Only offenders who had been out of prison or “at risk” for at least one year were included: 145 treated men and all 153 comparison men. See Table 3 for these recidivism rates and corresponding chi-squared analyses (including Φ effect sizes and 95% confidence intervals).

Table 3

Percentage Reconvicted at 12 Months: Treatment and Comparison Samples

Recidivism outcome	Treatment (N=145)	Comparison (N=153)	χ^2	<i>p</i>	Φ	95% CI
Breach	33.8	49.7	7.07	.008	-.16	[5.1, 26.7]
Any conviction	51.0	64.7	5.17	.023	-.14	[3.2, 24.8]
Violent conviction	13.8	23.5	4.01	.045	-.13	[.9, 18.5]
Reimprisonment	31.7	49.7	9.19	.002	-.18	[9.3, 30.9]

²² Parole status and parole length were significantly correlated ($r = .65, p < .01$).

²³ Identical results were found when using parole length as the mediating variable. Thus, only the results for parole status are reported.

In line with the mediation procedures outlined by Baron and Kenny (1986), regressions were run to test the relationships between the variables. First, the relationship between the predictor variable (treatment status) and the outcome variable (recidivism) was found to be significant for all recidivism outcomes: breaches of release conditions ($\beta = -.18, p = .006$), reconvictions ($\beta = -.15, p = .017$), violent convictions ($\beta = -.18, p = .033$), and reimprisonment ($\beta = -.20, p = .002$). Next, the relationship between the predictor variable and the potential mediator (parole status) was found to be significant ($\beta = .50, p < .001$). The final regression series examined the relationship between the potential mediator and the outcome variable, controlling for treatment status. Parole status was significantly related to reconvictions ($\beta = -.38, p < .001$), violent convictions ($\beta = -.33, p < .001$), and reimprisonment ($\beta = -.15, p = .038$). Parole status was not related to breaches ($\beta = -.00, p = .994$).

The final regression series also examined the initial effect of the predictor variable (treatment status) on the outcome variable (recidivism), when controlling for the potential mediator (parole status). The standardised regression coefficient between treatment status and recidivism, controlling for parole status, is in parentheses in the figures. Because one of the models has not met the requirements for establishing mediation (the potential mediator was not related to breaches), I discuss the effect of controlling for parole status on reconvictions, violent convictions, and reimprisonment only.

In all models, the path between treatment status and reconvictions decreased when controlling for parole status. In order for these changes to indicate mediation, the *decrease* must be tested for significance (Preacher & Hayes, 2004). Sobel's z was significant for the change in coefficients between treatment status and reconvictions ($z = -4.31, p < .001$), treatment status and violent convictions ($z = -3.24, p = .001$), and treatment status and reimprisonment ($z = -2.00, p = .045$). Baron and Kenny (1986) state that a relationship is perfectly mediated when the predictor variable has no effect

on the outcome variable once the mediating variable is controlled for. However, a partial mediation may occur when the relationship between the predictor and outcome variable has significantly reduced, but is still different from zero. After controlling for parole status, treatment status no longer significantly predicted reconvictions ($\beta = .03$, $p = .720$), violent convictions ($\beta = -.02$, $p = .840$), or reimprisonment ($\beta = -.13$, $p = .063$). These results suggest that parole status is fully mediating the relationship between treatment status and all three recidivism outcomes.²⁴

²⁴ The practice of reporting mediations as *full*, *perfect*, or *complete* has been criticized because of its implications for theory building (e.g., Rucker, Preacher, Tormala, & Petty, 2011). Full mediation suggests that there is no need to test for other potential mediating variables; however, it is unlikely that a mediator ever completely explains the relationship between an independent and dependent variable. It is entirely possible that, although parole status “fully” mediates the relationship between treatment status and recidivism, there are other potential mediating variables or other third variables not accounted for here.

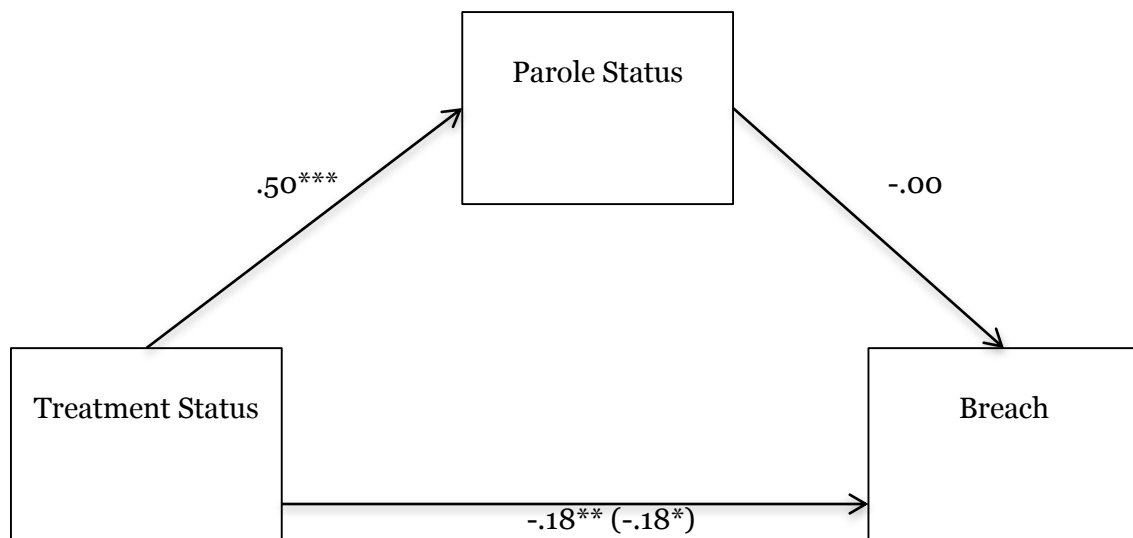


Figure 11. Standardized regression coefficients for the relationship between treatment status and breaches as mediated by parole status

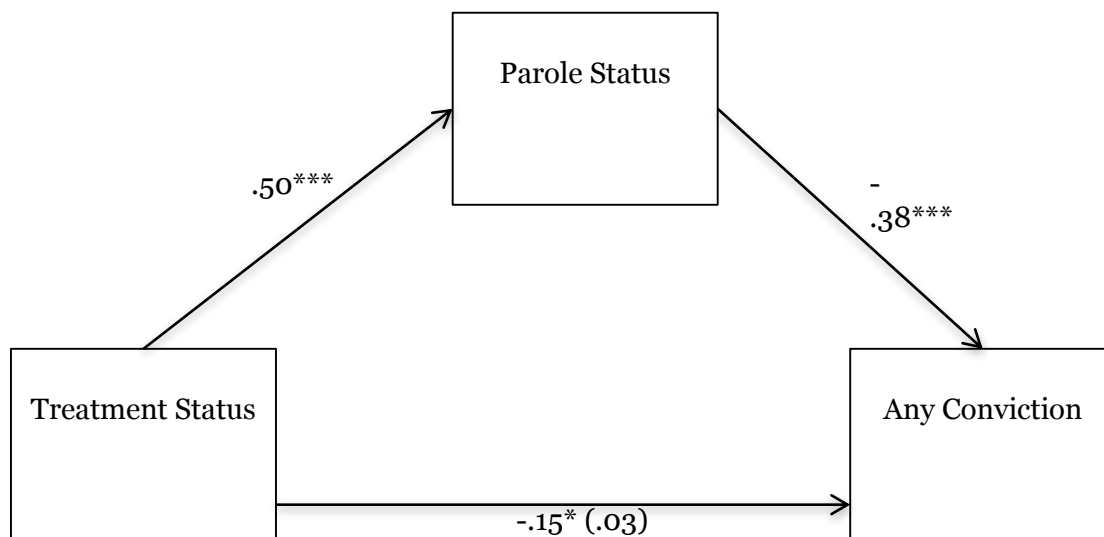


Figure 12. Standardized regression coefficients for the relationship between treatment status and reconvictions as mediated by parole status

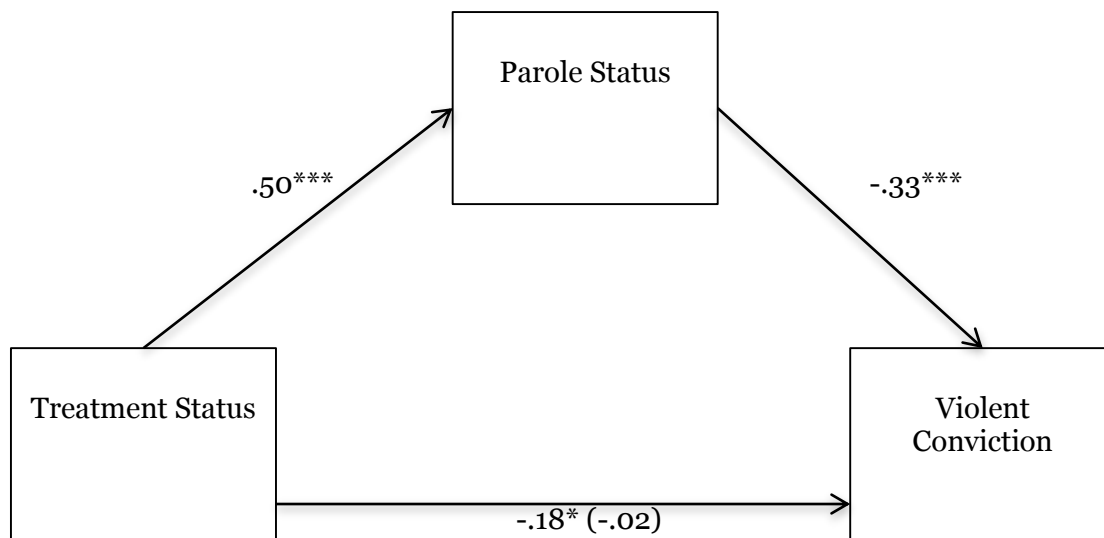


Figure 13. Standardized regression coefficients for the relationship between treatment status and violent convictions as mediated by parole status

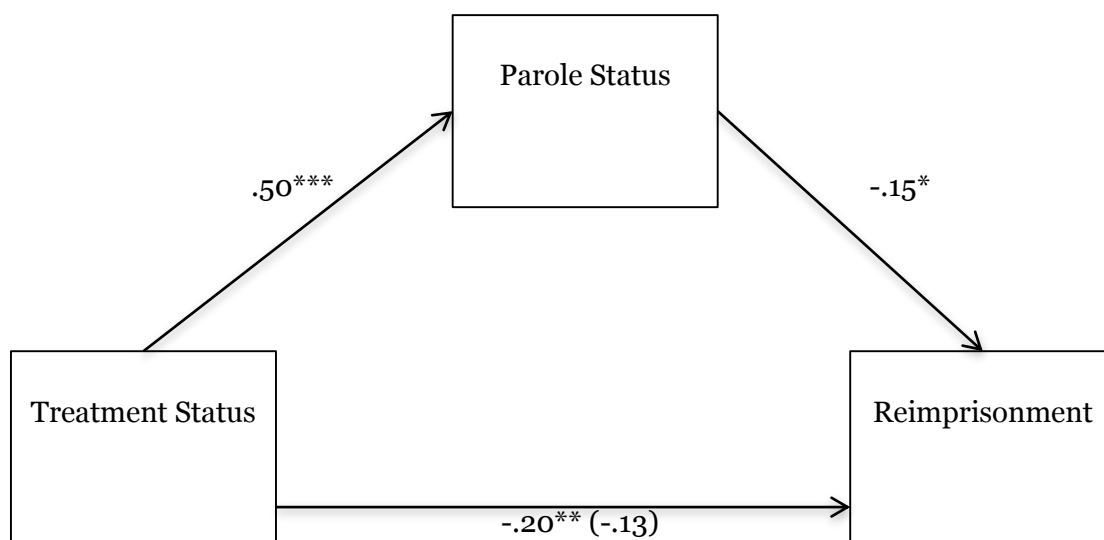


Figure 14. Standardized regression coefficients for the relationship between treatment status and reimprisonment as mediated by parole status

3.8 Discussion

This study examined with a quasi-experimental design whether New Zealand's intensive prison-based interventions for high-risk offenders (the HRSTUs) reduced subsequent recidivism rates for the men who have completed them (i.e., the long-term outcomes of treatment). A sample of HRSTU completers and a comparison sample of high-risk offenders who had not completed the programme were compared on four indices of recidivism, varying in severity: breaches of parole conditions, any new convictions, any new violent convictions, and any conviction (including breaches) that resulted in imprisonment. Results were consistently positive: significantly fewer treatment completers were reconvicted of all four recidivism outcomes than the comparison sample. Relative to the comparison sample, there was a 16 to 34% reduction in recidivism for the treatment sample (Φ effect sizes $-.13$ to $-.18$ at 1 year). Furthermore, treated offenders survived longer in the community before reoffending. The magnitude of these reductions appears larger than those found in previous outcome evaluations from the HRSTUs. For example, Polaschek (2011) found that, relative to a matched comparison group, there was only a 14% reduction in violent recidivism for the treated group. In my study, there was a 24% reduction in violent recidivism rates. Similarly, a newer outcome evaluation of 111 HRSTU completers found a positive but non-significant reduction in recidivism after six months of follow-up (Kilgour & Polaschek, 2012).

There are a few possible explanations for the larger effects found in the current study. The first is the inclusion of more recent treatment completers in the sample. The HRSTUs have undergone an overhaul in the last few years after significant problems were identified with the earlier Violence Prevention Unit, including problems with extending the therapeutic community outside of group sessions and issues with programme integrity (Polaschek & Kilgour, 2013). Of the HRSTU sample in the current study, 93% completed the programme in 2010 or later. But Kilgour and Polaschek (2012) also examined this newer cohort of HRSTU completers and found a positive but

non-significant reduction in recidivism. Another explanation is the inclusion of higher risk offenders in the newer HRSTUs compared to the earlier VPU, which took in more lower risk life-sentenced prisoners. A higher risk sample means there is more room to show a treatment effect (i.e., due to higher base rates of reoffending). But in the Polaschek (2011) study the sample was split into high versus medium-risk groups, and the two groups were analysed separately. The programme worked better for the high-risk offenders, but the reductions in recidivism were still lower than in the current study. Future research should continue to evaluate this newer cohort of HRSTU completers.

A final explanation is that the HRSTU sample in this study was part of a *voluntary* research project— it is possible that the offenders who volunteered were those men who were generally more agreeable and cooperative and who had potentially made more progress in the programme (i.e., offenders who made more progress might be more willing to share their experience of the programme), signalling a possible selection effect. At release, treated offenders who declined to take part in the research were no different than the treated offenders who consented on the variables we measured. Moreover, the comparison men were also voluntary research participants. However, it is possible there are other variables that we did not measure that the treated offenders who participated differed on (e.g., dynamic risk, agreeableness).

The effect of treatment on all recidivism outcomes, including breaches of parole and violent convictions, suggests that the HRSTUs are not only helping offenders reduce their risk of general recidivism but also less serious rule-breaking that may be captured by breaches of parole, and more serious offending captured by violent convictions. Breaches often constitute minor infractions (e.g., failure to report, moving address without permission), and although often trivial, may represent a slide back into old antisocial behaviour. The finding for breaches is even more encouraging if we consider that the HRSTU sample had a significantly longer period of time to serve on parole, and had more opportunity to breach their conditions. The finding for violent

convictions is promising. The HRSTUs developed from a programme targeting repeat violent offenders to a more general focus on recidivist criminal behaviour. It is encouraging to see that the programmes are having an effect on both general and violent recidivism.

The methodology employed in this study is characteristic of most programme evaluations found in the offender rehabilitation literature (i.e., a quasi-experimental design comparing a matched treatment and comparison sample on their rates of recidivism), and the results are comparable with findings from meta-analytic evaluations of programmes that adhere to the principles of Risk-Need-Responsivity (Andrews & Bonta, 2010). These programmes have found up to 26% absolute (or 41% relative) reductions in recidivism for RNR-treated offenders compared to comparison groups. This effect reduces when only one or two of the three key principles are adhered to (e.g., an effect size of .10 for the risk principle alone; Andrews & Bonta, 2010). The magnitude of the reductions in recidivism in the current study is consistent with programmes that adhere to all three principles, which fits with what we know about the design and implementation of the HRSTUs. A process evaluation of the units suggested that they were successfully providing “adequate to good quality, therapeutically-oriented rehabilitation programmes to high-risk/high-need offenders” (Kilgour & Polaschek, 2012, p. 5).

The most rigorous approach to selecting a treatment and comparison group is random allocation; failing that, the next preferred design is prospective or retrospective matching (Friendship, Falshaw, & Beech, 2003; Polaschek & Dixon, 2001). Despite no a priori matching or random allocation to treatment in the current study, and the recruitment of the comparison sample based only on a few criteria (i.e., RoC*RoI > .6, over age 19, and a sentence length of 2 years or more), the comparison sample were remarkably similar to the treatment sample prior to release. The only pre-existing differences between the two groups on variables that might be related to their propensity to reoffend were the lengths of their current sentence and the number of

days served in prison on that sentence; treated offenders had longer sentences and had served more days in prison. These differences were ruled out as potential confounds in a series of Cox regression analyses. However, it is of course entirely possible that there are other pre-existing differences on some unknown factor(s) that we did not examine, but that were related to recidivism (e.g., motivation to desist).

The two groups also differed on two variables that could be thought of as outcomes of treatment participation: the proportion of men who were released on early parole and parole length. Parole status was explored as a potential mediator. Logistic mediation analyses found that parole status fully mediated the relationship between treatment status and three recidivism outcomes: reconvictions, violent convictions, and reimprisonment. In other words, treatment status predicted these outcomes because treatment increased the likelihood of being granted early parole, and being granted early parole decreased the likelihood of recidivism; parole status fully accounted for the relationship between treatment status and these three recidivism outcomes. These findings suggest that when the Parole Board is considering whether or not to grant an offender early release, their decisions are accounting for the same variance that explains the relationship between treatment status and recidivism. Thus, one possible reason why some comparison men were granted early parole is because they have those same qualities that the Parole Board looks for, despite not successfully completing a HRSTU.

It is unclear here whether the mediational findings reflect differences between the early-release and sentence-end offenders prior to release (but after treatment), or are due to differences in the experiences the two groups have on parole. Future research could investigate the reasons why 31% of the comparison sample were considered suitable for early release by the New Zealand Parole Board, and whether it is a consequence of something that happened in prison (e.g., other treatment programmes), or in the community (e.g., longer parole sentences, more monitoring) that led to the lower rates of recidivism for this group. Similarly, future research could

explore why 20% of the treatment sample were considered unsuitable for early release and the reasons why they went on to have poorer outcomes.

Labelling the non-HRSTU sample as the “comparison” sample—instead of referring to them as an untreated sample—was deliberate because, as described in the method, 77% of the comparison sample had taken part in some form of programme in prison. We know from the principles of effective interventions that high-risk offenders require the most intensive treatment (Andrews & Bonta, 2010). It is unlikely any men in the comparison sample participated in treatment as intensive as the HRSTUs, but the level of treatment may nonetheless be accounting for the successful comparison offenders. If it is true that some comparison men were treated effectively, then the reduction in recidivism for HRSTU completers in this study is likely to be a conservative estimate. Additional analyses (not reported here) examining type of treatment among the comparison sample found that no treatment significantly predicted recidivism, which is consistent with previous evaluations of these lower intensity programmes (see Appendix C). Future research could examine the other treatment options available in New Zealand prisons and investigate why high-risk offenders are attending these programmes instead of a HRSTU (i.e., were they offered a place in a HRSTU and declined, or were they not offered a place at all; if not, why).

In the general introduction, I critiqued the typical approach to evaluating offender rehabilitation programmes and argued that recidivism could be thought of best as a long-term outcome of treatment that is preceded by more immediate and intermediate outcomes. This first study has shown that HRSTU attendance is significantly associated with long-term outcomes: treatment completers had significantly lower rates of four indices of recidivism, ranging in severity from breach offences to violent offences resulting in imprisonment. This finding has important implications. Reducing recidivism not only results in individuals doing less crime, it also leads to fewer victims (and less subsequent psychological and physical harm), and reduces the large costs associated with prosecuting and reimprisoning offenders.

However, a sole focus on recidivism rates tell us little about *how* the treatment worked and why it was ineffective for some offenders at reducing recidivism. Answering the question of *how* will increase our understanding of what we can do to make programmes more effective in the future. The remainder of this thesis explores possible mechanisms of change in offender rehabilitation. First, Study 2 investigates *immediate* outcomes of treatment. Specifically, I examine whether change in dynamic risk factors is the mechanism by which treatment leads to a reduction in recidivism. Then, the remainder of this thesis examines *intermediate* outcomes (i.e., factors that influence the process of offender re-entry).

Chapter 4

Study 2: Change as an Immediate Outcome of Treatment

4.1 Introduction

The success of many types of treatment is often measured by one type of outcome. For example, treatment for substance abuse might be judged to have failed if a patient “goes on a bender” some time after completing treatment. As already discussed in the general introduction, the same is true for offender rehabilitation: treatment success or failure is usually determined by whether or not an offender is reconvicted of a new offence in a specified follow-up period. We know that offender rehabilitation can have modest but significant effects on reducing reoffending, but we know little about what brings about these reductions (i.e., *how* treatment works). Maltz (1984) suggested that the main question of any programme evaluation should be “to what extent were treatment group members rehabilitated?” rather than “Did the programme (somehow) reduce the post-release criminality of its participants?” (p. 10). We just saw in Study 1 that the HRSTUs (somehow) reduced treatment completers’ rates of recidivism. This study examines whether treatment change is the mechanism by which treatment brought about these reductions (see Figure 2).



Figure 2. Outcome Evaluation Including Immediate Outcomes

4.2 Linking Within-Treatment Change in Dynamic Risk Factors to Recidivism

The presumed mechanism that underlies effective offender rehabilitation is the reduction of dynamic factors that are linked to recidivism (e.g., criminal attitudes, poor emotional control). But this mechanism has rarely been tested empirically.

Interventions that target dynamic risk factors have been shown to reduce recidivism with effect sizes in the $r = .25$ range (Andrews & Bonta, 2010). Furthermore, programmes that target multiple dynamic risk factors have shown to bring about the greatest reductions in recidivism (Gendreau, French, & Taylor, 2002). Yet little empirical research has examined what brings about these reductions. Comparison of a treated group with another “does not indicate how a treated client goes from offending to not offending” (Kroner & Yessine, 2013, p. 322). In order to determine whether change in dynamic risk factors is the mechanism that brings about reductions in reoffending, research needs to demonstrate two significant findings: (1) that the treatment *can* alter dynamic risk factors and (2) that altering these factors leads to reductions in recidivism. Without empirical support for these two assumptions, we cannot make inferences about how the treatment worked.

Typically, participants are assessed prior to treatment on a range of areas related to their offending and then re-assessed on the same variables following treatment, to determine progress or change. Treatment change is most often assessed empirically using offender self-report (Polaschek, Bell, Calvert, & Takarangi, 2010), but more recently within-treatment change has been assessed using clinician-rated risk instruments—designed specifically to measure change on dynamic risk factors over time (e.g., third- and fourth-generation tools; Douglas & Skeem, 2005). Next, the relevant research using self-report versus clinician-rated measures will be discussed in turn.

4.2.1 Change in Self-Reported Dynamic Risk Factors

There are numerous studies that assess treatment change using psychometric self-report measures. Taken together, these studies suggest that interventions with offenders can significantly reduce a number of relevant dynamic risk factors, including antisocial attitudes, cognitive distortions, anger expression and anger control, and impulsivity (e.g., Beggs & Grace, 2010; Hildebrand & de Ruiter, 2012; Hudson, Wales, Bakker, & Ward, 2002; Marques, Wiederanders, Day, Nelson, & van Ommeren, 2005; Polaschek & Dixon, 2001, Woessner & Schwedler, 2014). But, evidence of pre- to post-treatment differences on factors known to predict recidivism does not necessarily mean that this change is the mechanism through which treatment works to reduce recidivism, unless change is linked to recidivism.

There is some evidence for a significant association between within-treatment change on psychometric measures and a reduction in reoffending. One study using a sample of child sex offenders from New Zealand found that self-reported change on psychometric measures of sexual interests and anger/hostility significantly predicted recidivism, after controlling for pre-treatment levels of static and dynamic risk (Beggs & Grace, 2011). Another New Zealand study found that self-reported pro-social change in certain domains (e.g., interpersonal competency) was associated with reduced recidivism (Hudson et al., 2002). Finally, a study using a sample of violent offenders in Canada found that change on some scales of an anger and emotional management questionnaire were significantly correlated with a reduction in general and violent recidivism (Dowden, Blanchette, & Serin, 1999).

More common in the literature are studies showing non-significant or inconclusive results. In Serin and colleagues (2013) review of the literature, only 17 out of 378 studies measuring treatment change attempted to link within-treatment change to recidivism outcomes, and just 10 showed a significant association between recidivism and at least one change measure. A recent study by Kroner and Yessine (2013) assessed treatment change and its association with recidivism using three self-

report measures, consisting of nine scales. They found that only changes in a single antisocial associates scale predicted recidivism, despite this factor not being a direct target of the treatment. Another study found no association between sexual and violent recidivism and change on individual psychometric measures (Barnett, Wakeling, Mandeville-Norden, & Rakestrow, 2013). Finally, a recent study found that self-reported prosocial change in dynamic risk factors was not predictive of general or sexual/violent recidivism in a sample of male sexual and violent offenders (Woessner & Schwedler, 2014).

A major limitation of most studies examining the relationship between self-reported change and recidivism is that they do not control for baseline risk. Raw change scores do not take into account pre-treatment levels of risk and previous research has found that those who are highest risk prior to treatment have the greatest capacity to change (Beggs & Grace, 2011; Hudson et al., 2002; Olver, Kingston, Nicholaichuk, & Wong, 2014). Thus, the lack of a link between treatment change and recidivism could simply reflect the higher underlying risk of the people who make the most change in treatment. An alternative methodology to control for baseline risk is to calculate a residualised change score for each individual (i.e., by regressing the change score on the pre-treatment score; Beggs and Grace, 2011; Olver et al., 2014), but few psychometric change studies use this technique.

Is self-report an accurate way to assess change? The inconclusive findings in the literature suggest that offender's own evaluations of change may not be externally valid. Yet previous research has confirmed the validity of self-reported dynamic risk in predicting recidivism (Allan, Grace, Rutherford, & Hudson, 2007; Walters, 2006). However, as Woessner and Schwedler (2014) point out "the effect of long-term offender treatment on the validity of self-report is rather unexplored" (p. 14). Offenders gain considerable knowledge during treatment about which factors are related to criminal behaviour and need to be changed in order to reduce their likelihood of reoffending. It has been argued that, as a result, self-report dynamic risk measures may be transparent

to treated offenders, especially because offenders have obvious incentives to portray themselves as having benefited from treatment (e.g., to increase their chances of being considered for early release by the parole board; Beggs, 2010).

4.2.2 Change in Externally-Rated Dynamic Risk Factors

More recent research has begun to examine treatment change using third- and fourth-generation clinician-rated risk assessment tools designed specifically for this purpose. Some findings from this line of research are promising. Olver and colleagues (2007) found that change on the VRS-SO was significantly associated with reductions in sexual recidivism after controlling for pre-treatment static and dynamic risk. This finding has been replicated with a sample of sexual offenders in New Zealand (Beggs & Grace, 2011; Olver, Christofferson, Grace, & Wong, 2013). Similar results have been found with the original VRS, with more change being associated with significant reductions in violent recidivism, after controlling for pre-treatment scores (Lewis, Olver, & Wong, 2013). Furthermore, a recent study found that improvements on two clinician-rated measures of dynamic risk and protective factors (the HCR-20 and the SAPROF) were significantly associated with lower violent recidivism rates, controlling for levels of static risk and age (de Vries Robbé, de Vogel, Douglas, & Nijman, 2014).

Findings from these studies suggest that change measured on clinician-rated instruments might have more external validity than change self-reported by offenders, and most of these studies control for pre-treatment risk levels. However, all of the above studies are retrospective in design. Researchers external to the treatment process measured change based on file information from treatment sessions. Studies using actual clinician-rated change—that is, change rated by the therapist who provided the treatment—have found little relationship between within-treatment change and recidivism (Barbaree, 2005; Langton, Barbaree, Harkins, & Peacock, 2006; Seager, Jellicoe, & Dhaliwal, 2004; Quinsey, Khanna, & Malcolm, 1998). We know from prior research that predictive validity has sometimes been a problem with clinician-rated change measures (Marques et al., 2005; Looman, Abracen, Serin, & Marquis, 2005).

Seto (2003) suggests that therapists may be “vulnerable to biases in making their ratings because of their close involvement with the participants” (p. 126), and that measures of treatment performance might be less influenced by these biases if people who are not involved in the treatment process rate them. The positive findings using researcher-rated change supports this assumption; however, it would be of practical value to determine whether clinician ratings of change predict recidivism, given that therapists are the people who routinely rate the instruments in practice and make recommendations based on their ratings.

4.3 Study Objectives

Research attempting to link within-treatment change to recidivism has been inconclusive and most studies have methodological flaws (e.g., not controlling for baseline levels of risk). In order to investigate *how* treatment works, Kroner and Yessine (2013) suggest three essential research questions: (1) To what extent does cognitive-behavioural treatment reduce criminal recidivism? (2) How much change occurs as a result of treatment? and (3) Is treatment change related to reductions in criminal recidivism? Question one has already been answered in Study 1: the HRSTU programmes significantly reduced recidivism rates (long-term outcome). This study will answer questions two and three. Do the HRSTUs significantly reduce dynamic risk factors as measured by clinician ratings on the VRS (immediate outcome)? And is amount of within-treatment change on dynamic risk factors related to reductions in recidivism (immediate outcome linked to long-term outcome)? This study addresses a gap in the literature by using ratings made by the clinicians who treated the offenders. It also addresses the methodological shortcomings of some previous studies by controlling for pre-treatment levels of static and dynamic risk.

4.4 Method

4.4.1 Sample

The sample for Study 2 was very similar to the treatment sample in Study 1. Of the 151 treatment completers from Study 1, 10 were excluded because they had a sexual offender version of the VRS, 1 did not have a VRS due to being treated at a time when the VRS was not done in the units, and VRSs for 5 men were unavailable. In addition, 12 treatment VRSs were considered poor quality and omitted (see Procedure), bringing the final sample to 123 treatment men. Demographic data for the sample can be found in Chapter 4, Table 1. The smaller treatment sample of 123 offenders did not differ from the treatment sample in Study 1 on any demographic variables (e.g., RoC*RoI: $t[272] = -1.38, p = .168, 95\% \text{ CI} = -.05, .01, d = .17$, age at release: $t[272] = .72, p = .471, 95\% \text{ CI} = -1.25, 2.69, d = .09$, days served: $t[272] = .70, p = .487, 95\% \text{ CI} = -265, 554, d = .08$, ethnicity: $\chi^2 = 1.36, p = .715, \Phi = .07$).

4.4.2 Measures

4.4.2.1 The Violence Risk Scale. The Violence Risk Scale (VRS; Wong & Gordon, 2000) is a 26-item staff-rated risk instrument that assesses 6 static (e.g., age at first violent offence) and 20 dynamic (e.g., criminal attitudes, impulsivity, interpersonal aggression) risk factors. Each item is rated prior to treatment on a 4-point scale from completely unrelated to violence (0) to strongly related to violence (3). The dynamic items considered problematic (those rated either a 2 or a 3) receive a second rating based on the offender's current level of engagement in change on that item (i.e., pre-contemplation, contemplation, preparation, action, or maintenance) to determine the degree to which he currently acknowledges the risk factor as problematic and has made observable efforts to overcome it. See Appendix D for the VRS score sheet.

Post-treatment scores are obtained by re-rating stage of change for all dynamic risk factors originally rated 2 or 3, and subtracting 0.5 points from the pre-treatment score for progression through each stage of behaviour change. For this purpose, pre-

contemplation and contemplation are considered equivalent; risk scores do not reduce if the only change on the risk factor is a shift from not acknowledging the factor to acknowledging it. Thus, the VRS is able to measure change in dynamic risk over time (i.e., movement from problem recognition, to initiating behaviour change, to increasing resilience of change).

This study uses therapist-rated pre- and post-treatment VRSs for the sample. For men who remained in prison for more than 6 months after the programme ($n = 31$), a third VRS was completed immediately prior to release by a trained research assistant. Therefore all sample members had a VRS based on pre-release information and either one or two additional VRSs completed by treatment staff as they were going through the programme.

4.4.2.2 Recidivism. Recidivism data were extracted from the national conviction records database between October 2013 and September 2014. Time from release from prison to data extraction averaged 834 days ($SD = 274$; range 318 to 1374 days). The same four recidivism indices used in Study 1 were examined: breaches of release conditions (i.e., parole violations), any new conviction (excluding breaches of parole, but comprising any other conviction, including those leading to imprisonment, and violent convictions), any violent conviction, and any conviction (including breaches) leading to imprisonment. For recidivists, actual date of offence was used to calculate survival time; for non-recidivists, date of data extraction was used to calculate survival time. Survival time was corrected for any time spent in prison during the follow-up period.

4.4.3 Procedure

In the HRSTUs, a member of the therapy staff who has been trained in the use of the VRS completes the pre- and post-treatment ratings using file information, staff observational data, and information gathered through interviews with the offender. Pre- and post-treatment VRSs are subjected to scrutiny from clinical supervisors during their completion; however, we noticed when reviewing the evidence recording sheets

accompanying the ratings that there were inconsistencies and errors in scoring and some were completed poorly. Consequently, the first task for this study was to scrutinise all pre- and post-treatment VRSs to ensure each was completed according to the VRS manual criteria and that the ratings matched the documented evidence. If there was not enough evidence accompanying the rating to establish the basis on which the therapist had made the rating, the VRS (and the case) was omitted.

Of the 135 men who had pre- and post-treatment VRSs available, 12 were omitted because it was not possible to verify the basis of the ratings. The remaining 123 VRSs either required no changes to the ratings, or there was enough evidence accompanying the ratings to correct the score. Thirty-eight VRSs required corrections to static item ratings. The most common corrections were for the item S2 (age at first violent conviction), which was mainly due to including non-violent offences (e.g., possession of a weapon), and the item S5 (prior release failures or escapes), again mainly due to including breach convictions that were not a form of conditional release (e.g., breach of community work).²⁵ Thirty-seven VRSs required corrections to pre-treatment dynamic item ratings. The corrections were mostly due to over- or under-rating the level of risk, or rating the item based on evidence that did not directly link the risk factor to violence (e.g., having a substance abuse problem but providing no evidence that substance use increased the likelihood of violence). Forty-one pre-treatment and 46 post-treatment VRSs required corrections to stage of change ratings, primarily because the information provided did not match the stage rating given (e.g., rated Action despite behaviour change being recent and inconsistent).²⁶ My primary supervisor—a senior academic clinician and the main VRS trainer for the Department of Corrections—oversaw this process.

²⁵ These are considered errors according to the scoring rules developed in New Zealand.

²⁶ Note that we did not examine the evidence independent of what the rater recorded on the evidence-recording sheet. The case was omitted if there was not enough evidence on the recording sheet to serve as a basis for the rating; it was not feasible in this study to evaluate errors and omissions in the process of information gathering itself.

Trained research assistants completed a VRS just prior to release for the 31 men who were not paroled immediately following the programme. The ratings were based on information from interviews with the offender just prior to release and relevant file data (e.g., psychological reports, assessment reports prepared for Parole Board appearances, misconduct and incident reports, results from drug tests). The rater reviewed the pre- and post-treatment ratings completed by therapists and re-rated stage of change for all dynamic items considered to be treatment targets (rated a 2 or 3 at pre-treatment) using new information collated from the date men's post-treatment VRS was completed until the date they were released from prison.

No inter-rater reliability data were available for the VRSs scored in therapy. The VRSs completed by the research assistants were subject to inter-rater reliability as part of the Parole Project. Of the VRSs completed by the research assistants, which included the 31 follow-up VRSs for the treatment sample and pre-release VRSs for the 153 comparison offenders from Study 1, a second trained research assistant scored 40 for inter-rater reliability. The second rater was blind to the first rater's scores. She independently reviewed and scored the information gathered from interviews and electronic offender records. Overall, inter-rater reliability was "almost perfect" for the static items (Landis & Koch, 1977): $\kappa = 0.97, p < .001$, and very good for the dynamic items: $\kappa = 0.89, p < .001$, and stage of change: $\kappa = 0.88, p < .001$. Item Kappas ranged between 0.63 and 1.00.

4.4.4 Data Analysis

To measure change on the VRS during treatment, pre- and post-treatment dynamic scale scores were compared using paired samples *t*-tests. Cohen's *d* effect size for change over time was calculated by dividing the mean difference score by the mean standard deviation of the difference. Cohen's *d* values can be interpreted as 0.2 to 0.3 = small effect, around 0.5 = medium, and greater than 0.8 = large. Paired samples *t*-tests were also conducted for the 31 men who had a follow-up VRS to examine change

between the end of treatment and the point of release. Again effect sizes were calculated using Cohen's *d* for repeated-measures.

Cox regression survival analysis was conducted to investigate the relationship between treatment change and recidivism. Cox regression is a type of regression where the outcome variable is "time to event" and there may be censored data. Cox regression was used because it controls for differing lengths of follow-up within the sample and is less influenced by variations in recidivism base rates (Hanson, 2009; Kleinbaum & Klein, 2012). Cox regression analysis results in a hazard ratio, which represents change in risk of recidivism per unit increase in the predictor (e.g., treatment change). Hazard ratio values greater than 1.0 indicate that higher scores on the predictor are associated with increased recidivism; values less than 1.0 indicate predictions of decreased recidivism.

4.5 Results

4.5.1 Pre-treatment VRS Characteristics

Pre-treatment, post-treatment and pre-release VRS scores are presented in Table 4, along with change scores. Using Wong and Gordon's (2006) recommendation of a VRS total score of 50 as a cut-off to indicate a high risk group, 99 men (79%) were considered at high risk of violent reoffending, prior to treatment. The mean pre-treatment VRS dynamic score of 42.37 (*SD* = 7.00) indicates that, on average, each dynamic item was given a rating of 2.1, identifying that item as sufficiently strongly related to violence to be a worthwhile treatment target. The most common treatment targets (items rated 2 or 3) were violent lifestyle, criminal attitudes, criminal peers, released to high-risk situations, violence cycle, and cognitive distortions. Only one dynamic item was not considered to be a treatment target on average: mental disorder.

Stage of change scores, in addition to providing anchors for measuring progress, indicate current level of engagement in change. Recall that for scoring purposes, the VRS scoring rules treat pre-contemplation and contemplation as equivalent because

both indicate a lack of observable behavioural change. From the perspective of change engagement, they can be very unstable states; offenders can move quickly between one and the other. However, they can also represent distinct and stable clinical phenomena which therapists often put considerable weight on in relation to assessing motivation for treatment. And if entrenched, they require distinct types of therapeutic attention (Miller & Rollnick, 2002). Prior to beginning treatment, for those items rated 2 or 3, men were sitting at the contemplation stage of change on average. A rating of contemplation indicates that the offender acknowledges the problem area but has made no behavioural steps to address it.

Table 4

Descriptive Statistics for Pre-treatment, Post-treatment and Pre-release VRS Scores and Change Scores

VRS measure	Pre-treatment		Post-treatment		Pre-release ^a	
	<i>M (SD)</i>	Range	<i>M (SD)</i>	Range	<i>M (SD)</i>	Range
Static	12.89 (2.50)	6 to 7	12.82 (2.48)	6 to 17	12.81 (2.48)	6 to 17
Dynamic	42.37 (7.00)	21 to 53	38.07 (6.83)	19.5 to 52.5	37.64 (6.95)	18 to 52.5
Total	55.33 (7.83)	29 to 69	50.97 (7.68)	28 to 65.5	50.48 (7.89)	26.5 to 65.5
Stage of Change ^b	2.01 (.48)	1.1 to 4	2.79 (.45)	1.3 to 4.1	2.83 (.48)	1.3 to 4.1
	Within-Treatment Change (<i>N</i> =123)		Post-Treatment Change (<i>N</i> =31)		Total Change (<i>N</i> =123) ^c	
Dynamic Total	4.31 (2.34)	0 to 9.5	1.26 (1.81)	-1.5 to 5.5	4.61 (2.64)	0 to 13.5

^a Pre-release scores are post-treatment scores for 92 men and follow-up scores for 31 men. ^b For these analyses stage of change was coded as follows: 1=pre-contemplation, 2=contemplation, 3=preparation, 4=action, and 5=maintenance. For all dynamic items rated 2 or 3, the stage of change for those items was averaged. Note that this scale differs from the scale used to obtain change scores. In the latter, pre-contemplation and contemplation are scored as equivalent (Wong & Gordon, 2000). ^c For treated offenders who were released within 6 months of completing the programme (*n*=92), within-treatment and total change scores are identical; for the 31 offenders who required a follow-up VRS the total change score is the sum of their within-treatment and post-treatment change.

4.5.2 Post-treatment VRS Characteristics and Treatment Change

As expected, post-treatment dynamic scores were significantly lower than the pre-treatment scores, $t(122) = 20.42, p < .001, 95\% \text{ CI} = 3.88, 4.71, d = 3.70$. Treatment change scores were computed by subtracting the post-treatment VRS dynamic score from the pre-treatment VRS dynamic score, based on the method outlined in the VRS manual (Wong & Gordon, 2000). As Table 4 shows, men in the sample had changed an average of 4.3 points (range 0 to 9.5), which is equivalent to a single-stage shift on 8 dynamic risk factors. The dynamic items that changed the most during treatment were violent lifestyle, insight into violence, violence cycle, and cognitive distortion. At the end of treatment, men's average stage of change per treatment target was nearing Preparation. There was a small but significant correlation between men's pre-treatment dynamic score and the amount of change they made ($r = .21, p = .019$), indicating that the higher their dynamic risk score prior to treatment, the more change they made during the programme.

4.5.3 Follow-up VRS Characteristics and Total Change

For the treatment sample, a follow-up VRS was rated for the 31 men who remained in prison for more than six months after the programme. Follow-up dynamic scores were significantly lower than the post-treatment scores, $t(30) = 4.01, p < .001, 95\% \text{ CI} = .63, 1.95, d = 1.46$, indicating that men continued to change in a positive direction following the programme. The average amount of change these 31 men made in the follow-up period was 1.26 points: equivalent to a single-stage shift on 3 dynamic risk factors (range -1.5 to 5.5). Note that the magnitude of the Cohen's d effect size was smaller than the effect size for the difference between pre- and post-treatment scores, suggesting that these 31 offenders made less change in the follow-up period than the full sample made during treatment, but they are still considered to be large (over 0.8). At follow-up, men's average stage of change was still nearing Preparation ($M = 2.95, SD = .48$).

The amount of within-treatment change these 31 men made was equivalent to the amount of change made by the 92 men who were released soon after completing the programme, $t(121) = -.09$, $p = .932$, 95% CI = -1.01, .92, $d = 0.02$. Total change scores for the full treatment sample were computed by adding together their within-treatment and post-treatment change. For the 92 men who did not have a follow-up VRS, their within-treatment and total change scores are the same. Average total change scores ranged from 0 to 13.5 (average 4.6).

4.5.4 The Relationship Between Change and Recidivism

Table 5 presents reconviction percentages and mean survival days for the 123 treatment completers. Recall that offenders were followed up for an average of 834 days. During this time, 39% of the sample were convicted of breaching their release conditions, 70% were convicted of a new criminal offence, 28% for a new violent offence, and 41% received a new sentence of imprisonment in the follow-up period. Reoffence dates were used to calculate survival times. The mean survival times for recidivists ranged from 167 days for breaches to 386 days for violent convictions.

Table 5

Percentage Reconvicted and Survival Days for Study 2 Treatment Completers

Recidivism outcome	% Reconvicted	Survival days <i>M (SD)</i>	Range
Breach	39.0%	167.23 (136.84)	4 to 636
Any conviction	69.9%	268.88 (213.89)	8 to 1070
Violent conviction	27.6%	386.29 (240.94)	57 to 1070
Reimprisonment	40.7%	259.32 (238.19)	8 to 894

Note. The mean survival days presented in the table are for recidivists only.

Cox regression survival analysis was used to examine the relationship between treatment change and all four recidivism outcomes, statistically controlling for pre-treatment levels of static and dynamic risk. The dependent variable was recidivism and the time variable was days to recidivism following release from prison for those who reoffended, or days to data extraction for those who did not reoffend (corrected for any time spent in prison during the follow-up period). The pre-treatment VRS score (static or dynamic) was entered as a covariate in the first block followed by the treatment change score in the second block. The VRS static score only predicted one recidivism outcome: reimprisonment, $\chi^2(1, N = 123) = 6.99, p = .008$. Similarly, the pre-treatment VRS dynamic score only predicted violent convictions, $\chi^2(1, N = 123) = 5.22, p = .022$. As shown in Table 6, within-treatment change did not predict any type of recidivism outcome when added into the models, suggesting that after controlling for pre-treatment levels of risk, the amount of change an offender made in treatment was not significantly related to his rates of recidivism. Note, however, that for most of the recidivism outcomes, the relationship was in the right direction (i.e., regression coefficient values were negative, suggesting that more change was associated with lower rates of recidivism).

Thirty-one men in the sample were released more than six months after completing treatment, and so had a more up-to-date assessment of change available than their post-treatment scores. To increase the potential accuracy of change scores, the next analyses examine change from pre-treatment to follow-up (point of release), which for these 31 men used the third VRS completed on them. Cox regressions were again performed with the VRS static and dynamic scores in Block 1, and total change scores entered in Block 2. As shown in Table 6, the same pattern of results was found as the previous regressions: change did not predict any recidivism outcome after controlling for pre-treatment levels of static and dynamic risk.

Table 6

Cox Regressions of Within-Treatment and Total Change Predicting Recidivism Controlling for Pre-treatment Static and Dynamic Risk

		Breach				Violent Conviction			
		<i>B (SE)</i>	Wald	<i>e^B</i>	95% CI	<i>B (SE)</i>	Wald	<i>e^B</i>	95% CI
Block 1	VRS Static	.09 (.06)	2.30	1.094	[.97, 1.23]	.12 (.07)	2.70	1.121	[.98, 1.29]
Block 2	VRS Static	.09 (.06)	2.43	1.097	[.98, 1.23]	.12 (.07)	3.07	1.129	[.99, 1.29]
	Within-Treatment Change	-.03 (.06)	.17	.975	[.86, 1.10]	-.07 (.07)	.91	.933	[.81, 1.08]
Block 2	VRS Static	.09 (.06)	2.25	1.094	[.97, 1.23]	.12 (.07)	3.14	1.132	[.99, 1.30]
	Total Treatment Change	.01 (.06)	.01	1.005	[.90, 1.13]	-.10 (.07)	2.03	.904	[.79, 1.04]
Block 1	VRS Dynamic	.02 (.02)	.82	1.020	[.98, 1.06]	.07 (.03)	5.15*	1.070	[1.01, 1.14]
Block 2	VRS Dynamic	.02 (.02)	.96	1.021	[.98, 1.07]	.07 (.03)	5.97*	1.075	[1.01, 1.14]
	Within-Treatment Change	-.03 (.06)	.17	.975	[.86, 1.10]	-.09 (.07)	1.47	.917	[.80, 1.05]
Block 2	VRS Dynamic	.02 (.02)	.58	1.017	[.97, 1.06]	.07 (.03)	5.91*	1.075	[1.01, 1.14]
	Total Treatment Change	.00 (.06)	.00	.989	[.89, 1.12]	-.12 (.07)	3.02	.888	[.78, 1.02]
		Reconviction				Reimprisonment			
		<i>B (SE)</i>	Wald	<i>e^B</i>	95% CI	<i>B (SE)</i>	Wald	<i>e^B</i>	95% CI
Block 1	VRS Static	.07 (.04)	2.54	1.070	[.99, 1.16]	.15 (.06)	6.89**	1.167	[1.04, 1.31]
Block 2	VRS Static	.07 (.04)	2.45	1.069	[.98, 1.16]	.16 (.06)	7.02**	1.168	[1.04, 1.31]
	Within-Treatment Change	.01 (.04)	.03	1.007	[.93, 1.10]	-.02 (.06)	.17	.976	[.87, 1.10]
Block 2	VRS Static	.07 (.04)	2.68	1.073	[.99, 1.17]	.16 (.06)	7.07**	1.168	[1.04, 1.31]
	Total Treatment Change	-.03 (.04)	.38	.975	[.90, 1.06]	-.06 (.06)	1.37	.938	[.84, 1.04]
Block 1	VRS Dynamic	.02 (.02)	.95	1.015	[.99, 1.05]	.01 (.02)	.45	1.014	[.97, 1.06]

Block 2	VRS Dynamic	.01 (.02)	.84	1.014	[.98, 1.05]	.02 (.02)	.57	1.016	[.98, 1.06]
	Within-Treatment Change	.00 (.05)	.01	1.004	[.92, 1.10]	-.03 (.06)	.18	.975	[.87, 1.10]
Block 2	VRS Dynamic	.02 (.02)	1.22	1.017	[.99, 1.05]	.02 (.02)	.71	1.018	[.98, 1.06]
	Total Treatment Change	-.03 (.04)	.59	.969	[.90, 1.05]	-.07 (.06)	1.53	.935	[.84, 1.04]

* $p < .05$ ** $p < .01$ *Note.* Significant values are highlighted in bold.

4.6 Discussion

Study 2 examined the within-treatment change of a sample of HRSTU completers and the relationship between change and four indices of recidivism. From a theoretical perspective, we would expect that more change would be associated with lower rates of recidivism. This finding would lend support to the assumption that change in dynamic risk factors is the mechanism through which treatment works. Yet empirical research linking within-treatment change to recidivism has been inconclusive. In this study, treated offenders made statistically significant change on the VRS during the programme: equivalent to a single stage shift on eight dynamic risk factors. This magnitude of change is similar to that found in previous studies (e.g., Lewis et al., 2013). But unlike prior research, the amount of change offenders made on the VRS was not significantly related to subsequent rates of recidivism, even after controlling for pre-treatment levels of static and dynamic risk. It is important to bear in mind that most of the relationships were in the expected direction (i.e., more change being associated with lower rates of recidivism), however none of the relationships reached traditional criteria for statistical significance.

The findings from this study are mainly in line with the empirical literature as a whole, but are at odds with research using the same instrument. Studies using both the VRS and the VRS-SO have found significant associations between within-treatment change and subsequent rates of violent and sexual recidivism, respectively (Lewis et al., 2013; Olver et al., 2007). The findings with the VRS-SO have also been replicated with a sample of child sex offenders who completed a sex offender treatment programme in New Zealand similar to the HRSTUs (Beggs & Grace, 2011; Olver et al., 2013). There are a couple of key differences between the current study and the other VRS change studies. First, this study used ratings made by clinicians in routine practice whereas the other change studies were retrospective in design and used ratings made by researchers from file information. Although clinician-rated measures have shown to be valid predictors of recidivism, there may still be biases associated with using clinician ratings

of change (Seto, 2003). In this study I checked all clinician ratings to make sure they matched the evidence given, but I did not have control over what information was put on the evidence-recording sheet. As a result, it is unclear whether biases occurred at the evidence gathering stage. Other differences between my study and the other VRS change studies that may have affected the results include a smaller sample size, a shorter follow-up time, and lower base rates of recidivism (28% base rate of violent recidivism in my study compared to a 46% base rate in the Lewis et al., 2013 study). In addition, pre-treatment VRS scores were, for the most part, not predictive of recidivism in the current study, suggesting potential reliability issues with the instrument.

Putting aside these methodological differences, there are a number of other more conceptually interesting explanations for the results of the current study and of treatment change studies in general. These explanations refer to the way change is conceptualised in these studies and the lack of recognition of the *process* by which offenders desist from crime. Firstly, in this study and other treatment change studies, despite measuring dynamic and malleable factors, change is considered to be over at the end of treatment and at the time offender are released back into the community (Quinsey, Jones, Book, & Barr, 2006). Yet we know from theories of behaviour change (e.g., the Transtheoretical Model of Change; TTM; Prochaska, DiClemente, & Norcross, 1992) that change is a process of stages through which people progress. This process often involves relapses back to early stages of change before permanent behaviour change is achieved. Treated offenders in the current study leave the programme (and prison), on average, at the rather fragile preparation stage of change, meaning that while they continue to sometimes behave more pro-socially or adaptively with regard to particular risk factors, they also sometimes do not. Hence, they are likely to experience a number of relapses back to earlier stages of change after the programme ends. Research that attempts to link within-treatment change to long-term outcomes makes the assumption that within-treatment and post-treatment change are at least somewhat related. But what happens to change following treatment has rarely been investigated.

We conducted a study following up on the treatment progress of a sample of 35 life-sentenced HRSTU treatment completers who were not paroled immediately after the programme (see Yesberg & Polaschek, 2014). We rated a third follow-up VRS for the sample using information from 6 to 12 months after treatment completion (similar to the treatment completers in this study who stayed in prison longer than 6 months). The results indicated that the direction and volume of within-treatment change did not necessarily parallel patterns of post-treatment change. Some treatment completers who made significant change during the programme increased their risk in the follow-up period, while another group continued to decrease their risk and a third group made no further change after the programme. These results suggest that not accounting for patterns of change after treatment ends, and before men are even returned to the community, may explain the inconclusive results linking treatment change and recidivism. We ruled out this possibility in the current study by rating a follow-up VRS for the 31 men who were not released immediately after the programme. Nevertheless, even when taking into account this post-treatment change in the total change measure, the result was still not associated with reductions in recidivism. But just as change is unlikely to be over at the end of treatment, it is also unlikely to be over by the time offenders are released back into the community (Quinsey et al., 2006).

We know from research on the transition from prison to the community that the first 100 days after release is often a highly unstable time for offenders: their circumstances can change rapidly and reoffending rates are at their peak (Burnett, 2009; Nadesu, 2007). Successful re-entry is dependent on an offender's ability to deal with a number of challenges during this period, including securing suitable accommodation, finding stable employment, and managing a number of risks in the release environment (e.g., alcohol and drugs, criminal peers, relationships; Baldry, McDonnell, Maplestone, & Peeters, 2006; Shinkfield & Graffam, 2009). Göbbels, Ward and Willis' (2012) Integrated Theory of Desistance from Sexual Offending (ITDSO) suggests that rehabilitation is just one phase of the process of giving up crime. The next

phase after rehabilitation is re-entry. The authors identify a number of factors that act as facilitators (e.g., high expectations, social network) and barriers to re-entry (e.g., lack of employment, housing, association with criminal peers); factors that offenders have to manage in order to successfully desist from offending. They suggest that maintaining a commitment to change is important, in spite of the many challenges an offender is faced with. The model proposes that during re-entry, the desisting offender is still actively involved in the change process and maintaining the gains made in treatment. Consistent with this theory, one study investigated what happened to treatment progress following release and found that the scores of men who were reconvicted had returned to approximately pre-programme levels during two years of follow-up, whereas men who were not reconvicted continued to improve after the programme (Polaschek & Dixon, 2001).

Taken together, these findings signal the importance of considering what happens to change after release (i.e., whether it is maintained), and examining how change is related to the process by which offenders desist from crime, particularly the subsequent phases of the desistance process (e.g., re-entry). No empirical research that we know of has examined how treatment change is related to the process of offender re-entry. As Friendship, Falshaw and Beech (2003) note, in typical outcome evaluations “following release, the focus of the follow-up evaluation is subsequent reconviction. No assessment is made . . . of other dynamic factors which may contribute to reconviction post-release” (p. 119).

The remainder of this thesis seeks to further tease apart mechanisms of change by examining *intermediate* outcomes. I propose that rather than having a *direct* relationship with recidivism, treatment change might be *indirectly* associated with recidivism through its relationship with factors that influence the re-entry process: that is, stable and acute dynamic risk factors and protective factors (intermediate outcomes introduced in Chapter 2). The next chapter introduces an instrument used by probation officers in the community to measure these factors: the Dynamic Risk Assessment for

Offender Re-entry (DRAOR; Serin, Mailloux, & Wilson, 2012). Because the instrument is relatively new, Study 3 investigates the psychometric properties of the DRAOR. Then, Study 4 will use the DRAOR to investigate the relationship between treatment changes, the re-entry process, and recidivism.

Chapter 5

Study 3: Validation of the Dynamic Risk Assessment for Offender Re-entry

5.1 Introduction

Imagine you are a probation officer. Two prisoners, released on the same day after the same length of time in prison, report in to you for their first parole assessment. They are similar in age, have a similar static risk score, and on the face of it, have similar arrangements in place for settling into the community over the next few weeks. Yet within a few short months, one of them may well be back in prison while the other may be doing unexpectedly well. How can you tell which one will be which? And if you could, would intervening now make a difference? The development of reliable and valid instruments to assist with these tasks is vital to effective parole monitoring and intervention. The construction of these instruments also sheds light on relationships between different types of factors that can signal re-entry success and failure. The purpose of this study is to validate an instrument designed to assist probation officers in their management of offenders on parole—the Dynamic Risk Assessment for Offender Re-entry (DRAOR; Serin, 2007; Serin, Mailloux, & Wilson, 2012)—so that it can be used to investigate *intermediate* outcomes of treatment in Study 4.

5.2 Factors That Influence Re-entry Failure and Success

When estimating an offender's likelihood of reoffending, research has found that unstructured clinical approaches appear least predictive, while actuarial instruments based on empirically derived risk factors have greater predictive validity (Andrews, Bonta, & Wormith, 2006; Hanson, 2009; Mills, Kroner, & Morgan, 2011). Dynamic risk factors are characteristics of an individual that have the potential to change over time or through appropriate intervention. In contrast to static risk factors, they have a variety of uses in addition to recidivism prediction. They can guide case

management. For example, with parole and other forms of community supervision, the regular monitoring of relevant dynamic risk factors can lead probation officers to better judge when an individual is at risk and determine how and when to intervene to mitigate that risk (Douglas & Skeem, 2005). Continuous reassessment of dynamic risk can provide probation officers with up-to-date estimates of an individual's likelihood of reoffending (Hanson, Harris, Scott, & Helmus, 2007), allowing them to identify fluctuations in risk that may signal imminent failure. Thus, dynamic risk factors have utility for risk *reduction* as well as risk *prediction* (Douglas & Skeem, 2005).

As discussed in Chapter 2, dynamic risk factors have been distinguished in the literature between stable, enduring characteristics of the individual that have the potential to change over months or years and acute characteristics that can change rapidly and signal immediate risk of recidivism (Hanson & Harris, 2000). Although stable dynamic measures are designed for repeated use (e.g., before and after treatment; Violence Risk Scale; Wong & Gordon, 2000), they are still often constructed intentionally for detecting more stable and enduring change, and may be of limited utility for detecting rapid changes in risk (e.g., loss of a job, substance use) thought necessary for effective day-to-day management of offenders on parole. Acute risk factors, on the other hand, are thought to be more useful for parole supervision because they can change within days, hours, or even minutes (Hanson et al., 2007). Acute risk factors have been conceptualised both as environmental triggers or contextual risk factors (e.g., marital discord, job loss), as well as internal states that immediately precede a negative outcome (e.g., stress, negative mood; Ward & Beech, 2004). Zamble and Quinsey's (1997) Coping Relapse Model of the recidivism process suggests that recidivism may initially be triggered by environmentally-based acute risk factors, but that these environmental catalysts often lead to a second series of acute dynamic responses, in which the offender experiences a range of emotionally-based outcomes.

There have been few empirical tests of the distinction between stable and acute dynamic risk factors; they require a longitudinal research design (Jones, Brown, &

Zamble, 2010). In one of the few studies that tested dynamic risk factors over time in the community—Hanson et al.’s (2007) Dynamic Supervision Project—acute risk factors provided more information regarding relatively enduring characteristics, rather than signalling the timing of a new offence. Thus, whether acute risk factors are more relevant for predicting imminent recidivism, and the extent to which predictive validity is enhanced when the assessment of acute risk is more proximal to outcome, remains unclear.

Recently, the focus has broadened to encompass factors that may decrease the likelihood of recidivism and promote desistance (i.e., protective factors; e.g., social support, attachment to others; de Ruiter & Nicholls, 2011; Farrington 2007; McNeill, Farrall, Lightowler, & Maruna, 2012; Serin, Lloyd, & Hanby, 2010). There are many different conceptualisations of protective factors in the literature: they have been described as moderating variables that “buffer” the effect of risk, as “mirror images” of risk, and as separate concepts independent of risk (de Vries Robbé, 2014; Lodewijks, de Ruiter, & Doreleijers, 2010; Spice, Viljoen, Latzman, Scalora, & Ullman, 2013; Ullrich & Coid, 2011). There is little empirical research supporting the distinction between these different conceptualisations. Nevertheless, despite the lack of empirical research regarding the nature of protective factors, research has shown that considering protective factors alongside risk factors can contribute incrementally to the prediction of recidivism (de Vries Robbé, de Vogel, & de Spa, 2011; de Vries Robbé, de Vogel, Koster, & Boggarts, 2014). However, whether these factors represent genuinely new domains or are simply risk factors reworded in positive language remains unclear.

5.3 Why is Risk Assessment Important for Offender Re-entry?

The transition from prison to the community (“re-entry”) is often a highly unstable time for offenders: their circumstance can change rapidly and reoffending rates are at their peak (Burnett, 2009). Research has shown that high-risk offenders’ odds of returning to prison are as great as 60% within the first 100 days of release

(Nadesu, 2007). Community supervision (i.e., parole) is considered central to enhancing successful re-entry; however, there is little empirical evidence to support the view that parole reduces recidivism (Bonta, Rugge, Scott, Bourgon, & Yessine, 2008). And, in fact, it can be the reverse because more oversight may lead to more surveillance and detection (e.g., Giblin, 2002). In recent years, in a number of jurisdictions, there has been a shift away from a punitive model of parole focused primarily on monitoring compliance. Instead, a hybrid model has been favoured, which combines aspects of the compliance model with a wider focus on rehabilitation (McNeill et al., 2012; Serin et al., 2010). In other words, the hybrid model views parole as an intervention in itself, and like all interventions, it must attend to the Risk, Need, and Responsivity (RNR) principles to have a beneficial effect (Andrews & Bonta, 2010; Bonta et al., 2008; Bonta et al., 2011; Kennealy, Skeem, Manchak, & Eno Loudon, 2012). For example, probation officers should tailor the level of supervision based on offender risk, monitor and attend to relevant criminogenic needs, and establish effective relationships with offenders.

The *Need* principle states that offenders' dynamic risk factors should be identified and targeted for intervention. Yet research is lacking on how probation officers use dynamic risk assessment information, and whether its use improves outcome. Some research has found a disconnection between risk assessment and case management. For example, Bonta et al. (2008) found that agreement between identified needs and a corresponding intervention plan was only 39.4% on average, and that important criminogenic needs (e.g., procriminal attitudes and peers) were rarely addressed in community supervision. Another study found that identified needs in a youth sample rarely matched the treatment and services provided (Flores, Travis, & Latessa, 2004). However, some research has found that the use of risk assessment information can improve offender outcomes. For example, one study found that compared to routinely trained probation officers, probation officers trained in the principles of RNR who used risk assessment tools correctly (i.e., implemented

appropriate interventions for identified needs), had significantly more discussions of criminogenic needs in client sessions and their clients showed significantly greater reductions in recidivism (Bonta et al., 2011). Another study with a high-risk youth sample found that the match between assessed need and identified intervention was associated with a 38% reduction in recidivism (Luong & Wormith, 2011). These findings signal the potential benefits of probation officer-rated risk assessment—when used to match needs to interventions—for enhancing offender outcomes.

5.4 The Dynamic Risk Assessment for Offender Re-entry

As introduced in Chapter 2, the DRAOR (Serin, Mailloux, & Wilson, 2012) is a dynamic tool that incorporates a number of risk and protective factors. It was designed to provide guidance for probation officers in their assessment of the recidivism risk of offenders on parole. The instrument was adopted by Community Probation Services in New Zealand as a national standard in April 2010 and has recently been implemented in other jurisdictions (e.g., Iowa; Chadwick, 2014; Smeth, 2013). In New Zealand, all offenders released from prison onto some form of community supervision are scored on the DRAOR multiple times during their parole sentence. The tool is designed to pick up acute fluctuations in risk, along with identifying relevant needs for intervention based on stable dynamic risk factors.

At the time this study was conducted, little research had examined the psychometric properties of the DRAOR. A pilot study of the tool with a sample of parolees in New Zealand ($N = 59$) indicated that DRAOR scores changed across the course of assessment, that Stable, Acute, and Protective scores were moderately correlated, and that initial and final Protective scores significantly predicted parole success above a static risk score (Tamatea & Wilson, 2009). Probation officer feedback was positive, indicating that, in general, they regarded the DRAOR as an understandable assessment approach in a user-friendly format. More recently, a number of Ralph Serin's post-graduate students at Carleton University have examined

the validity of the DRAOR with different populations of offenders released on parole (all unpublished theses). Hanby (2013) conducted an examination into the reliability and validity of the DRAOR with a large dataset of 3498 New Zealand parolees. She first examined the existing factor structure of the DRAOR (Stable, Acute, Protective subscales) and found two potential three-factor solutions, depending on the extraction method. Both solutions consisted of a factor identical to the original Protective subscale, but the stable and acute items were split differently amongst the other two factors (labelled “Mostly Stable” and “Mostly Acute” in the first solution, and “Stable” and “Mixed Stable/Acute” in the second). However, results comparing the solutions found that the original three-subscale DRAOR had similar model fit and superior predictive accuracy to the empirically derived models. Hanby (2013) found that all three original subscales of the DRAOR predicted new criminal convictions during a two-year follow-up period, and that the last score before re-offending had the best predictive validity (see Wilson, 2014 for a review of Hanby’s thesis).

Another recent study has been conducted using a sample of released prisoners in Iowa. Chadwick (2014) also conducted a factor analysis of the 19 original DRAOR items and found that the items empirically formed two factors: Risk and Protective. The stable and acute risk items loaded together to form one factor and, like the Hanby (2013) solutions, the Protective factor was identical to the original Protective subscale. Chadwick found that all three original subscales of the DRAOR, and the new Risk factor, significantly predicted technical violations and any recidivism (a combination of those arrested for a technical violation or for any new crime), but failed to predict rearrest for new crimes alone. The original Stable subscale was the strongest predictor of recidivism. Lastly, Smeth (2013) examined the validity of the DRAOR with a sample of 193 male sexual offenders, also from Iowa. She found that all original DRAOR subscales (Stable, Acute, Protective) significantly predicted technical violations, but failed to predict sexual recidivism. Research is currently underway examining the validity of the DRAOR with specific offender populations in New Zealand (e.g., women,

youth; Yesberg, Scanlan, Hanby, Serin, & Polaschek, in press; Fortune, Ferguson, Serin, & Hanby, 2014).

5.5 Study Objectives

This study is an examination of the structure and psychometric properties of the DRAOR using a sample of high-risk offenders released onto parole in New Zealand.²⁷ Because no research has validated the DRAOR with a high-risk sample, it is essential to first determine that the instrument has adequate psychometric properties with this population before using it in Study 4 to examine treatment effects. Several analyses will be conducted including: (1) examining the existing DRAOR subscale structure (i.e., do the items empirically load together to form three subscales?), (2) comparing the DRAOR with other risk instruments (i.e., is it related to conceptually similar measures?), (3) determining the DRAOR's ability to predict recidivism, and (4) investigating its incremental effects when pitted against existing static and dynamic risk instruments.

5.6 Method

5.6.1 Sample

The sample for Study 3 comprised 299 high-risk male offenders who were released from prison between April 2010 and August 2012. These offenders were a mixed sample of HRSTU completers ($n = 171$) and other high-risk offenders who had not been through the programme ($n = 128$).²⁸ Offenders eligible for the study had an estimated risk of returning to prison in the five years following release of 65% or higher, based on the static risk instrument used by the New Zealand Department of Corrections (the RoC*RoI; Bakker, Riley, & O'Malley, 1999). They also had been

²⁷ This study is based on a study published in the journal *Psychology, Crime and Law* (Yesberg & Polaschek, 2015), but updated with new recidivism data, including survival days, and using different statistical analyses (i.e., Cox regression instead of logistic regression).

²⁸ Of the 299 men in this sample, 211 are also in the Study 1 sample; the remaining 88 men are additional HRSTU completers selected from a spreadsheet of all released offenders who had completed a HRSTU and who were released after April 2010.

sentenced to at least two years imprisonment and were released from prison onto parole. Offenders on parole are required to report to Community Probation Services for a minimum of six months, along with adhering to other standard or special conditions. Finally, offenders were eligible to be included in the study if they had a DRAOR assessment completed within 20 days after release.

Immediately prior to release, the sample had a mean 72% likelihood of returning to prison within five years ($SD = .14$). Of the sample, 60% identified as Māori, 30% as New Zealand European, and 7% as Pasifika. Sample members ranged in age from 19 to 60 years at the time they were released from prison ($M = 31.90$, $SD = 8.53$), and had an average of 64 previous convictions ($SD = 52.33$) including 4.5 for violence ($SD = 4.06$). They were aged 16 on average at the date of their first conviction ($SD = 2.19$) and 19 at the date of their first violent conviction ($SD = 2.19$). The most serious index offence for 61% of the sample was a violent offence. Of these offences, 29% were aggravated robbery or robbery by assault, 22% were some form of minor assault, 30% were serious injury or wounding, 14% were murder, manslaughter, or attempted murder, and the remainder were threatening to kill or kidnapping. A quarter of the sample had a property/dishonesty index offence (27%; e.g., burglary, unlawfully takes motor vehicle), and for the remainder (12%) their most serious offence was a sexual, driving-related, drug-related, or weapon-related offence.

Nineteen men (6%) were sentenced to life imprisonment for their index offence(s). For the 280 men on determinate sentences, lengths ranged from 2 to 15 years ($M = 4.08$ years, $SD = 2.84$). At the time of release, they had served an average of 4.3 years in prison ($SD = 4.33$). Of those on fixed-length sentences, 56% were released before their sentence end date (i.e., they were granted early parole), while 44% were released at the end of their sentence. The average length of parole they were to complete was 347 days ($SD = 245$).

5.6.2 Measures

5.6.2.1 DRAOR. The DRAOR (Serin et al., 2012) was introduced in Chapter 2. The instrument comprises 19 items, divided into three subscales: stable dynamic risk factors, acute dynamic risk factors, and protective factors. Each item is rated using a three-point scoring format (0, 1, 2). A score of '0' indicates the absence of the item, a '2' indicates it is strongly present, and a '1' rating is used to indicate it is somewhat present, or the evidence is inconsistent. Offenders are scored on the DRAOR multiple times during their term of parole. The supervising probation officer scores the DRAOR during every report-in or non-trivial contact they have with the offender. Depending on offenders' risk levels and how long they have been on parole, the DRAOR could be administered between twice weekly to fortnightly. To score the DRAOR, probation officers use information gathered from interviews with offenders, their families or partners, treatment providers, and other external sources (e.g., police intelligence activity).

5.6.2.2 RoC*RoI. The RoC*RoI (Bakker et al., 1999) is an actuarial risk assessment tool developed in New Zealand and cross-validated on two samples, each of 24,000 offenders. The RoC*RoI is based largely on static criminal history and demographic variables and is generated by computer algorithm: requiring no clinical judgment. The RoC*RoI is expressed as a probability and represents an offender's estimated risk of reconviction leading to reimprisonment over five years in the community. RoC*RoI scores range from 0 (low) to 1.0 (very high). The RoC*RoI demonstrated moderately high predictive validity during development (AUC = .76; Bakker et al., 1999)²⁹ and more recent analyses confirm its predictive validity over three years post-release (Nadesu, 2007).

5.6.2.3 Violence Risk Scale. The Violence Risk Scale (VRS; Wong & Gordon, 2000) has already been introduced in Study 2. It is a 26-item staff-rated risk

²⁹ See the Data Analysis section for a description of how to interpret AUC values; AUCs above .7 are considered to be large effects.

instrument that assesses six static (e.g., age at first violent offence) and 20 dynamic (e.g., criminal attitudes, impulsivity, interpersonal aggression) risk factors. The VRS is often scored prior to, and following intensive correctional rehabilitation and incorporates an adapted version of Prochaska and DiClemente's (1986) Transtheoretical Model of Change to measure change in risk over time. VRS scores have been found to be predictive of general and violent recidivism, as have change scores (Lewis, Olver, & Wong, 2013; Wong & Gordon, 2006). Previous research reports from New Zealand have found VRS scores to be significantly related to self-report psychometric measures and other risk scales (Polaschek, 2009) and predictive of recidivism (AUC = .73; Dickson, Polaschek, & Casey, 2013).

5.6.2.4 Release Proposal Feasibility Assessment-Revised-Version 4.

The RPFA (Wilson, 2002) in its original 15-item form was developed as a structured protocol to assist the New Zealand Parole Board in making decisions about the validity of an offender's release plans. Now in its fourth revision, the RPFA is an 11-item measure (RPFA-R; Wilson, 2011) for use by sentence planners, probation officers, parole board members, and psychologists to make structured assessments of reintegrative needs. Each item in the RPFA-R is rated on a three-point scale (0=not a risk factor, 1=a possible risk factor, 2=a definite risk factor). Examples of the items include: exposure to destabilizers, personal support, non-compliance with previous conditions/parole, suitable accommodation, and financial difficulties. The RPFA-R has limited empirical support at this time; however, initial New Zealand research results found that more feasible plans were associated with a reduction in reoffending (AUC = .71; Polaschek, Wilson, & Kilgour, 2013).

5.6.2.5 Recidivism. Recidivism data were extracted from the national conviction records database between October 2013 and September 2014. Time from release from prison to data extraction averaged 948 days (range 404 to 1401 days). The same four indices of recidivism as Studies 1 and 2 were examined: breaches of release conditions, any new conviction (excluding breaches of parole, but comprising any other

convictions, including those leading to imprisonment, and violent convictions), any violent conviction, and any conviction (including breaches) leading to imprisonment. Actual offence dates were used to calculate survival time; survival time was corrected for any time spent in prison during the follow-up period.

5.6.3 Procedure

DRAOR scores were extracted from electronic offender records. For the purpose of these initial reliability and validity tests, the rating closest to two weeks after release was identified and used in all subsequent analyses.³⁰ On average, this “initial” rating was made 13.67 days after release ($SD = 3.11$). Other information—either obtained from the Department of Corrections Integrated Offender Management System (IOMS) database or scored as part of another research project—included RoC*RoI scores, pre-release VRS, and RPFA scores, and post-release conviction histories for coding recidivism.³¹

5.6.4 Data Analysis

A number of analytic strategies were used to investigate the psychometric properties of the DRAOR. To investigate the structure of the DRAOR subscales, Confirmatory Factor Analysis (CFA) and Principal Components Analysis (PCA) were performed.³² Both of these techniques examine the covariation among a set of observed variables in order to gather information about the underlying factors. CFA is used when we have some knowledge or a priori notions about the underlying factor structure. For example, based on current conceptualisations of dynamic risk and protective factors,

³⁰ It has been suggested that the third DRAOR assessment following release is more reliable than the first assessment (Hanby, 2013). By the third assessment, the probation officer scoring the DRAOR has a better understanding of their client and more in-depth knowledge into how the items relate to their client specifically. However, when isolating the third assessment for this sample, we noticed that some could not be considered “initial” ratings because they were rated more than one month following release. Therefore, it was decided to take the score closest to two weeks following release to ensure a more reliable indicator of an offender’s “initial” assessment. On average, the rating closest to two weeks was their third score ($M = 3.26$, $SD = 1.21$).

³¹ All men in the sample had a RoC*RoI score available but only 75.3% had a pre-release VRS score and 89.3% had an RPFA score. All men had recidivism data available.

³² PCA was chosen over Exploratory Factor Analysis because it is purely an empirical test and does not involve any a priori notions regarding the number of factors being sought.

we might hypothesise that the DRAOR consists of three factors (stable, acute, protective), consistent with the structure the authors postulate. On the other hand, PCA is performed when the relationships between the observed variables are unclear or uncertain and it is more exploratory in nature.

Pearson correlations were used to evaluate convergent validity. To investigate predictive validity, Receiver Operating Characteristics (ROC) analyses and area under the curve (AUC) statistics were calculated. The AUC is an index for interpreting predictive accuracy, independent of sample size, base rates, and selection ratios (Olver, Stockdale, & Wong, 2012). AUC values represent the probability that a randomly selected recidivist has a higher score than a randomly selected non-recidivist. AUCs range from 0 to 1; values closer to 1 indicate the measure reliably distinguishes between recidivists and non-recidivists, whereas values of .50 indicate the predictor is no better than chance (Zhou, Obuchowski, & Obuchowski, 2002). Values closer to 0 indicate negative prediction. Rice and Harris (2005) developed a set of tables with equivalent AUC values for point biserial correlations and Cohen's *d*. Based on these guidelines, we can interpret the magnitude of AUC values as follows: 0.55-0.63 = small effect size, 0.64-0.70 = medium effect size, and 0.71 and higher = large effect size.

Cox regression survival analysis was conducted to investigate the relative contributions of the DRAOR subscales in the prediction of recidivism (see Study 2 method for a full description of this technique). Cox regression allows multiple predictors to be measured simultaneously (i.e., the DRAOR subscales) in order to determine their independent and unique contributions to the prediction of recidivism. Cox regression analyses were also conducted to test incremental validity: whether the DRAOR predicts recidivism over and above existing risk measures.

5.7 Results

5.7.1 Descriptive Statistics for DRAOR Scores

A DRAOR total score was calculated by summing the stable and acute risk items and subtracting the protective items. Total scores ranged from -8 to 22 ($M = 7.38$, $SD = 5.92$) out of a possible range of -12 to 26; higher DRAOR total scores indicate greater recidivism risk.

Means and standard deviations for each DRAOR item and subscale totals are presented in Table 7. Recall that higher scores on each item signal the presence of the variable, regardless of whether it is a risk or an asset. On average, men scored between 0.40 and 1.61 on individual items. The risk items that had the highest mean score were peer associations (stable), impulse control (stable), and employment (acute). The protective items that had the highest mean score were high expectations and social support. The average total score for the Stable subscale was 7.09 ($SD = 2.47$) out of a possible score of 12, while the average total score for the Acute subscale was 5.93 ($SD = 2.34$) out of a possible score of 14. The average total score for the Protective subscale was 5.64 ($SD = 2.48$) out of a possible score of 12.

Table 7

Means and Standard Deviations for Initial DRAOR Item and Subscale Total Scores

DRAOR Item	<i>M</i>	<i>SD</i>
S1 Peer Associations	1.31	0.58
S2 Attitudes Towards Authority	0.95	0.69
S3 Impulse Control	1.36	0.56
S4 Problem Solving	1.23	0.57
S5 Entitlement	1.23	0.63
S6 Attachment with Others	1.01	0.59
Stable Subscale Total	7.09	2.47
A1 Substance Abuse	0.72	0.65
A2 Anger/Hostility	0.40	0.57
A3 Opportunity/Access to Victims	1.04	0.60
A4 Negative Mood	0.41	0.58
A5 Employment	1.61	0.66
A6 Interpersonal Relationships	1.14	0.60
A7 Living Situation	0.59	0.65
Acute Subscale Total	5.93	2.34
P1 Responsiveness to Advice	0.95	0.54
P2 Prosocial Identity	0.81	0.55
P3 High Expectations	1.06	0.60
P4 Costs/Benefits	1.01	0.60
P5 Social Support	1.04	0.60
P6 Social Control	0.77	0.50
Protective Subscale Total	5.64	2.48

5.7.2 Investigating the Structure of the DRAOR

Although the DRAOR was constructed theoretically with three scales, at the time this study was conducted, there were no empirical investigations of this structure. In order to examine empirically the existing structure of the DRAOR, a Confirmatory Factor Analysis (CFA) was performed using version 19 of SPSS AMOS for Windows. Levels of fit were assessed by inspecting the significance levels of the chi-square, the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). A non-significant chi-square is preferable; it indicates that the model is consistent with the observed data (Marsh & Hocevar, 1985). However, there are a number of problems with using significance levels for the chi-square as a guide to fit. The chi-square is likely to produce conservative estimates of fit when the sample is large, and when there are many variables and degrees of freedom (i.e., it produces a significant result even when there is a reasonably good fit to the data). The CFI fit index, unlike the chi-square test, is not affected by sample size and is considered to be a better measure of fit. A CFI value of .90 or higher is usually considered to indicate a good fit (Bentler, 1995). The RMSEA provides a measure of discrepancy per degree of freedom. A RMSEA value of .08 or lower is generally considered to reflect a reasonable fit (Browne & Cudek, 1993).

The three-factor model showed a reasonably poor fit to the data, $\chi^2(19) = 394.21, p < .001$ (CFI = .84, RMSEA = .076). The chi-square was significant and the CFI was well below .90; the RMSEA on the other hand suggested a reasonable fit. Because of the poor fit of the existing three DRAOR subscales, I next conducted a series of Principal Components Analyses (PCA).

The dataset met the initial requirements for PCA. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .86, exceeding the recommended value of .6 (Kaiser, 1970, 1974). Bartlett's test of sphericity $\chi^2(153) = 1523.27, p < .001$, indicated that correlations between items were sufficiently large. An initial unrotated solution yielded four components with eigenvalues over Kaiser's

criterion of 1, explaining 29.8%, 8.6%, 7.6%, and 7.0% of the variance respectively. An inspection of the scree plot revealed a clear break after one and four components. Parallel analysis suggested retaining two components. Because of the disagreement in the number of components to retain from these methods, one-, two-, three- and four-component solutions were forced and compared on their interpretability, using orthogonal rotation.³³

The four-component solution was chosen as the best and most interpretable fit for the data. This solution explained 51.5% of the variance. The eigenvalues for the unrotated solution were 5.52, 1.62, 1.38 and 1.27. In the rotated solution, the eigenvalues for the four components evened out to 3.40, 2.90, 1.84 and 1.65. Loadings for each component are set out in Table 8 (loadings for the other solutions can be found in Appendix E). It was chosen over other solutions because in the rotated solution all components showed a number of strong loadings and each variable loaded substantially on a component.³⁴ There were no low communalities, suggesting that all items fitted well with the other items in their component. Each component had at least three items and no items were omitted. Finally, the contents of each component were the most coherent theoretically.

Component 1 (*Protective*) consisted of all six protective items, making it identical to the protective subscale in Serin's (2007) postulated three-factor structure. The strongest loadings were for "pro-social identity", "high expectations", and "social control". Component 2 (*Stable*) comprised five stable items and one acute item. The strongest loadings were for the stable items "problem solving" and "entitlement". Component 3 (labelled *Internal Acute*) consisted of three acute items: "negative mood", "anger/hostility", and "substance abuse". Component 4 (labelled *External Acute*) consisted of four items: "interpersonal relationships", "employment", and "living

³³ Oblique (oblimin) rotation was first performed due to expected correlations between the components. The solutions were the same as for the orthogonal rotation; therefore only the orthogonal solution was presented here for ease of interpretability.

³⁴ Two items ("living situation" and "employment") had loadings of .4 or above on two different components; these items were assigned to the component for which the loading was highest.

situation” (acute items), and “attachment with others” (stable item). Pearson’s correlations between the components are presented in Table 9; they are all in the expected directions.

Table 8

Factor Loadings for Principal Components Analysis With Orthogonal Rotation

Item	Stable	Internal Acute	External Acute	Protective
S4 Problem solving	.73	.07	.10	-.24
S5 Entitlement	.68	.09	.07	-.22
S3 Impulse control	.67	.02	.19	-.21
S2 Attitudes towards authority	.62	.18	-.05	-.31
S1 Peer associations	.51	.18	.04	-.22
A3 Opportunity/access to victims	.49	.31	.08	-.05
A4 Negative mood	.05	.77	.12	-.07
A2 Anger/hostility	.18	.68	-.25	-.02
A1 Substance abuse	.20	.56	.12	-.10
A6 Interpersonal relationships	.01	.06	.80	-.09
A5 Employment	.40	-.07	.49	.04
A7 Living situation	.06	.48	.49	-.18
S6 Attachment with others	.24	.03	.47	-.38
P2 Prosocial identity	-.24	-.03	.03	.75
P3 High expectations	-.21	-.06	-.08	.75
P6 Social control	-.17	-.05	-.13	.73
P5 Social support	.01	-.22	-.34	.68
P4 Costs/benefits	-.23	-.06	.04	.66
P1 Responsiveness to advice	-.32	-.08	-.09	.59

Note. The highest item loadings on a given factor are highlighted in bold.

Table 9

Correlations Between DRAOR Subscales Based on PCA Four-Component Solution

Subscale	Stable Total	Internal Acute Total	External Acute Total	Protective Total
Stable Total	1			
Internal Acute Total	.36**	1		
External Acute Total	.43**	.25**	1	
Protective Total	-.55**	-.26**	-.42**	1

** $p < .01$

Both the original (i.e., the structure as it was proposed by Serin, 2007) and new structures are presented in the figures on the following page. The most notable difference between them is that the acute items split themselves up among three of the new subscales (Stable, Internal Acute, External Acute). One of the original stable items loaded onto the new External Acute subscale. The four-subscale DRAOR will be used for the remainder of this study (and thesis) because it is the best fit to this high-risk sample, although the results would still be quite similar if we used the original three subscales. The validity of the DRAOR total score (the sum of the risk factors corrected for the number of protective factors) will also be examined.

Stable Subscale	Acute Subscale	Protective Subscale
Peer associations	Substance abuse	Responsive to advice
Attitudes towards authority	Anger/hostility	Prosocial identity
Impulse control	Opportunity/access to victims	High expectations
Problem-solving	Negative mood	Costs/benefits
Sense of entitlement	Employment	Social supports
Attachment with others	Interpersonal relationships	Social control
	Living situation	

Figure 15. Original Three-Subscale DRAOR Structure

Stable Subscale	Internal Acute Subscale	External Acute Subscale	Protective Subscale
Peer associations	Substance abuse	Interpersonal relationships	Responsive to advice
Attitudes towards authority	Anger/hostility	Living situation	Prosocial identity
Impulse control	Negative mood	Employment	High expectations
Problem-solving		Attachment with others	Costs/benefits
Sense of entitlement			Social supports
Opportunity/access to victims			Social control

Figure 16. New Four-Subscale DRAOR Structure

5.7.3 Does the DRAOR Relate to Other Risk Measures?

To evaluate convergent validity, correlations were calculated between the DRAOR subscales and other measures of criminal risk. For the current study, the risk measures used were the RoC*RoI (a static measure of criminal risk), the VRS (a static and dynamic measure of violence and general risk), and the RPFA-R (a dynamic measure of preparedness for release). Correlations are presented in Table 10.

The RoC*RoI was only significantly correlated with the DRAOR total score. The VRS static total was significantly correlated with the Stable and Protective subscales and the DRAOR total score. The VRS dynamic total was significantly correlated with all DRAOR subscales except the External Acute subscale, and the DRAOR total score. The RPFA-R was significantly correlated with all DRAOR subscales and the DRAOR total score. These results suggest that the Stable and Protective subscales were related to both dynamic risk measures and static risk for violence. The Acute subscales, on the other hand, were only related to the dynamic risk measures (VRS dynamic and RPFA). The DRAOR total score was significantly correlated with all existing risk measures. However, it should be noted that none of the correlations were over .28, suggesting that the DRAOR subscales and total score do not measure exactly the same constructs as assessed by the other measures.

Table 10

Correlations Between DRAOR Subscales and Total and Other Risk Measures

Subscale	RoC*RoI	VRS static	VRS dynamic	RPFA-R
Stable	.11	.15*	.20**	.24**
Internal Acute	.07	.01	.17**	.26**
External Acute	.09	.07	.12	.16**
Protective	-.10	-.19**	-.22**	-.21*
DRAOR Total	.13*	.17**	.25**	.29**

** $p < .01$ * $p < .05$

5.7.4 Does the DRAOR Predict Recidivism?

To assess the DRAOR's ability to predict recidivism, we examined the relationship between the first DRAOR score after release and the four indices of recidivism. The average follow-up length for the sample was 948 days (range 404 to 1401 days). During this time, 43% of the sample were convicted of breaching their parole conditions, 73% were convicted of a new offence (excluding breaches), 31% were convicted of a new violent offence, and 47% were sentenced to imprisonment. Mean survival times for recidivists were 141 days for breaches ($SD = 135$), 263 days for reconvictions ($SD = 230$), 316 days for violent convictions ($SD = 212$), and 240 days for reimprisonment ($SD = 229$).

Each subscale and the DRAOR total score's predictive accuracy were assessed separately using AUCs. The corresponding AUC for each recidivism outcome is presented in Table 11. The Stable and Protective subscales and the DRAOR total score significantly predicted all recidivism outcomes. The External Acute subscale only predicted reimprisonment and the Internal Acute subscale did not predict any type of recidivism. All effect sizes were small.

Table 11

Predictive Accuracy of DRAOR Subscales and Total: AUC Values with 95% CIs

Subscale	Breach of Parole		Any Conviction		Violent Conviction		Reimprisonment	
	AUC	95% CI	AUC	95% CI	AUC	95% CI	AUC	95% CI
Stable	.60**	[.53, .66]	.63**	[.55, .70]	.58*	[.52, .65]	.63***	[.57, .69]
Int Acute	.54	[.47, .61]	.57	[.50, .64]	.55	[.48, .62]	.56	[.49, .63]
Ext Acute	.54	[.48, .61]	.53	[.46, .60]	.57	[.50, .64]	.58*	[.52, .65]
Protective	.60**	[.53, .66]	.62**	[.55, .70]	.62**	[.55, .69]	.61**	[.54, .67]
DRAOR								
Total	.58*	[.52, .65]	.62**	[.55, .69]	.61**	[.54, .68]	.63***	[.56, .69]

*** $p < .001$ ** $p < .01$ * $p < .05$

Next, Cox regression survival analysis was performed to examine (1) whether the four subscales of the DRAOR predicted recidivism simultaneously, and (2) the independent and unique contribution of each subscale. Models were run for each type of recidivism; the four DRAOR subscales were entered in the first block as the independent variables. The criterion or dependent variable was recidivism and the time variable was days to recidivism for those who reoffended, or total follow-up time for non-recidivists. The four subscales significantly predicted breaches, $\chi^2(4, N = 299) = 19.04, p = .001$, reconvictions, $\chi^2(4, N = 299) = 24.09, p < .001$, violent convictions, $\chi^2(4, N = 299) = 15.26, p = .004$, and reimprisonment, $\chi^2(4, N = 299) = 19.03, p = .001$. Table 12 presents the unique contribution each subscale made to the models. In predicting breaches and violent convictions, the Protective subscale made a significant unique contribution to the models: that is, it predicted breaches and violent convictions even when we had already taken into account the contribution of the other subscales and is therefore the main driver of the ability of the DRAOR model to predict these recidivism outcomes. In predicting reconvictions, both the Stable and Protective subscales made a significant unique contribution to the model. This result suggests that both subscales made an independent contribution to the prediction of any new conviction. Lastly, in predicting reimprisonment, the Stable subscale made a significant unique contribution to the model. Again, this result suggests that the Stable subscale is the main driver of the ability of the DRAOR model to predict reimprisonment.

The hazard ratio statistic in Table 12 represents change in risk of recidivism per unit increase in the predictor (i.e., DRAOR subscales). Hazard ratio values greater than 1.0 indicate that higher scores on the predictor are associated with increased recidivism; values less than 1.0 indicate decreased recidivism. In the current study for example, a hazard ratio of 1.114 would be interpreted to mean that for every 1-point increase in Stable scores, there would be a 11.4% increase in reimprisonment (Olver, Wong, Nicholaichuk, & Gordon, 2007). A hazard ratio of .884, on the other hand,

would indicate that for every 1-point increase in Protective scores, there would be an 11.6% decrease in breaches.

Table 12

Cox Regression DRAOR Subscales Predicting Likelihood of Recidivism

Subscale	B (SE)	Wald (df=1)	Hazard Ratio	95% CI
Breach of Parole				
Stable	.02 (.05)	.17	1.019	[.93, 1.11]
Internal Acute	.04 (.07)	.38	1.045	[.91, 1.20]
External Acute	.04 (.07)	.50	1.047	[.92, 1.19]
Protective	-.12 (.05)	7.42**	.884	[.81, .97]
Any conviction				
Stable	.08 (.03)	6.29*	1.088	[1.02, 1.16]
Internal Acute	.05 (.06)	.93	1.056	[.95, 1.18]
External Acute	-.05 (.05)	1.05	.949	[.86, 1.05]
Protective	-.07 (.03)	4.50*	.933	[.88, .99]
Violent conviction				
Stable	.03 (.05)	.34	1.031	[.93, 1.14]
Internal Acute	.06 (.08)	.49	1.059	[.90, 1.25]
External Acute	.04 (.08)	.22	1.037	[.89, 1.21]
Protective	-.12 (.05)	5.64*	.889	[.81, .98]
Reimprisonment				
Stable	.11 (.04)	6.59*	1.114	[1.03, 1.21]
Internal Acute	.04 (.07)	.42	1.045	[.92, 1.19]
External Acute	.03 (.06)	.17	1.027	[.91, 1.16]
Protective	-.03 (.04)	.69	.966	[.89, 1.05]

** $p < .01$ * $p < .05$

5.7.5 Does the DRAOR Predict Recidivism Over and Above Existing Risk Measures?

Last, we investigated incremental validity. This type of test is often used in conjunction with predictive validity, and allows us to determine whether additional variables increase the predictive ability of an existing instrument or predictor. For these analyses, only the subscales that independently contributed to the prediction of recidivism in the previous analyses were assessed for their incremental predictive power, along with the DRAOR total score for all recidivism outcomes (given the significant AUCs with all outcomes).

A series of Cox regressions were performed to assess (1) whether the Protective subscale contributed incrementally to the prediction of breaches, any convictions, and violent convictions, (2) whether the Stable subscale contributed incrementally to the prediction of any convictions and reimprisonment, and (3) whether the DRAOR total score contributed incrementally to the prediction of all four recidivism outcomes, above the RoC*RoI, the VRS dynamic and the RPFA.³⁵ The risk instrument was entered in the first block as the predictor variable and the DRAOR subscale or total score was entered in the second block.

Table 13 shows that each of the three existing risk instruments was a significant predictor of all four recidivism outcomes on their own (except for the VRS dynamic total which did not predict reimprisonment). The Protective subscale added incrementally to the RoC*RoI, the VRS dynamic and the RPFA in predicting breaches, any convictions, and violent convictions. Similarly, the Stable subscale added incrementally to each of the three risk assessment instruments in predicting any convictions and reimprisonment. Finally, the DRAOR total score added incrementally to the RoC*RoI, the VRS dynamic and the RPFA in predicting all recidivism outcomes. All incremental contributions were in the expected positive direction. For example, the

³⁵ Note that the VRS static score was not included in these analyses because it did not predict any recidivism outcome on its own.

hazard ratio of the DRAOR total score predicting breaches in the RoC*RoI model was 1.062, which indicates that for every 1-point increase in DRAOR total scores, there would be a 6.2% increase in the likelihood of being convicted for a breach, after controlling for the RoC*RoI.

Table 13

Incremental Validity of the DRAOR Predicting Likelihood of Recidivism

		Breach				Violent Conviction			
		<i>B (SE)</i>	Wald	Hazard Ratio	95% CI	<i>B (SE)</i>	Wald	Hazard Ratio	95% CI
Block 1	Roc*RoI	2.34 (.75)	9.68**	10.409	[2.38, 45.54]	2.64 (.96)	7.59**	14.004	[2.14, 91.56]
Block 2	Roc*RoI	2.22 (.76)	8.58**	9.197	[2.08, 40.60]	2.51 (.96)	6.84**	12.284	[1.87, 80.51]
	Protective	-.15 (.04)	16.12***	.864	[.80, .93]	-.14 (.04)	12.72***	.866	[.80, .94]
Block 2	RoC*RoI	2.21 (.76)	8.45**	9.107	[2.05, 40.40]	2.50 (.96)	6.70*	12.121	[1.83, 80.17]
	DRAOR Total	.06 (.02)	14.94***	1.062	[1.03, 1.10]	.06 (.02)	12.48***	1.065	[1.03, 1.10]
Block 1	VRS dynamic	.04 (.02)	6.55*	1.038	[1.01, 1.07]	.06 (.02)	10.83**	1.059	[1.02, 1.10]
Block 2	VRS dynamic	.03 (.02)	4.61*	1.032	[1.00, 1.06]	.05 (.02)	9.12**	1.054	[1.02, 1.09]
	Protective	-.09 (.034)	4.44*	.912	[.84, .99]	-.09 (.05)	3.84*	.913	[.83, 1.00]
Block 2	VRS dynamic	.03 (.02)	4.39*	1.031	[1.00, 1.06]	.05 (.02)	8.64**	1.053	[1.02, 1.09]
	DRAOR Total	.05 (.02)	6.55*	1.048	[1.01, 1.09]	.05 (.02)	6.94*	1.055	[1.01, 1.10]
Block 1	RPFA	.06 (.02)	6.16*	1.060	[1.01, 1.11]	.10 (.03)	13.58***	1.107	[1.05, 1.17]
Block 2	RPFA	.05 (.02)	4.37*	1.050	[1.00, 1.10]	.09 (.03)	11.37**	1.099	[1.04, 1.16]
	Protective	-.13 (.04)	9.84**	.881	[.81, .95]	-.11 (.04)	6.46*	.895	[.82, .98]
Block 2	RPFA	.04 (.02)	3.43	1.044	[1.00, 1.09]	.09 (.03)	9.27**	1.089	[1.03, 1.15]
	DRAOR Total	.06 (.02)	11.62**	1.060	[1.03, 1.10]	.05 (.02)	6.70**	1.054	[1.01, 1.10]
		Any conviction				Reimprisonment			
		<i>B (SE)</i>	Wald	Hazard Ratio	95% CI	<i>B (SE)</i>	Wald	Hazard Ratio	95% CI
Block 1	RoC*RoI	2.52 (.59)	18.52***	12.474	[3.95, 39.37]	2.37 (.75)	9.95**	10.712	[2.46, 46.74]

Block 2	RoC*RoI	2.39 (.03)	16.42***	10.872	[3.43, 34.48]	2.14 (.75)	8.08**	8.515	[1.94, 37.30]
	Stable	.11 (.03)	15.83***	1.112	[1.06, 1.17]	.13 (.03)	14.68***	1.141	[1.07, 1.22]
Block 2	RoC*RoI	2.45 (.59)	17.30***	11.608	[3.66, 36.86]				
	Protective	-.10 (.03)	14.03***	.908	[.86, .96]				
Block 2	RoC*RoI	2.43 (.59)	16.89***	11.366	[3.57, 36.23]	2.12 (.75)	8.00**	8.334	[1.92, 36.23]
	DRAOR Total	.05 (.01)	17.79***	1.049	[1.03, 1.07]	.06 (.01)	15.12***	1.057	[1.03, 1.09]
Block 1	VRS dynamic	.03 (.01)	5.34*	1.026	[1.00, 1.05]	.03 (.01)	3.46	1.025	[1.00, 1.05]
Block 2	VRS dynamic	.02 (.01)	3.43	1.021	[1.00, 1.04]	.02 (.01)	2.04	1.020	[.99, 1.05]
	Stable	.11 (.03)	13.01***	1.119	[1.05, 1.19]	.15 (.04)	13.65***	1.158	[1.07, 1.25]
Block 2	VRS dynamic	.02 (.01)	3.98*	1.022	[1.00, 1.05]				
	Protective	-.07 (.03)	5.45*	.931	[.88, .99]				
Block 2	VRS dynamic	.02 (.01)	3.26	1.020	[1.00, 1.04]	.02 (.01)	1.39	1.016	[.99, 1.04]
	DRAOR Total	.05 (.01)	11.22**	1.046	[1.02, 1.07]	.06 (.02)	13.30***	1.063	[1.03, 1.10]
Block 1	RPFA	1.00 (.02)	28.70***	1.101	[1.06, 1.14]	.07 (.02)	10.24**	1.071	[1.03, 1.12]
Block 2	RPFA	.08 (.02)	21.46***	1.088	[1.05, 1.13]	.05 (.02)	5.71*	1.053	[1.01, 1.10]
	Stable	.09 (.03)	8.87**	1.090	[1.03, 1.15]	.13 (.04)	13.04***	1.14	[1.06, 1.23]
Block 2	RPFA	.09 (.02)	25.87***	1.096	[1.06, 1.14]				
	Protective	-.07 (.03)	5.65*	.935	[.89, .99]				
Block 2	RPFA	.08 (.02)	21.26***	1.087	[1.05, 1.13]	.05 (.02)	5.15*	1.050	[1.01, 1.10]
	DRAOR Total	.04 (.01)	8.96**	1.038	[1.01, 1.06]	.06 (.02)	13.48***	1.059	[1.03, 1.09]

*** $p < .001$ ** $p < .01$ * $p < .05$

5.8 Discussion

Study 3 investigated the psychometric properties of the DRAOR: a community supervision-oriented measure of stable and acute dynamic risk factors and protective factors. Because few psychometric analyses have been conducted on the DRAOR, and, at the time this study was conducted, there were no published evaluations of its proposed three-subscale structure, we subjected that structure to confirmatory factor analysis. Fit indices suggested the three proposed subscales were not a good fit to the data. We then conducted a series of principal components analyses to explore the scale's structure with this sample and considered solutions ranging one from four components. The solution that best fitted the data had four components and incorporated all of the DRAOR's original items. Its Protective component was identical to the original Protective subscale, consistent with the two other factor analyses conducted on the DRAOR items (Chadwick, 2014; Hanby, 2013). However, it split the seven acute items across the three other components.

Perhaps the most theoretically interesting aspect of this solution is that it has separated the majority of the acute items into separate components that appear to reflect offenders' characteristics (Internal Acute) and factors in their social environments (External Acute). This distinction between internal and external characteristics is one that is mirrored in related literatures. For example, in the desistance literature a distinction is often made between the influence of structural or external factors (e.g., employment, marriage) and subjective or internal factors (e.g., motivation, openness to change) in the process of giving up crime (LeBel, Burnett, Maruna, & Bushway, 2008). There has been disagreement over the relative influence and timing of each type of factor, but researchers largely agree that desistance results from a complex interaction between both internal and external factors. The separation of acute items is also in line with Zamble and Quinsey's (1997) research. In their Coping Relapse Model, recidivism is triggered by one or more acute dynamic risk factors; these factors may initially be environmentally-based (e.g., loss of a job), but these external

factors often lead to a second series of acute dynamic responses, which are internal to the individual (e.g., stress, negative mood).

The Internal Acute and External Acute subscales were significantly correlated with other dynamic risk measures (the VRS dynamic and RPFA) but not with static risk instruments (the RoC*RoI and VRS static). The Stable and Protective subscales and the DRAOR total, on the other hand, were significantly correlated with dynamic risk measures *and* with static risk for violence. This latter finding is consistent with past research that suggests measures of static risk are highly correlated with measures of dynamic risk (e.g., Wong & Gordon, 2006). However, only the DRAOR total score was significantly correlated with the RoC*RoI, which is at odds with previous research. Hanby (2013) found that the all three original DRAOR subscales were significantly correlated with the RoC*RoI, in addition to the total score; the original Stable subscale had the largest correlation ($r = .32$ at initial assessment). In addition, the DRAOR pilot study found that the Protective subscale was significantly correlated with the RoC*RoI ($r = -.33$; Tamatea & Wilson, 2009): a finding that has not been replicated in this study.

The Stable and Protective subscales and the DRAOR total score predicted all four recidivism outcomes: breaches of parole, any convictions, violent convictions, and reimprisonment. The External Acute subscale predicted reimprisonment, but the Internal Acute subscale did not predict any outcome measure. One possibility for why the acute subscales were not predictive of reoffending in the current study could be due to the time at which the factors were measured. The definition of acute risk factors is that they can change rapidly, and that an increase on these factors signals imminent risk of a new offence. Hanson and Harris (2000) argue that while acute risk factors can tell us *when* an individual is at risk of reoffending, they may have little relationship to long-term recidivism potential. Consequently, because the current study assessed acute risk factors soon after release—which could be up to three years before the outcome (recidivism)—we may not be capturing the change in risk that occurs over the course of supervision; we would expect greater predictive validity when examining the acute item

ratings closest to recidivism (Hanson & Harris, 2000). A Master's student in our research team at Victoria University recently tested this hypothesis using a matched sample of women and men serving a community-based sentence in New Zealand (Scanlan, 2014). She found that the DRAOR score most proximal to recidivism (the date of the offence) added incremental predictive power to the initial DRAOR score at the start of the sentence, supporting Hanson and Harris' conceptualisation of acute risk factors.

However, whether the items in the DRAOR actually are stable or acute has yet to be tested. Establishing the nature of dynamic risk factors requires a longitudinal research design to investigate their stability over time as well as their predictive validity. In the Hanson et al. (2007) Dynamic Supervision Project, the average acute rating over a six-month period was more predictive than the acute score closest to recidivism. The authors concluded that the acute risk factors appeared to be measuring enduring characteristics rather than signalling the timing of a new offence. Future research should investigate, with a longitudinal design, the distinction—if any—that exists between stable and acute dynamic risk factors. Research should also investigate the best way to assess the predictive validity for each type of factor (e.g., perhaps variability in acute risk is more predictive than one score in isolation).

In the Cox regression analyses, the DRAOR subscales simultaneously predicted all four recidivism outcomes. In the model for breaches and violent convictions, the Protective subscale made an independent contribution. In the model for reconvictions, both the Stable and Protective subscales made an independent contribution. Lastly, in the model for reimprisonment, it was the Stable subscale that made an independent contribution. These subscales incrementally predicted recidivism above existing static and dynamic risk measures. These results are consistent with previous research demonstrating the incremental predictive power of stable dynamic risk factors above static measures (Hanson et al., 2007; Thornton, 2002), and more recent research showing the incremental effect of protective factors when assessed alongside a measure

of static and dynamic risk (de Vries Robbé, de Vogel & de Spa, 2011). The finding that the Stable subscale contributed incrementally to predictions based on two other *dynamic* measures, suggests that despite its significant correlation with the VRS and RPFA-R, it is also operationalizing risk information distinct from that captured by each of these other instruments.

The Protective subscale was significantly correlated with the VRS dynamic total and shares a quarter of its variance with the Stable subscale. This finding suggests that protective factors in this study are not fully independent of risk factors. As yet there is little research supporting the general distinction between dynamic factors that are labelled “protective” vs. “risk” (Ullrich & Coid, 2011), beyond the possible benefits of labelling that focuses practitioners more positively (e.g., on building up) or negatively (e.g., on ameliorating) on the same general areas of concern. This study does not improve the situation greatly. However, it does show that in this instance protective factors were independently predictive of three recidivism outcomes when pitted alongside dynamic risk factors measured before and after release. There is no doubt that protective factors are an area worthy of further investigation. Their inclusion in probation officer sessions potentially transforms officer-client interactions from simple risk avoidance discussions to a focus on crime desistance. However, more theoretically driven and more empirically sophisticated studies are clearly needed to determine whether the theoretical distinctions between protective, stable, and acute really exist. Ideas for future research are outlined in the general discussion.

The current study provides initial validation of the DRAOR, based on scores calculated soon after release with a sample of high-risk offenders starting parole: arguably the type of offenders whose probation officers most need information for tailoring monitoring and intervention. Further research needs to be carried out with all of the relevant populations on which the tool is used (e.g., women, youth)—and some is currently underway— to establish the similarities and differences in how the instrument functions psychometrically. In particular, as with all new instruments, there

is an immediate need for large-sample analyses of its component structure and predictive validity, as well as an investigation into how the subscales perform over time, in order to determine whether from an empirical perspective the instrument is structurally sound, reliable and valid.

An in-depth examination of how the DRAOR is used by probation officers should also be an area of future research. Although probation officers are using the DRAOR to assess offenders on community supervision, the extent to which the information is being used for case management is as yet unclear. Pilot results from New Zealand suggest that some probation officers found the tool to be useful in helping structure their interactions with offenders, and provided a suitable model for considering a range of important risk and protective factors (Tamatea & Wilson, 2009). However, future questions to address are: To what extent does rating the DRAOR enable probation officers to better monitor and intervene when risk increases? How is the DRAOR actually being used in case management? If probation officers are using the information to intervene to reduce risk, the degree of intervention they deploy may be more predictive of recidivism outcome than scores on the measure itself. Research should also examine the DRAOR's inter-rater reliability to determine whether different probation officers reach the same conclusions regarding an offender's level of risk; inter-rater reliability is a crucial step in the development and validation of any scale.

The findings from this study showed that dynamic factors measured during the re-entry process were related to long-term recidivism outcomes for high-risk offenders. The final study in this thesis uses the newly validated four-subscale DRAOR to further explore mechanisms of change and to test a possible explanation for the null results from Study 2. In Study 4 I test whether factors that influence the re-entry process (DRAOR scores) mediate the relationship between treatment change and recidivism (i.e., exploring *intermediate* outcomes of treatment).

Chapter 6

Study 4: The Re-entry Process as an Intermediate Outcome

6.1 Introduction

This thesis is an exploration into potential mechanisms of change in offender rehabilitation. As discussed earlier in this thesis, Kroner and Yessine (2013) proposed three essential research questions for examining mechanisms of change: (1) To what extent does cognitive-behavioural treatment reduce criminal recidivism? (2) How much change occurs as a result of treatment? and (3) Is treatment change related to reductions in criminal recidivism? So far we have found support for the first two questions, but not the third: treatment change was not related to reductions in recidivism in Study 2. Given these results, what do we conclude about mechanisms of change? Do we conclude that change in dynamic risk factors is not the mechanism by which treatment works? Or is there a problem with the model we are testing: that is, assuming a *direct* relationship between treatment change and recidivism. The final study of this thesis extends Kroner and Yessine's (2013) proposed research questions by asking a fourth question: Can the re-entry process explain the relationship (or lack thereof) between treatment change and recidivism? Specifically, I test whether treatment change has an *indirect* relationship with recidivism through its relationship with factors that influence the re-entry process (i.e., DRAOR scores; see Figure 3).

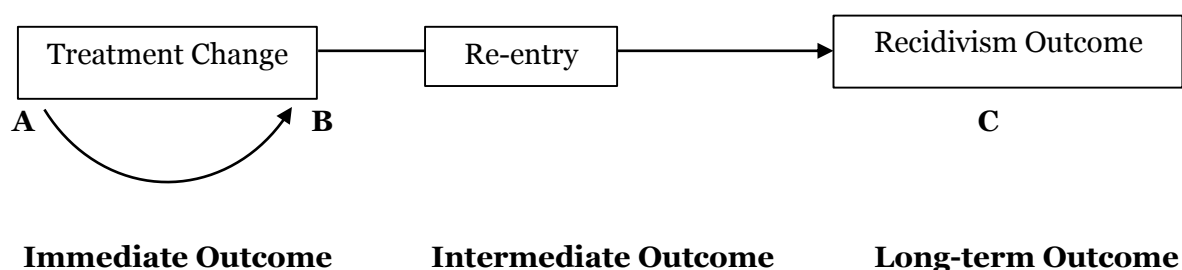


Figure 3. Outcome Evaluation Including Immediate and Intermediate Outcomes

6.2 Re-entry as a Phase in the Process of Desistance from Crime

As has already been well documented in this thesis, offenders experience many challenges during the period of re-entry from prison back into the community. They often face difficulties finding stable accommodation, employment, and suitable social support, and their circumstances can change rapidly (Baldry, McDonnell, Maplestone, & Peeters, 2006; Shinkfield & Graffam, 2009). As a result, reoffending rates are at their peak during this time (Burnett, 2009; Nadesu, 2007). The re-entry period has been identified as a crucial phase in the process of desistance from crime. As Göbbels and colleagues (2014) write, “a smooth and successful re-entry process is likely to be able to promote the desistance process, whereas a problematic re-entry process is likely to increase the risk of recidivism” (p. 354).

Introduced in Chapter 2, Göbbels, Ward and Willis’ (2012) Integrated Theory of Desistance from Sexual Offending (ITDSO) suggests that there are four phases in the desistance process: (1) decisive momentum (initial desistance), (2) rehabilitation (promoting desistance), (3) re-entry (maintaining desistance), and (4) normalcy (maintaining desistance over a long period of time). In the rehabilitation phase, offenders overcome internal and external obstacles (i.e., dynamic risk factors) and learn strategies to successfully live a pro-social life. In the re-entry phase, offenders must maintain a commitment to change in spite of the challenges faced during this time. According to the ITDSO, offenders who successfully desist from crime are likely to still be actively engaged in the change process during re-entry. Consistent with this theory, one study investigated what happened to treatment progress following release and found that men who were not reconvicted continued to improve after the programme on measures of anger expression and wellbeing, whereas men who were reconvicted returned to approximately pre-programme levels during two years of follow-up (Polaschek & Dixon, 2001).

The authors of the ITDSO identify a number of barriers (e.g., lack of employment, housing, association with criminal peers, loss of prosocial relationships)

and facilitators (e.g., high expectations, positive social capital, social network; Göbbels et al., 2012) to re-entry, which parallel the factors incorporated in the DRAOR: stable and acute dynamic risk factors and protective factors. These barriers and facilitators are also in line with the factors outlined in Serin and Lloyd's (2009) model of the transition out of crime. They suggest that desistance from crime involves a constellation of internal (e.g., attitudes, motivation) and external (e.g., employment, interpersonal relationships) factors that influence re-entry success. Taken together, this research suggests that desistance is dependent on more than whether or not an offender makes positive changes in treatment; they also need to maintain a commitment to change and manage a number of barriers and facilitators during re-entry. Thus, taking into account what happens during the re-entry process—that is, taking into account *intermediate* outcomes—might help to explain the lack of a direct relationship between treatment change and recidivism.

6.3 The Re-entry Process as a Mediator Between Treatment Change and Recidivism

No empirical research that we know of has examined how treatment change is related to the process of offender re-entry; therefore, this study is exploratory. To investigate the possibility that the re-entry process mediates the relationship between treatment change and recidivism, below I consider what is targeted for change in treatment and make conceptual connections to the factors that influence the re-entry process (i.e., stable and acute dynamic risk factors and protective factors).

The primary goal of offender rehabilitation is to reduce offenders' levels of criminality by altering their antisocial attitudes and beliefs, reducing their ties with criminal peers, and shifting the balance of rewards and costs for criminal and non-criminal activities so that non-criminal activities become the preferred option (Andrews & Bonta, 2010). However, for these changes to be meaningful, they need to be sustained beyond the end of the programme (Serin, Lloyd, Helmus, Derksen, &

Luong, 2013). If changes are not maintained after release, then within-treatment change is unlikely to be related to a reduction in recidivism. We know from prior research that patterns of change during treatment do not necessarily parallel patterns post-treatment. In our study of 35 life-sentenced prisoners, some men were unable to maintain change in the months following the programme (Yesberg & Polaschek, 2014). Thus, examining the relationship between within-treatment change and change on *stable dynamic* risk factors after release (e.g., antisocial attitudes, peer associations) might help to explain the relationship between treatment change and recidivism. Consistent with the ITDSO, we would expect that the desisting offender would still be actively engaged in the change process during re-entry (Göbbels et al., 2012).

Another goal of offender rehabilitation is to prepare offenders for release by teaching them practical skills to manage acute risk factors during the re-entry period (e.g., loss of a job, relationship problems). Offenders are taught to recognise their own high-risk situations and develop strategies to effectively manage them (Andrews & Bonta, 2010; King, Creamer, Tiller, & Williams, 2007). Although measures of treatment change capture this learning, the relationship between treatment change on stable dynamic risk factors and the actual management of acute risk during re-entry is unclear. As Serin and Lloyd (2009) note “success can only be claimed if offenders are able to take their new skills and apply them to high-risk situations in the community” (p. 359).

Zamble and Quinsey’s (1997) Coping Relapse Model provides a framework for understanding how treatment change might be indirectly related to recidivism through acute risk in the community. Their model suggests that recidivism is preceded by a complex series of cognitive, emotional, and environmental events. In particular, the model postulates that recidivism is triggered by one or more acute dynamic risk factors: variables that can change rapidly and increase risk of recidivism. Acute dynamic risk factors may initially be environmentally based (e.g., marital discord, job loss), but such environmental catalysts often lead to a second series of internal acute dynamic

responses, whereby the individual engages in cognitive appraisals and experiences a range of emotionally based outcomes (e.g., stress, negative mood). Subsequently, the individual will attempt to implement stable dynamic response mechanisms (e.g., coping responses). Hence, the model suggests there is an interaction between stable and acute dynamic risk factors: offenders with better coping responses (and lower stable dynamic risk in general) will be more equipped to deal with environmentally and emotionally based acute stressors and less likely to recidivate. Therefore, we might expect that offenders who make more change in treatment will be better able to manage *acute dynamic* risk factors pertinent to the coping relapse model.

Lastly, effective treatment is not just about reducing deficits; it also involves building up strengths, such as family support and identification with prosocial models (Andrews & Bonta, 2010). Serin et al. (2013) suggest that programmes are unlikely to bring about long-term change “unless they link the offender to helpful community and relationship factors” (i.e., informal social controls, p. 50). Therefore, we might expect that change in treatment would be related to an offender’s level of *protective* factors during re-entry: factors that promote desistance from crime (i.e., facilitators to re-entry; Göbbels et al., 2012). As Serin and Lloyd (2009) note, “an offender’s cessation of crime is not directly tied to the extinction of risk factors that led to his initial involvement in crime” (p. 355). Taking into account facilitators to successful re-entry may help to explain the relationship between treatment change and recidivism.

6.4 Study Objectives

The objective of this study is to test an explanation for why treatment change was not *directly* related to reductions in recidivism in Study 2. I propose that the re-entry process might mediate the relationship between treatment change and recidivism (i.e., treatment change may have an *indirect* relationship with recidivism through its relationship to the DRAOR). Because there is a lack of consensus regarding the best methodology to assess the different types of dynamic re-entry factors included in the

DRAOR (e.g., is variability in acute risk more predictive than one score in isolation?), three different types of DRAOR data will be used as possible mediating variables or *intermediate* outcomes: (1) one score in isolation (i.e., “initial” scores from Study 3), (2) variability in scores during the re-entry period, and (3) net change during re-entry (the first score minus the last score within 100 days of release). I hypothesise that people who make more changes in VRS scores *in* treatment will: (1) have lower risk and higher protective factor scores immediately following release, (2) show less variability in their scores during re-entry, particularly in the acute risk factors, and (3) make more positive change during the re-entry process. I also hypothesise that at least some of these relationships will explain the relationship between treatment change and recidivism.

6.5 Method

6.5.1 Sample

The sample for Study 4 was identical to the treated sample in Study 2: 123 treatment completers with pre- and post-treatment VRSs available. Recall, these men had completed a HRSTU programme while on a sentence of at least two years imprisonment and were subsequently release from prison onto parole, between November 2010 and November 2013. Seventy-nine percent of the sample was released before their sentence end date when they had served an average of 4.7 years in prison on their current sentence. While on parole—for an average of 395 days—these offenders were required to report regularly to their probation officer; reporting requirements varied from twice weekly to fortnightly depending on perceived risk and how long the offender had been out for. Offenders from Study 2’s sample were eligible to be included in this study if they had a DRAOR assessment completed by their probation officer within 20 days of release and at least two more assessments completed within the first 100 days after release. All offenders but one met these requirements, bringing the final sample to 122 men.

6.5.2 Measures

The measures used in this study have already been reported in detail in Studies 2 and 3: the Violence Risk Scale (VRS; Wong & Gordon, 2000) and the Dynamic Risk Assessment for Offender Re-entry (DRAOR; Serin, Mailloux, & Wilson, 2012). The four components of the DRAOR derived in Study 3 will be used in this study, along with a total score. Only two recidivism outcomes will be used in this study: any new violent conviction and reimprisonment.³⁶ Follow-up time was set to one year after release. During this time, 15% of the sample were convicted for a new violent offence and 33% received a new sentence of imprisonment.

6.5.3 Procedure

DRAOR scores were extracted from electronic offender records as before. In addition to initial scores (i.e., the rating closest to two weeks following release, consistent with Study 3), two other DRAOR outcomes were examined during the re-entry period. Standard deviations were calculated on all scores an offender had within the first 100 days of release to assess variability; net change scores were calculated by subtracting the last rating within 100 days from the first rating following release. On average, offenders had 13 DRAOR ratings within the first 100 days of release ($SD = 4.57$), and the last rating was made 87 days after release ($SD = 18.83$).

6.5.4 Data Analysis

First, descriptive data for the three DRAOR outcomes were examined to investigate differences between the subscales (i.e., did one subscale change more than the others, were the acute risk factors the most variable?). Repeated measures ANOVAs with post-hoc Bonferroni comparisons were conducted to statistically examine differences across the four DRAOR subscales. Partial-eta squared is reported as a measure of the size of the effect and can be interpreted as: around .02 = small effect, around .13 = medium effect, and over .26 = large effect.

³⁶ Breaches and reconvictions were initially included in the analyses but no results were significant; for space considerations, they are not reported here.

The remainder of the results used logistic mediated regression to examine whether treatment change (immediate outcome) has an indirect effect on recidivism (long-term outcome) through the DRAOR (intermediate outcome). Following Baron and Kenny's (1986) approach, a series of regressions was run to test the relationships between a predictor (X), a mediator (M), and an outcome (Y). Mediation analyses are used to identify whether a relationship between an independent and dependent variable is partly or wholly due to the influence of a third mediating variable (Baron & Kenny, 1986). Traditionally, mediation is used when there is a significant association between X and Y: if there is no direct effect, what is there to be mediated? However, more recent papers on mediation argue that it is possible for M to be a cause between X and Y even if the total effect of X on Y isn't significant (Hayes, 2009; Jose, 2013; Rucker, Preacher, Tormala, & Petty, 2011; Zhao, Lynch, & Chen, 2010). As Hayes (2009) suggests "a failure to test for indirect effects in the absence of a total effect can lead you to miss some particularly interesting, important or useful mechanisms by which X exerts some kind of effect on Y" (p. 415).

Because the predictor variable and potential mediators are continuous and the outcome variable is dichotomous, to make the coefficients comparable, I used the tools from the website maintained by Nathaniel Herr (<http://www.nrhpysch.com/mediation/logmed.html>). The Sobel test was used to examine whether the indirect effect was significant (i.e., whether the reduction in the effect of the predictor variable on the outcome variable is significant when the potential mediator is introduced). In all analyses, pre-treatment VRS dynamic scores were controlled for. When examining DRAOR change as a mediator, initial DRAOR scores were also controlled for.

6.6 Results

6.6.1 Descriptive Data for Dynamic Re-entry Factors (the “Mediator”)

Descriptive data for the three DRAOR outcomes is presented in Table 14 (descriptive data for the individual items can be found in Appendix F). Recall that each parolee’s Initial scores was the rating his probation officer completed closest to two weeks following his release, Variability was calculated as the standard deviation of all scores an offender had within the first 100 days of release, and Change was calculated by subtracting the last rating within 100 days from the first rating. Below I describe the sample on each of these outcomes and make comparisons across subscales. In all comparisons, I use the average item score for each subscale rather than the total subscale score (i.e., the sum of the items), given that the subscales consist of different numbers of items.

The Initial Stable score was 6.73 out of 12, the Initial Internal Acute score was 1.27 out of 6, the Initial External Acute score was 3.98 out of 8, and the Initial Protective score was 6.16 out of 12. Finally, the Initial DRAOR Total score was 5.82 out of a possible range of -12 to 24. A one-way repeated measures ANOVA was conducted to compare Initial scores across the four subscales. There was a significant main effect of subscale, Wilks’ $\lambda = .28$, $F(3, 119) = 102.94$, $p < .001$, $\eta^2 = .72$, suggesting differences in how the items were scored across the subscales. Post hoc comparisons indicated that Initial Internal Acute scores were significantly lower than scores for the other three subscales (all $ps < .001$). Initial External Acute scores were significantly lower than the Stable subscale ($p = .005$) but equivalent to the Protective subscale ($p = 1.00$). Finally, Initial Stable and Protective scores were not significantly different from each other ($p = .516$). These results suggest that, at release, offenders had the lowest scores for the Internal Acute risk factors and they had equivalent scores for the Stable and Protective factors.

In the first 100 days after release, items in the Internal Acute subscale were the most variable ($M = .23$), followed by the External Acute subscale ($M = .14$). A one-way

repeated measures ANOVA was significant, Wilks' $\lambda = .64$, $F(3, 119) = 22.64$, $p < .001$, $\eta^2 = .36$, suggesting differences in variability across the four subscales. Post hoc comparisons indicated that items in the Internal Acute subscale were significantly more variable than items in the Stable, Protective and External Acute subscales (all $ps < .001$). External Acute items were significantly more variable than both the Stable ($p = .033$) and Protective ($p = .002$) items. Finally, variability was equivalent for the Stable and Protective items ($p = 1.00$). These results suggest that both Acute subscales were more variable than either the Stable or Protective subscales during re-entry.

Lastly, I examined net change in DRAOR scores over time. In contrast to the measure of variability, which uses all scores an offender had during re-entry, the change score is the difference between the first and last score. There was a significant main effect of subscale, Wilks' $\lambda = .73$, $F(3, 119) = 15.55$, $p < .001$, $\eta^2 = .27$, suggesting that not all subscales (or items in the subscales) showed the same amount of change. Post-hoc comparisons indicated that there was significantly less change for items in the Stable subscale compared to the Internal ($p = .001$) and External Acute ($p = .039$) subscales. Similarly, items in the Protective subscale exhibited less change than either Acute subscale ($ps < .001$). Items in the Stable and Protective subscales made similar amounts of change ($p = .114$), as did the Internal and External Acute subscales ($p = .617$). These results suggest that when examining overall levels of change during the first 100 days, the Internal and External Acute risk factors changed the most.

Table 14

Means and Standard Deviations for DRAOR Subscale Total and Average Item Scores

	Initial	Variability	Change
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
<u>Subscale Total Scores</u>			
Stable Subscale Total	6.73 (2.29)	.63 (.66)	.13 (1.74)
Internal Acute Subscale Total	1.27 (1.23)	.58 (.49)	.58 (1.60)
External Acute Subscale Total	3.98 (1.34)	.57 (.53)	.43 (1.08)
Protective Subscale Total	6.16 (1.98)	.50 (.59)	-.52 (1.73)
DRAOR Total (risk-protective)	5.82 (4.86)	2.07 (1.35)	1.66 (4.32)
<u>Average Item Scores Across Subscale</u>			
Stable Items	1.12 (.38)	.11 (.11)	.02 (.29)
Internal Acute Items	.42 (.41)	.23 (.18)	.19 (.53)
External Acute Items	1.00 (.34)	.14 (.13)	.11 (.27)
Protective Items	1.03 (.33)	.09 (.11)	-.09 (.29)

Note. Subscale total scores cannot be compared directly because there are different numbers of items in each subscale. Average item scores for each subscale were calculated in addition to total (summed) scores to enable comparisons across subscales.

6.6.2 Does Treatment Change Have an Indirect Effect on Recidivism

Through the DRAOR?

Next I examined whether treatment change has an indirect effect on recidivism through its relationship with dynamic factors measured during the re-entry process.³⁷ In other words, are DRAOR scores acting as a mediator between treatment change and recidivism? In line with the mediation procedures outlined by Baron and Kenny (1986), regressions were run to test the relationships between the variables. In all regressions, pre-treatment VRS dynamic scores were controlled for. When DRAOR variability and change were tested as potential mediators, men were excluded if they reoffended before their last DRAOR score within 100 days. For violent convictions, three men were excluded because they reoffended violently before the date of their last DRAOR score;

³⁷ In this study, I use Total treatment change from Study 2 as the predictor variable (i.e., change from pre-treatment to follow-up for the 31 men who were not released immediately after the programme).

for reimprisonment, eleven men were excluded. The basic mediation model is shown in Figure 17. Standardised regression coefficients and significance values are presented in Table 15.

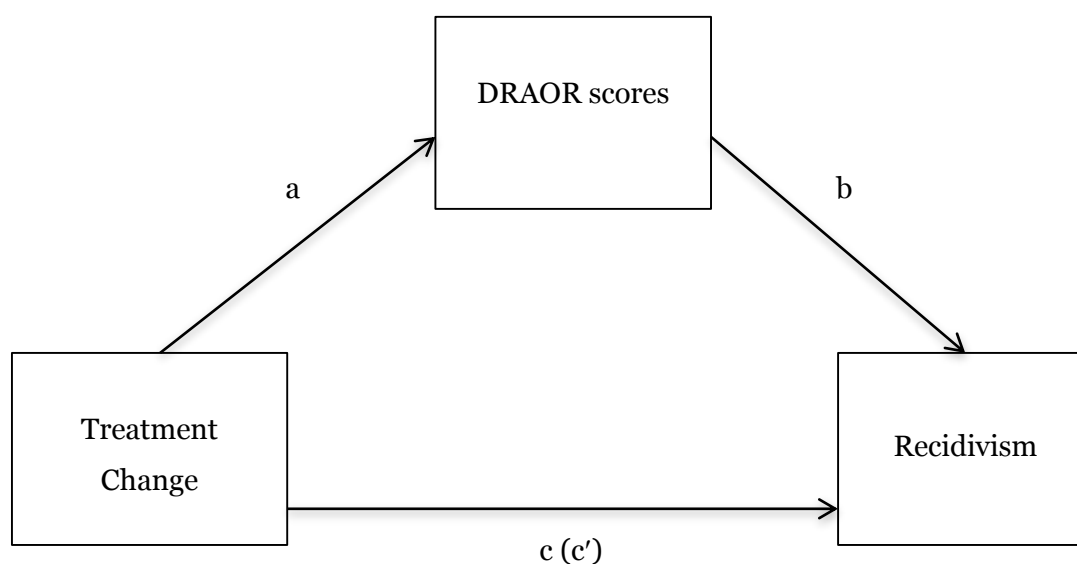


Figure 17. Model for analyses of relationship between treatment change, DRAOR scores and recidivism

Table 15

Standardised Regression Coefficients and p-values for Mediation Analyses of Indirect Effects

	Violent conviction								Reimprisonment							
	a	p	b	p	c	p	c'	p	a	p	b	p	c	p	c'	p
<u>Total Treatment Change</u>																
Initial Stable	-.03	.973	.08	.611	-.20	.180	-.20	.190	-.01	.959	.37	.003	-.12	.314	-.11	.335
Initial Internal Acute	-.18	.004	-.01	.958	-.20	.180	-.20	.196	-.16	.010	.02	.878	-.12	.314	-.11	.356
Initial External Acute	-.06	.461	-.04	.795	-.20	.180	-.20	.184	-.03	.619	.18	.116	-.12	.314	-.11	.352
Initial Protective	-.02	.842	-.18	.231	-.20	.180	-.20	.185	-.03	.678	.03	.768	-.12	.314	-.11	.331
Initial DRAOR Total	-.23	.326	.09	.529	-.20	.180	-.19	.207	-.16	.501	.23	.064	-.12	.314	-.10	.388
Stable Variability	.00	.519	.03	.838	.20	.180	-.21	.177	.00	.638	.12	.265	-.12	.314	-.12	.295
Internal Acute Variability	-.03	.031	.10	.527	-.20	.180	-.18	.242	-.03	.033	.10	.398	-.12	.314	-.09	.424
External Acute Variability	-.00	.671	-.02	.895	-.20	.180	-.21	.178	-.00	.623	.12	.289	-.12	.314	-.11	.345
Protective Variability	.00	.969	.04	.765	-.20	.180	-.20	.181	.00	.930	.08	.495	-.12	.314	-.12	.322
DRAOR Total Variability	-.00	.577	.05	.709	-.20	.180	-.20	.189	-.00	.488	.16	.159	-.12	.314	-.10	.373
Stable Change	.27	.002	-.28	.066	-.20	.180	-.13	.410	.27	.001	-.25	.039	-.12	.314	-.06	.639
Internal Acute Change	.16	.050	-.23	.182	-.20	.180	-.15	.325	.16	.011	-.24	.104	-.12	.314	-.07	.542
External Acute Change	.09	.104	-.33	.047	-.20	.180	-.15	.295	.09	.111	.02	.848	-.12	.314	-.15	.219
Protective Change	-.24	.005	.15	.324	-.20	.180	-.15	.323	-.23	.006	-.03	.811	-.12	.314	-.13	.282
DRAOR Total Change	.61	<.001	-.34	.034	-.20	.180	-.08	.584	.61	<.001	-.17	.156	-.12	.314	-.08	.522

First, as can be seen in the table—consistent with Study 2—there was no direct relationship between the predictor variable (Total treatment change) and either outcome variable (violent convictions and reimprisonment; pathway “c”). In order to test for indirect effects, two relationships are essential. First, the predictor variable needs to be related to the potential mediator (a significant pathway “a”). Only 6 out of the 15 possible relationships were significant. Total treatment change significantly predicted Initial Internal Acute scores, Internal Acute Variability, and Change on the Stable, Internal Acute and Protective subscales, and the DRAOR total score. The second essential relationship is between the potential mediator and the outcome variable, controlling for the predictor variable (a significant pathway “b”). After controlling for Total treatment change, only two potential mediators predicted recidivism: Total DRAOR Change predicted violent convictions, and Stable Change predicted reimprisonment.³⁸ These are Models 1 and 2: presented in Figures 18 and 19.³⁹

The final regression series showed the relationship between the predictor variable (treatment change) and the outcome variables (recidivism) when controlling for the potential mediators (pathway “c’”). The standardised regression coefficient between treatment change and recidivism, controlling for the DRAOR outcome, is in parentheses in the figures. In both models, the path between treatment change and recidivism decreased when controlling for DRAOR change. In other words, accounting for change on the DRAOR during re-entry made the relationship between treatment change and recidivism weaker. In order for these changes to indicate mediation, the *decrease* must be tested for significance (Preacher & Hayes, 2004). Sobel’s *z* was not

³⁸ Similar results were found when examining the relationship between the DRAOR and recidivism without controlling for treatment change. Change on the DRAOR total score predicted violent convictions, the Initial Stable score predicted reimprisonment, and Change on the Stable subscale was bordering significance for both recidivism outcomes. Results from these logistic regression analyses are presented in Appendix G.

³⁹ The sample size for Model 1 dropped to 120 because 3 men reoffended violently before the date of their last DRAOR score within 100 days (from which the change rating was based). For Model 2, the sample size dropped to 112 men because the date of the offence that led to imprisonment was before the last DRAOR score for 11 men.

significant for either model (Model 1: $z = -1.85$, $p = .065$; Model 2: $z = -1.75$, $p = .080$), suggesting no significant indirect effect; however, both were nearing significance.

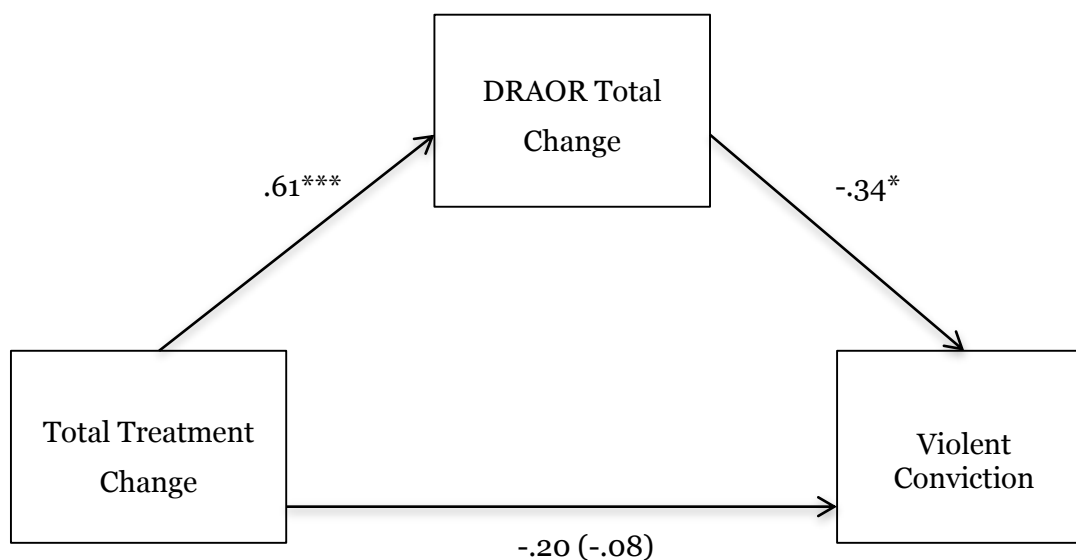


Figure 18. Model 1: the relationship between total treatment change and violent recidivism as mediated by Total DRAOR Change

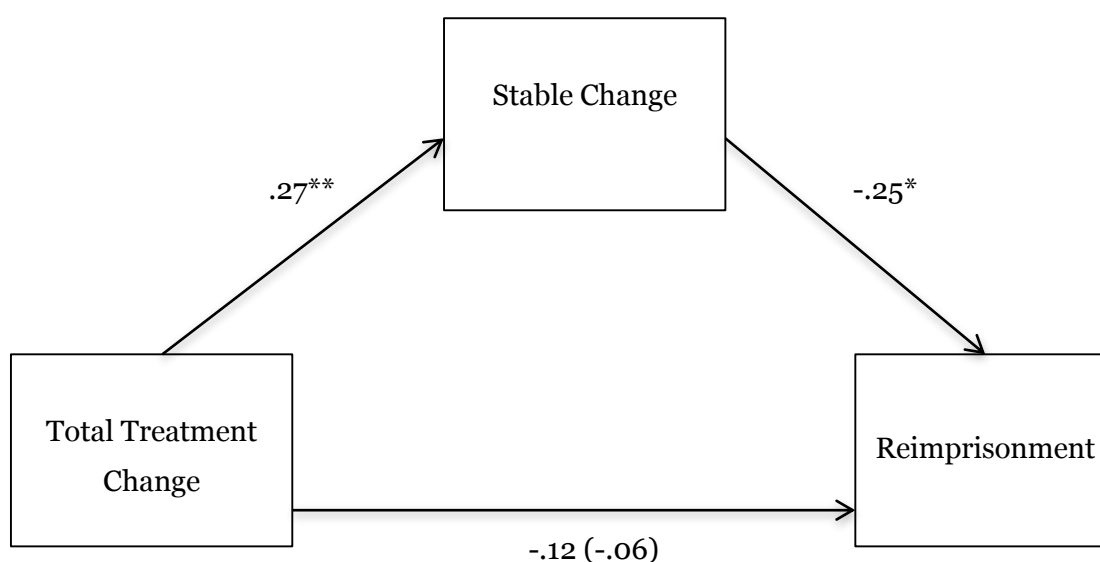


Figure 19. Model 2: the relationship between total treatment change and reimprisonment as mediated by Stable Change

6.7 Discussion

The objective of Study 4 was to investigate whether treatment change has an *indirect* relationship with recidivism through its influence on the re-entry process. Its purpose was to further explore mechanisms of change in offender rehabilitation and to test an explanation for why treatment change had no *direct* relationship with recidivism in Study 2. The first part of the results was a descriptive examination of DRAOR scores (i.e., the *intermediate* outcomes). A number of theoretically interesting findings were revealed regarding the nature of different types of factors that influence the re-entry process. First, at release, offenders had the lowest scores for Internal Acute risk factors (e.g., substance abuse, negative mood), yet these factors were the most variable during re-entry, suggesting that although Internal Acute risk factors were assessed as posing the least problem at release, they were the least stable over time. At this stage, it is unclear what the best methodology is to assess acute risk factors given the dearth of empirical research. These descriptive findings tentatively suggest that different information may be garnered by examining how these factors change over time as opposed to using one score in isolation, especially if the single assessment is made just after release.

Internal and External Acute risk factors were the most variable during re-entry and were also the factors that exhibited the most change overall. These findings suggest that acute risk factors appear to change more rapidly than stable risk factors, which is consistent with how acute risk factors are conceptualised in the literature (Hanson & Harris, 2000). However, caution needs to be taken when interpreting these findings. In their day-to-day practice, probation officers are instructed to score the acute items after every reporting session with an offender and the stable items only when an offender's circumstances change. Therefore, the findings that the acute factors were more variable might simply reflect the fact that they were scored more often. There were no significant differences between the Stable and Protective subscales on any DRAOR outcome, suggesting that offenders had similar ratings of strengths as they did stable

dynamic risk factors. The Stable and Protective subscales had equivalent variability and change during re-entry, suggesting that the stability of these items appear to be similar in nature (i.e., they represent more enduring characteristics than the acute risk factors).

The second part of the results tested the main research question of this study: Can the re-entry process explain the relationship between treatment change and recidivism? This question was exploratory; no research that we know of has examined how treatment change is related to the re-entry process. Out of the four DRAOR subscales, Internal Acute risk factors most often were related to treatment change: treatment change predicted initial scores, variability and change on the Internal Acute subscale. As outlined earlier, one important aspect of treatment is teaching offenders to recognise and manage risks in their release environment (Andrews & Bonta, 2010). In particular, offenders learn strategies to help them cope with stress and negative emotions, as well as managing their substance use. Yet the relationship between treatment change and the management of acute risk factors during re-entry has rarely been tested. The finding that treatment change predicted Internal Acute outcomes in particular suggests that our measure of treatment change may be capturing this more practical skills-based learning; it also suggests that people who make more change in treatment are better able to manage their emotionally based acute risk factors during re-entry. These findings also fit with Zamble and Quinsey's (1997) model of the recidivism process: they suggest that people who have better coping skills will be less likely to experience negative emotions.

Treatment change was also related to positive change on the Stable and Protective subscales and the DRAOR total score: men who made more change on stable dynamic risk factors in treatment also made the most change on similarly stable factors during re-entry. Whether the change offenders make during re-entry is a continuation of the progress they made in treatment or is new change is unclear, because change at the two time points was measured with different instruments. However, these findings certainly suggest that change is not over at the point of release and signals the

importance of considering what happens to change after the programme. Treatment change was not significantly related to External Acute risk factors (i.e., employment, living situation). This finding may suggest that scores on the External Acute subscale are more a product of what external resources the offender already had available to them *prior* to treatment, rather than the amount of change they made *during* treatment: a hypothesis that could be tested in future research.

Although treatment change was related to a number of intermediate outcomes, only two of these intermediate outcomes predicted recidivism (after controlling for treatment change) and were able to be tested as potential mediators: (1) change on the Stable subscale predicted reimprisonment and (2) change on the DRAOR total score predicted violent convictions. When the intermediate outcomes were examined without controlling for treatment change, a similar pattern of results was found (see Appendix G): that is, only two DRAOR outcomes significantly predicted any recidivism outcome. These findings suggest that the intermediate outcome I used to test for indirect effects had poor predictive validity. In contrast to Study 3, DRAOR scores made soon after release did not predict recidivism, nor did most of the measures of variability and net change within the first 100 days. Possible explanations for the contrasting results are the smaller sample size and shorter follow-up period in this study (i.e., in this study I examined recidivism within 1 year of release, whereas in Study 3 there was no set follow-up length). The finding that some measures of change on the DRAOR during re-entry predicted recidivism was interesting because, as discussed extensively in this thesis, there has been little empirical research finding a link between change and recidivism (i.e., identifying causal risk factors; Monahan & Skeem, 2014). This finding will be discussed further in the general discussion.

When the indirect effect (X on Y through M) for the two models above was tested, neither mediation model reached traditional criteria for statistical significance. Despite the lack of statistically significant findings, the results suggest that the re-entry process has the potential to provide important information about the way treatment

works. The mediational results tentatively suggest that treatment may lead to a reduction in recidivism through an offender not only (1) reducing his dynamic risk factors during treatment, but also (2) making more positive change on barriers and facilitators during re-entry. Thus, consistent with Göbbels and colleagues (2012) theory of the desistance process, it appears that maintaining change during re-entry is a crucial phase in the process of giving up crime. Fulfilling this phase increases the likelihood that an offender who made positive changes in treatment will successfully desist from crime after release. However, further research needs to be conducted to provide empirical support for this theory. Further theoretical implications of these findings will be considered in the general discussion.

This study was only a preliminary investigation into intermediate outcomes of treatment and there are a number of limitations. First, this study suffered from low statistical power due to the low base rates of recidivism (especially violent convictions) and a small sample size. Increasing the sample size and extending the follow-up period may result in the indirect effects reaching statistical significance. Second, the intermediate variables used in this study were a rather crude measure of the re-entry process (and were, for the most part, unrelated to recidivism). For example, there were no direct measures available of processes that map directly onto the Coping Relapse Model that Zamble and Quinsey's (1997) propose explains the recidivism process. Examining the interaction between stable and acute dynamic risk factors and the process leading up to recidivism would be of additional value. Similarly, the measure of instability I used (the standard deviation of all scores within the first 100 days) may not be fully capturing the variations in scores for offenders as they went through re-entry. For example, an offender who had the pattern of scores 2-2-0-0 would have the same standard deviation as an offender who had the scores 2-0-2-0, despite the second offender reflecting the type of instability I was hoping to measure and the first offender actually decreasing his risk. Future research should use a more sophisticated technique

to assess variability and to examine *rates* of change over time (i.e., using multi-level modelling).

This study tested an explanation for why treatment change has rarely been linked to recidivism. I posed the question: Can the re-entry process explain the relationship (or lack thereof) between treatment change and recidivism? Although the findings of this study were modest, theoretically, the answer to this question should be yes. However, further research needs to be carried out to explore the re-entry process in more detail and to fix the methodological problems outlined above. This study was only a small step towards further understanding mechanisms of change in offender rehabilitation. Nevertheless, the findings from this study have implications for theory and practice and they have led to the development of many new ideas for future research, which will be discussed next in the general discussion.

Chapter 7

General Discussion

7.1 Overview of Thesis Aims

Understanding *how* offender rehabilitation works is crucial for designing and delivering the most effective programmes. Typical outcome evaluations assess how interventions delivered between times A and B affect recidivism rates at time C. If there are significant reductions in recidivism at time C, then the programme is deemed to have been effective. Although research has established that offender rehabilitation *can* reduce recidivism rates, less research has explored what brings about these reductions (i.e., mechanisms of change). As Porporino (2010) writes, “what we know is that whatever happened between points A and B may have worked to some degree in impinging on outcomes at C”, but “we certainly don’t know with any degree of clarity why or how this may have happened” (p. 67). This thesis went some way to addressing these gaps. I set out to critique the typical approach to evaluating offender interventions and to develop a better understanding of mechanisms of change. I proposed that a reduction in recidivism should be viewed as a *long-term* outcome of treatment that is achieved by fulfilling more *immediate* and *intermediate* outcomes. These alternative outcomes—in addition to being positive effects of treatment themselves—can also be conceptualised as potential mechanisms of change that have the potential to explain why and how treatment is effective at reducing recidivism.

In exploring mechanisms of change, I was initially guided by three main research questions (adapted from Kroner & Yessine, 2013), which formed the basis of Studies 1 and 2: (1) To what extent does cognitive-behavioural treatment reduce criminal recidivism? (2) How much change occurs as a result of treatment? And (3) is treatment change related to reductions in criminal recidivism? Findings revealed empirical support for the first two questions but not the third. As a result, the second half of this thesis explored a fourth research question: (4) Can the re-entry process

explain the relationship between treatment change and recidivism? This discussion begins by briefly going over the main findings of this thesis before discussing the theoretical and practical implications of the research. Limitations of the research are then addressed and important directions for future research proposed.

7.2 Empirical Findings

7.2.1 Study 1

Study 1 examined whether New Zealand's High-Risk Special Treatment Units (HRSTUs)—treatment based on the Risk-Need-Responsivity Model (RNR) of effective interventions (Andrews & Bonta, 2010)—reduced long-term recidivism outcomes. Its purpose was to provide a starting point for exploring mechanisms of change in the remainder of the thesis; that is, first we had to determine that the programme was effective at reducing recidivism before investigating *how*. Results were consistently positive in favour of the treatment group. Relative to a comparison group, significantly fewer treatment completers were reconvicted of four recidivism outcomes, varying in severity from breaching parole to committing a serious violent offence (16 to 34% relative reductions in recidivism for the four outcomes). These results held after controlling for potential confounding variables (e.g., prison sentence length). These findings support the efficacy of RNR-based programmes for reducing long-term recidivism outcomes.

An interesting pattern of results was revealed when examining parole status as a potential mediating variable: parole status fully mediated the relationship between treatment status and three recidivism outcomes. In other words, treated offenders were significantly more likely to be released on early parole than comparison men, and being released on early parole in turn led to significantly lower rates of recidivism. Whether these findings reflect differences between the early-parole and sentence-end offenders prior to release or are due to the experiences the men have on parole is unclear, but the findings certainly suggest that parole status is an area worthy of further exploration.

7.2.2 Study 2

Study 2 explored immediate outcomes of treatment. Despite the theoretical assumptions that underlie the targeting of dynamic risk factors in treatment, few studies have found a relationship between within-treatment change and recidivism. First, using the Violence Risk Scale (VRS; Wong & Gordon, 2000), I found that men significantly reduced their dynamic risk factors for violence over the course of treatment: equivalent to a single stage shift on eight dynamic risk factors. Moreover, men who were not released immediately after the programme continued to change in a positive direction in the months following treatment: equivalent to an additional shift on two items during follow-up. This latter finding is encouraging because New Zealand prisons currently have no dedicated maintenance units in which to place treatment completers, so these men are often returned to mainstream prison environments following the programme. However, despite the progress men made during and after treatment, there was no significant relationship between treatment change and recidivism (controlling for pre-treatment scores). These results are consistent with the majority of the empirical literature (Serin, Lloyd, Helmus, Derkzen, & Luong, 2013) and suggest that change in dynamic risk factors during treatment—on its own—does not appear to be the mechanism that leads directly to a reduction in long-term recidivism outcomes.

7.2.3 Study 3

Study 3 evaluated the validity of the Dynamic Risk Assessment for Offender Re-entry (DRAOR; Serin, Mailloux, & Wilson, 2012): an instrument developed for probation officers to assist in the case management of offenders on parole. This study was included primarily so that the DRAOR could be used to further examine mechanisms of change in Study 4, but it was also interesting from a theoretical and scale development perspective. Based on scores made shortly after release, empirical examination using principal components analysis revealed four components rather than the DRAOR's original theoretically derived three-subscale structure. The main

difference between the two structures was that the acute items split themselves up among three of the new components. The four new subscales had good convergent validity, especially with other dynamic risk instruments. The Stable and Protective subscales and the DRAOR total score predicted all four recidivism outcomes, but the Internal and External Acute subscales lacked predictive ability. When the four subscales were explored simultaneously in a Cox regression, the models predicted all four recidivism outcomes; the Stable and Protective subscales each made independent contributions to at least two recidivism outcomes and incrementally predicted recidivism above existing static and dynamic risk instruments. These findings suggest that the DRAOR is a valid instrument to use with a sample of high-risk offenders.

7.2.4 Study 4

Study 4 explored intermediate outcomes of treatment. The empirically derived four-subscale DRAOR was used to investigate a possible explanation for the null results of Study 2. Using logistic mediation analyses, I tested whether treatment change had an *indirect* relationship with recidivism through its relationship to the re-entry process. Despite the re-entry period being a crucial phase in the process of desistance from crime (Göbbels, Ward, & Willis, 2012), no research that we know of has examined how treatment is related to the re-entry process. Findings from Study 4 showed that treatment change was related to positive change on the DRAOR during re-entry and was also related to initial scores and variability on the Internal Acute subscale. However, although there were a number of significant relationships between treatment change and intermediate outcomes, it was only possible to test two models for mediation because the intermediate outcomes did not predict recidivism in most cases.

The two mediational models that were tested were: (1) the indirect effect of treatment change on reimprisonment through change in the Stable subscale of the DRAOR and (2) the indirect effect of treatment change on violent convictions through change in the DRAOR total score. Offenders who made more change in treatment made more change in Stable dynamic risk factors during re-entry, and were in turn less likely

to be reimprisoned; similarly, more change in treatment was related to total change on the DRAOR, which was in turn related to lower rates of violent recidivism. Although neither indirect effect was significant, they were trending toward significance (p values were .065 and .080). These findings suggest the re-entry process is an area worthy of further exploration and that factors associated with successful re-entry have the potential to add to our understanding of mechanisms of change in offender rehabilitation.

7.3 Theoretical Implications

7.3.1 How Does Offender Rehabilitation Work?

This research has theoretical implications for the way we conceptualise how treatment programmes work (i.e., the mechanisms of change). Findings from Study 1 support the efficacy of treatment guided by the RNR principles (Andrews & Bonta, 2010). An intensive intervention that targeted high-risk offenders, focused on reducing offenders' dynamic risk factors, and that was based on cognitive-behavioural and social learning approaches significantly reduced rates of recidivism. Unpacking the *need* principle, the assumptions that underpin it are that: (1) offenders have problems, which are directly related to their criminal behaviour, (2) we have the ability to identify these problems accurately, (3) these problems will be "fixed" or at least mitigated as a result of RNR-based treatment, and (4) offenders' criminal behaviour will reduce as a result of mitigating the problems (Andrews & Bonta, 2010; Maltz, 1984). The findings from this thesis showed that offenders had a number of problems that were related to their criminal behaviour; on average, each dynamic risk factor in the VRS was given a rating of 2 at the beginning of treatment, meaning that factor was sufficiently associated with violence to be a worthwhile treatment target. The findings also showed that some of these problems were mitigated as a result of the programme. However, although I found that treated offenders' criminal behaviour reduced relative to a comparison group, it did not appear to be as a result of mitigating the problems during treatment;

there was no significant association between treatment change and recidivism. Consistent with Kroner and Yessine's (2013) study, "whereas the between-groups results provide strong support for the Risk-Need-Responsivity model...the within-person results do not" (p. 331).

What do these results mean in terms of mechanisms of change? On the face of it, the findings suggest that changes in the factors therapists identify and target in treatment are not related to an individual's likelihood of future criminal behaviour. Contrary to what is theorised in the literature, within-treatment change on dynamic risk factors does not appear to be the mechanism by which treatment works. However, rather than end with that conclusion, I explored an alternative explanation for these results. In Study 4 I found that people who made more change in treatment went on to have better experiences during the re-entry process; they made more positive change on a number of barriers (risk factors) and facilitators (protective factors) to successful re-entry. They also had fewer internal acute risk factors (e.g., negative mood) present at release and less variability in these factors over time. The mediational findings from Study 4 suggest that the mechanism through which treatment brings about reductions in long-term recidivism outcomes might be less direct than is assumed in treatment change studies. Findings showed tentative support for an *indirect* relationship between treatment change and recidivism through intermediate outcomes measured during re-entry. Thus, the mechanism by which treatment works appears to involve: (1) a reduction in dynamic risk factors during treatment, consistent with the need principle, and (2) making positive change on barriers and facilitators to re-entry, in line with the desistance literature. However, given that most of the intermediate outcomes used in Study 4 were not significantly related to recidivism, further research needs to be carried out with other samples to establish whether this theory is empirically supported.

7.3.2 The Desistance Process

The findings from this thesis have implications for theories of desistance from crime. Göbbels, Ward and Willis' (2012) Integrated Theory of Desistance from Sexual

Offending (ITDSO) proposes that offender rehabilitation is only one phase in the process of giving up crime. The next phase after rehabilitation is re-entry from prison back into the community. The authors suggest that successful re-entry is dependent on an offender maintaining a commitment to change, in spite of the challenges faced during this time. According to the model, offenders who successfully desist from crime are likely to still be actively engaged in the change process during re-entry. In Study 4, desisters (i.e., those who remained conviction free after release) made more positive change on barriers and facilitators to re-entry (the Stable subscale and DRAOR total score) than those who persisted, suggesting that desisters were indeed those offenders still actively engaged in the change process during re-entry. The process of desistance outlined in the ITDSO implies that progress in treatment on its own will not lead to desistance: maintaining a commitment to change and managing the factors that influence re-entry are equally important parts of the process. Findings from this thesis support this notion. Offenders who desisted in the follow-up period were those individuals who made significant progress in treatment *and* continued to be engaged in change during re-entry. Although the mediational models were not statistically significant possibly due to power issues (i.e., small sample size), and most of the DRAOR outcomes were unable to be tested for mediation because they lacked predictive validity, the results signal the importance of further exploration into the desistance process, particularly the phases following rehabilitation (i.e., re-entry).

These findings are also consistent with Serin and Lloyd's (2009) transitional model. The authors argue that desistance from crime is not just about the reversal or reduction of dynamic risk factors. Although they suggest that reductions in risk factors accompany the process of desistance, and that rehabilitation might initiate the transition out of crime by instilling a commitment to change, "such commitment alone is insufficient to sustain change" (Serin, Lloyd, & Hanby, 2010; p. 63). Their transitional model suggests that desistance from crime is gradual and complex and involves a constellation of internal (e.g., attitudes, motivation) and external (e.g.,

employment, interpersonal relationships) factors that influence re-entry success (Serin & Lloyd, 2009). The authors note that “institution-based rehabilitation must recognize that success can only be claimed if offenders are able to take their new skills and apply them to high-risk situations in the community and, more than that, sustain motivation to learn new skills from their community experiences” (Serin & Lloyd, 2009, p. 359). Thus, this model stresses the importance of generalising treatment gains to out-of-prison environments and applying newly-learned skills to the situations in which offenders are most at-risk of engaging in criminal behaviour. The results of this thesis confirmed that a reduction in dynamic risk factors alone is insufficient to reduce long-term recidivism rates. Therefore, to understand *how* treatment works to reduce recidivism, outcome evaluations should focus not only on the amount of change offenders make in treatment but also the extent to which they apply the skills they learned to high-risk situations after release.

7.3.3 Theories of Behaviour Change

The findings from this thesis also highlight the importance of recognising that behaviour change is a process and that the answer to the question “how does treatment work?” is more complex than a simple “change this, see a reduction in that.” The theory of behaviour change most often applied to offender populations—the Transtheoretical Model of Change (TTM; Prochaska, DiClemente, & Norcross, 1992)—assumes that behaviour change is a process of qualitatively distinct stages through which people progress. According to the TTM, behaviour change is not always linear; movement from pre-contemplation to maintenance typically involves periods of relapse back to earlier stages before permanent change is achieved (Prochaska et al., 1992). Studies that attempt to link within-treatment change to recidivism have been criticised for treating change as a static predictor. As Quinsey, Jones, Book, and Barr (2006) write, “although change in the prerelease period can be measured and related to postrelease outcome, this change is nevertheless over at the time the follow-up period begins” (p. 1540). The findings from Study 4 suggest that change is not over during the follow-up

period. Offenders made progress on a number of stable dynamic risk factors during re-entry: the types of factors targeted for change in offender rehabilitation. They also made change on other dynamic factors that influence the re-entry process: internal and external acute risk factors and protective factors (i.e., barriers and facilitators to re-entry). Evidence of post-release change fits with the explanation that change is not over at release, and that taking into account what happens to progress during re-entry might lead to a more complete understanding of the process by which offenders change their behaviour and desist from crime.

7.3.4 Dynamic Risk and Protective Factors

The research presented in this thesis revealed a number of theoretically interesting findings regarding the nature of different types of dynamic factors. In Monahan and Skeem's (2014) recent paper, they suggest that if a risk factor is amenable to change then it should be termed a *variable risk factor*. If there is also evidence that change in a risk factor changes the risk of recidivism, then it should be termed a *causal risk factor*. I found no evidence for causal risk factors in Study 2: although the dynamic risk factors in the VRS were shown to reduce significantly during treatment, change was not associated with risk of recidivism. This finding is consistent with Monahan and Skeem's (2014) review. They write, "there is rarely any demonstration that the proposed mechanism of behaviour change (i.e., reduction in the targeted risk factor) explains (i.e., causes) the reduction in recidivism" (p. 161). However, the authors also state that "provided appropriate testing, some of today's variable risk factors may become tomorrow's causal risk factors" (p. 161). Rather than saying that the dynamic risk factors in the VRS are not causal, the conclusion is that given adequate analytic testing—in this case, increasing sample size to boost the statistical power—we may well find evidence of causality.

Study 4 found that change in some dynamic factors during re-entry was associated with reductions in recidivism: change on the Stable subscale of the DRAOR predicted violent convictions and change on the combined total score of all four

subscales predicted reimprisonment (after controlling for the amount of change men made in treatment and their initial DRAOR scores). These findings are encouraging and are some of the first to show that changes in dynamic risk factors in the community predict changes in risk of recidivism. For example, in Hanson, Harris, Scott and Helmus' (2007) Dynamic Supervision Project, offenders made little change in stable dynamic risk factors during six months of supervision in the community, and changes were unrelated to recidivism. They suggested that a practical implication of these results is that "assessment of the stable variables need not occur more than yearly provided that there is no new information or change in circumstances that would justify a re-evaluation of risk" (p. 25). The current study found that change in stable dynamic risk factors within the first 100 days of release predicted recidivism, suggesting that contrary to Hanson et al.'s results, more regular assessment of stable dynamic risk factors may be warranted.

The findings from Study 3 showed that protective factors significantly predicted recidivism. In fact, they added incrementally to the prediction of recidivism over and above existing static and dynamic risk instruments. They also made unique contributions to the prediction of recidivism when pitted against the stable and acute dynamic risk factors in the DRAOR. These findings support the inclusion of protective factors in risk assessment. As yet there is little research supporting the general distinction between risk and protective factors, beyond the possible benefits of labelling that focuses practitioners more positively or negatively on the same general areas of concern. Future research should test the differing conceptualisations of protective factors, particularly with regard to their relationship to risk factors. With the DRAOR, for example, research could examine whether the relationship between stable dynamic risk factors and recidivism is mediated by protective factors. We know from Study 3 that stable dynamic risk factors have a direct positive relationship with recidivism and protective factors have a direct negative relationship with recidivism. Therefore, we could easily test whether risk factors have an indirect relationship with recidivism via

protective factors (i.e., test whether the direct relationship reduces when taking into account protective factors; Ullrich & Coid, 2011). Research could also test the “buffer” model by examining the relationship between risk and recidivism at varying levels of protective factors.

Another theoretically interesting finding that came out of Study 3 was the distinction between internal and external acute risk factors. Although the original DRAOR had one acute subscale, the majority of the acute items split into two subscales when examined empirically: one that reflected internal characteristics of the offender (e.g., negative mood) and another that reflected external factors (e.g., employment). This distinction between internal and external factors is mirrored in the desistance literature and is also in line with Zamble and Quinsey’s (1997) research into the recidivism process. Both the desistance literature (e.g., LeBel, Burnett, Maruna, & Bushway, 2008) and Zamble and Quinsey’s Coping Relapse Model stress the importance of the *interplay* between internal and external factors. For example, Zamble and Quinsey suggest that recidivism may initially be triggered by environmentally based acute risk factors (e.g., loss of a job), but that these external factors often lead to a second series of internal responses (e.g., stress, negative mood). In the current research, neither the internal nor external acute risk factors were predictive of recidivism (at release and during re-entry). In Study 3, only the External Acute subscale predicted any recidivism outcome (reimprisonment). Future research should establish with a longitudinal design the interplay between the two sets of acute factors (i.e., does one precede the other) and their relationship to recidivism and desistance. Further analyses using the DRAOR outcomes from Study 4 with a larger sample will be a first step to teasing apart the interaction between internal and external acute risk factors.

Labelling the DRAOR subscales as “stable” or “acute” in both the original and new structures may be premature because there is currently no empirical research testing the nature of the different factors. Descriptive data from Study 4 tentatively

suggests that the factors labelled as acute do in fact change more rapidly than those labelled as stable. The Internal and External Acute subscales had significantly more variability and exhibited more net change during re-entry than either the Stable or Protective subscales. However, future research should use more sophisticated statistical analyses to test the distinctions—if any—that exist between stable and acute dynamic risk factors. For example, *rates* of change over time should be investigated using multi-level modelling or growth curve analysis; we are currently experimenting with both of these techniques. Using a more sophisticated measure of variability should also be an area of future research. For example, rather than calculating the standard deviation of an offender's scores, research could count how many times their scores change (i.e., go up or down), which would more accurately capture instability than the standard deviation. The relative predictive validity of initial scores and those more proximal to outcome should also be examined. As mentioned in the discussion of Study 3, our research team has recently found that the DRAOR score most proximal to recidivism is more predictive than the initial score at the start of a community-based sentence (Scanlan, 2014). Future research should also examine whether different methods are better for assessing stable versus acute dynamic risk factors (i.e., perhaps an average score is more predictive for the stable factors and a measure of variability for the acute factors).

7.4 Practical Implications

7.4.1 Therapist Ratings of Within-Treatment Change

What do the results mean for practice? Seto (2003) wrote that because of therapists' close involvement with treatment participants, they might be vulnerable to biases when assessing their clients' progress. He suggested measures of treatment change might be less influenced by these biases if people who are not involved in the treatment process rate them. Some research using the VRS and VRS-SO has shown that researcher ratings of treatment change are predictive of recidivism (Lewis, Olver, &

Wong 2013; Olver, Wong, Nicholaichuk, & Gordon, 2007). However, in practice, using a rater removed from the treatment process is not always feasible, especially given the stretched resources of many correctional agencies. Although the results of Study 2 showed that therapists' ratings of change were not directly related to recidivism, Study 4 found that their ratings predicted a number of re-entry outcomes that have been shown to influence the process of desistance from crime (although in this study, most of the DRAOR outcomes were not related to recidivism). Thus, therapists are providing valuable information regarding who will best be able to manage the barriers and facilitators to re-entry. Because therapists are the people who usually rate their client's progress in practice, more attention should be given to assessing the predictive validity of clinician ratings of change and improving their accuracy (ideas for future research are outlined in the next section).

7.4.2 Maintaining Change During Re-entry

Findings from this thesis signal the importance of the re-entry process for maintaining treatment gains. Offenders who were most engaged in the change process during re-entry (i.e., who made more change on the Stable subscale and DRAOR total score) were those who were most likely to continue to desist from crime. According to Göbbels et al.'s (2012) ITDSO, during the re-entry phase, offenders should ideally be in the Action stage of change. However, in the current sample, men were only nearing the Preparation stage of change at release, on average. The current reality is that we expect treatment completers will work—largely on their own—to continue to improve their behaviour following treatment, while at the same time generalising their progress to out-of-treatment environments that may be similar to those in which they lived prior to treatment. Lack of attention to change generalisation and maintenance is common in offender rehabilitation. Reviewing the literature on maintenance programmes for offenders, Day and Casey (2010) found that few evaluations of offender interventions report on whether follow-up sessions were offered and no studies have examined the independent effects of follow-up or maintenance programmes, despite the “widespread

acceptance that follow-up or maintenance sessions are an important part of the change process” (p. 449). Because men in this thesis were only nearing the Preparation stage of change at release, and those who were reconvicted after release made less change on the DRAOR during re-entry than those who were not reconvicted, maintenance programmes in the community may be able to assist offenders in solidifying their treatment gains. There are currently no formal maintenance programmes available for HRSTU completers after their release from prison.

7.5 Limitations and Ideas for Future Research

7.5.1 Lack of a Comparison Group

One limitation of Studies 2 and 4 is that I did not include a comparison group who were measured on the same variables over a similar period of time. As a result, it is unclear whether the programme caused the change in the risk factors as opposed to some other variable, such as repeated assessment or regression to the mean (Monahan & Skeem, 2014; Nunes, Babchishin, & Cortoni, 2011). This caveat also means we are unable to determine whether changes made in treatment caused the reduction in recidivism, because we do not have a comparison group to examine this relationship in the absence of treatment (Olver, Kingston, Nicholaichuk, & Wong, 2014). This limitation is not specific to the current thesis alone; most research that investigates treatment change does not include an untreated control group as a comparison. Future research should include a comparison group at all stages (i.e., during treatment and re-entry) to determine if what we assume to be treatment effects is actually brought about by the programme. We currently have some research underway comparing a treatment and comparison group of offenders—the two samples from Study 1—on barriers and facilitators influencing the re-entry process (i.e., DRAOR scores). Tentative results suggest that treated offenders leave prison with lower risk and more protective factors present than comparison offenders and show less variability on some factors—particularly the internal acute risk factors—during re-entry.

7.5.2 Methodological and Statistical Issues

Firstly, Study 1 was not a randomised controlled trial (RCT). The literature suggests that RCTs are the most methodologically rigorous approach to treatment evaluations (Rice & Harris, 2003). Because this type of design was not possible in the current research, we used a quasi-experimental approach. The treatment and comparison samples for Study 1 were recruited based only on a few criteria: high static risk, aged over 19, on a sentence of at least 2 years and released onto some form of community supervision. Nevertheless, despite no a priori matching, the two groups were equivalent on most variables we measured, including those that were not part of the criteria for selection into the study but that were likely to be related to outcome (e.g., prior criminal convictions). Future research should take a more methodologically rigorous approach to matching the samples, such as propensity matching, and collect similar data for both groups (i.e., a measure of change for the comparison group).

Secondly, in Study 2 I used therapist-rated VRS scores, both prior to and following treatment. The development of third- and fourth-generation risk assessment tools has removed much of the subjective nature from clinician evaluations (Mills, Kroner, & Morgan, 2011); however, there is still the potential for clinician bias when using these tools (Seto, 2003). Although I checked the accuracy of therapists' scoring (i.e., whether the rating matched the evidence given), there may still have been biases on the part of the therapist that I was unable to measure (i.e., at the stage of information gathering). Therapists may be more inclined to record positive aspects of their client's behaviour as opposed to negative aspects because they might be "biased toward seeing and demonstrating the positive effects of their efforts" (Nunes et al., 2011; p. 170). Future research should further investigate the reliability of clinician ratings of change. This research would have practical value given that therapists are the people who rate offenders' progress in practice and who often make recommendations based on their assessments (e.g., to the Parole Board). Clinicians' ratings of change could be compared with impartial researchers' to determine whether the two

assessments converge; or, alternatively, the convergent validity of clinician-rated and self-reported change could be explored.

Relatedly, there were some potential reliability issues with the VRS item scores in this sample. Contrary to prior research using the VRS with a New Zealand sample of high-risk offenders (Dickson, Casey, & Polaschek, 2013), VRS scores themselves lacked predictive ability for the treatment sample in Study 2; the VRS pre-treatment static scale only predicted reimprisonment and the VRS pre-treatment dynamic scale only predicted violent convictions. These findings suggest that the instrument is not accurately capturing risk of reoffending for these men. However, in Study 3 using a combined sample of comparison and treated men, VRS scores were predictive of all four recidivism outcomes. Study 3 and Dickson et al.'s (2013) research used VRS scores just prior to release, so it may be the case that the predictive validity would increase if we used more up-to-date scores. However, I analysed the predictive validity of pre-release VRS scores for the Study 2 sample (not reported here) and found that scores just prior to release had similarly poor predictive validity as the pre-treatment scores. We plan to repeat the treatment change study using a larger sample of offenders and a longer follow-up period; with any luck, the predictive validity of the VRS will increase with more statistical power.

One final source of potential limitation with the VRS lies in the way that the Preparation stage of change is defined. Prisoners who exhibit a high frequency of problematic behaviour and occasional signs of improvement, and those who show a high rate of new, more pro-social or adaptive behaviour with occasional forays into old habits receive the same "preparation" rating. Such differences are, of course, very difficult to quantify reliably with any method other than extensive behavioural observation. Nevertheless, this distinction is a clinically relevant one that the instrument is not sensitive to. Future research could analyse the behavioural changes directly or split Preparation into "early" or "late" to establish whether there is an empirical distinction between the two stages.

A major limitation of Studies 3 and 4 is the lack of inter-rater reliability data for the DRAOR. Establishing whether two independent raters reach the same conclusion is an important step in the development of any scale. As yet, no inter-rater reliability data are available for the DRAOR. In the current thesis, I was unable to calculate inter-rater reliability given the reliance on file information and the use of ratings scored by probation officers in routine practice. Future research should establish whether the DRAOR can be reliably scored. Poor inter-rater reliability may provide an explanation for the instrument's poor predictive validity in Study 4.

Another potential measurement issue relates to the sample used in this thesis: high-risk male offenders. Although these individuals are the types of offenders who should be targeted for interventions (Andrews & Bonta, 2010), limiting the sample to high-risk male offenders naturally means the results are not representative of the wider general offender population. Furthermore, limiting the sample to high-risk offenders constrains the amount of variability in the predictor variables (i.e., the VRS and DRAOR, which are both risk instruments), which could explain the small effect sizes in the current study. For example, in the DRAOR validation study (Study 3), AUCs for the DRAOR subscales and total score predicting recidivism were all considered to be small effects. Previous research using a more representative sample of offenders on parole has found larger effect sizes (Hanby, 2013). Furthermore, in Study 4 most of the DRAOR outcomes did not predict recidivism, which limited the number of indirect effects we were able to test. Future research should continue to validate the instruments used in this thesis with both New Zealand and international samples of offenders varying in risk level.

A final methodological issue to note is the way that I defined and measured change. Subtracting one score from another does not provide any information regarding rates of change or fluctuations in change that may occur during a follow-up period. In fact, one of the major shortcomings of the literature on offender rehabilitation is the lack of longitudinal research examining processes of change over

time. Rarely do studies measure dynamic risk factors more than twice (e.g., before and after treatment). Future research should conduct longitudinal designs with multiple assessment points and use more sophisticated statistical techniques to examine rates of change over time, such as growth curve analysis or multi-level modelling approaches. These approaches are more likely to capture the full process of offender change than a net change score.

7.5.3 Clinically Significant Change

This thesis measured statistically significant change as an immediate outcome of treatment, which is consistent with the majority of the treatment change literature. However, statistically significant change is “not sensitive to the presence of dysfunction post-treatment” (Nunes et al., 2011, p. 158). That is, it does not tell us whether an offender’s problems were “fixed” by the end of treatment. Clinically significant change, on the other hand, indicates whether an offender is in the “normal” range of a measure at post-treatment. Future research could combine approaches—statistical and clinical significance—to determine whether (1) the amount of change is statistically significant, and (2) the problem dissipated by the end of treatment (Nunes et al., 2011). One method for determining clinical significance was developed by Jacobson, Follette and Revenstorf (1984). This approach involves defining cutoff scores to determine what is a functional or dysfunctional score and then examining the amount of change to confirm that the improvement is not likely attributable to chance (i.e., it is statistically reliable). Of course, distinguishing between functional and dysfunctional scores would involve norming the instrument on a functional group (i.e., a community sample); to our knowledge, such norms are not available for the VRS or DRAOR instruments.

7.5.5 Other Ideas for Future Research

Future research could explore situational and environmental factors, both within prison and in the community, and examine the interaction between these variables and immediate and intermediate outcomes. There has been a recent interest in prison climate and the interaction between climate and therapeutic change. One

study found that positive ratings of prison climate were significantly associated with pro-social change in dynamic risk factors (Woessner & Schwedler, 2014). Future research should explore the kinds of environments that foster change. For example, therapeutic communities have recently been incorporated into prison-based rehabilitation programmes; however, the additive benefits of a therapeutic community above RNR-based treatment models has yet to be shown (Whitehead, 2014). Similarly, more exploration into the environments into which offenders are released could provide valuable information regarding their chances of re-entry success. Identifying the situational variables that lead to better outcomes has the potential to increase our understanding of how treatment works and why it does not work for some offenders.

As I alluded to previously in the general discussion, future research should examine the extent to which probation officers are assisting treatment completers in maintaining their treatment gains. Anecdotal evidence in relation to our Parole Project suggests there is often a disconnection between what happens in prison (e.g., rehabilitation) and probation officers' work with offenders on parole. Probation officers often have little knowledge about the particular changes an offender made in treatment, and as a result, are ill equipped to assist in change generalisation and maintenance. Linking what goes on in prison with re-entry and parole—that is, taking a whole-of-sentence approach—could increase the effectiveness of treatment and assist those offenders who are struggling to maintain their treatment gains in a less structured environment.

A wider investigation into the effectiveness of parole should also be an area of future research. Serin and Lloyd's (2009) model of the re-entry process proposes that probation officers can be an effective *external* agent of change and have the potential to contribute to re-entry success. In Study 1 I found that offenders who were released on early parole had significantly better outcomes than offenders released at the end of their sentence. Offenders released early serve the remainder of their sentence on parole plus an additional six months past their sentence-end-date; offenders released at the

end of their sentence, on the other hand, are only on parole for a mandatory six-month period. If the better outcomes of early-release parolees were caused by the experiences men had on parole (i.e., more contact with their probation officer, access to interventions), then it might be possible to increase the effectiveness of parole supervision for those offenders released at the end of their sentence. Or, alternatively, it may suggest that releasing offenders early so that they have more access to interventions and a longer period of time on supervision, may lead to better outcomes.

The VRS does not include protective factors, except in the form of low scores on risk factors. Increasing an offender's protective factors may account for some of relationship between treatment and reduced recidivism: a hypothesis that should be explored in future research. In fact, the findings from this thesis suggest that a larger focus on protective factors in treatment might be warranted. Incorporating these factors into treatment has the potential to increase the motivation of offenders, and enhance engagement with the treatment process, thereby "giving people reason to want to engage in desistance and change not just the capacities to do so" (Polaschek, 2012, p. 8). Additional analyses not reported here found that treated men came out of prison with more protective factors than the comparison men, suggesting that RNR-based treatment might already be increasing these desistance-related factors. A direct examination of the effect treatment has on protective factors should be conducted. However, because no empirical research has established whether protective factors are any different in nature to risk factors, we may find that targeting protective factors in treatment is no different than targeting risk factors. For example, if treatment aims to decrease the risk factor emotional instability, is the subsequent increased emotional stability not a protective factor? If treatment aims to improve the quality of intimate relationships (a risk factors in the VRS), is that not also increasing the protective factor of social support?

Lastly, in this thesis I used the term desistance interchangeably with not being convicted of an offence. As Maruna, LeBel, Mitchell, and Naples (2004) suggested, in

theory, desistance can be thought of simply as abstinence from offending. However, in practice, they argue that it is far more difficult to distinguish true desisters—offenders who cease crime for good—from offenders going through offence-free periods, given that “what looks like desistance at time *X*, might appear like a mere lull from the vantage point of time *Y*” (Maruna et al., 2004, p. 272). The authors suggest there may be two phases in the process of desistance: primary desistance, which is any lull or crime free gap, and secondary desistance, which is long-term abstinence from offending where the ex-offender takes up the role or identity of a “changed person” (p. 274). Future research should pay more attention to offender agency and the measurement of secondary desistance; that is, measuring success rather than just the absence of failure.

7.6 Summary

This thesis was an exploration into possible mechanisms of change in the rehabilitation of high-risk offenders. I investigated the long-term recidivism outcomes of treatment and then explored two alternative treatment outcomes or possible mechanisms of change: immediate and intermediate outcomes. Although some previous research has examined the relationship between within-treatment change and recidivism, no research that we know of has examined the additional influence of intermediate outcomes: factors that influence the process of offender re-entry. Thus, this part of the research was particularly novel. The findings from this thesis have a number of important implications for the way we conceptualise how treatment programmes work. In particular, they highlight the importance of considering intervening variables (e.g., the re-entry process) for understanding how treatment brings about reductions in recidivism and facilitates desistance from crime. Developing a greater understanding of *how* offender rehabilitation works will lead to the design and delivery of more effective programmes.

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Appendix A

Dynamic Risk Assessment for Offender Re-entry Item Descriptions

Stable Risk Factors

Peer Associations. Contact with antisocial associates has been identified as one of the strongest correlates of criminal behaviour (one of Andrews and Bonta's "Big Four", 2010). Associating with criminal peers provides an opportunity for the role modelling and reinforcement of criminal behaviour, and facilitates the acquisition of antisocial values and attitudes. An offender who associates with antisocial others and who is relatively isolated from prosocial others has been found to have an increased risk of engaging in violent and other criminal behaviour (Gendreau, Little, & Goggin, 1996). Association with criminal peers is included in numerous risk assessment tools, including the Violence Risk Scale (VRS; Wong & Gordon, 2000) and the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995). This item of the DRAOR taps into the nature and frequency of peer associations. If an offender has frequent contact with antisocial peers or is an active member of a criminal gang, peer associations is given a score of 2; if an offender has contact with only prosocial peers, a score of 0 is given. If an offender has a mixture of both prosocial and antisocial peer associations a score of 1 should be considered.

Attitude Towards Authority. This item is also captured in Andrews and Bonta's (2010) "Big Four" predictors of criminal behaviour (in the factor "antisocial cognition"). Antisocial cognition includes attitudes, values, beliefs, rationalisations and a personal identity favourable to crime. Indicators for this factor include identification with criminals and holding a negative attitude toward the law. Procriminal attitudes and values have been demonstrated to be predictive of future violent and general criminal behaviour (Harris, Rice, & Quinsey, 1993). A negative attitude towards authority is included as a dynamic risk factor in the VRS (Wong & Gordon, 2000) and a similar item is included in the STABLE-2007 in terms of the offender's cooperation

with supervision (Hanson, Harris, Scott, & Helmus, 2007). In the DRAOR, this item refers to an offender's attitude towards others, especially those in authority. An offender with an antagonistic attitude towards authority would receive a score of 2 on this item, while those who are open to the guidance or direction of authority figures would score a 0.

Impulse Control. Impulsivity refers to an individual's inability to regulate or disinhibit a dominant response, and is commonly reflected in poorly planned and rapidly executed behaviour (i.e., "act now and think later"). Poor impulse control has been identified as a contributor to the development and maintenance of antisocial behaviour (Andrews & Bonta, 2010) and has been found to increase risk for general, violent, and sexual offending (Andrews, Bonta & Wormith, 2006). Impulsivity is included in the VRS as a dynamic risk factor for violence (Wong & Gordon, 2000), and the STABLE-2007 considers impulsivity to be a stable risk factor for sexual offenders (Hanson et al., 2007). To score a 2 on impulse control, an offender must demonstrate poor self-regulation, including the tendency to act in the 'spur of the moment' and a failure to consider the consequences of his actions. In contrast, an offender who is reflective, able to make decisions independently and who self-monitors would score a 0 on this item (Serin, Mailloux, & Wilson, 2012).

Problem-solving. Deficits in an individual's ability to effectively solve problems have been identified as a risk factor for criminal behaviour (Zamble & Quinsey, 1997). Deficits in problem solving include issues with information gathering, developing alternative solutions to a problem, and evaluating outcomes. Poor problem solving skills is included as a stable risk factor for sexual offenders in the STABLE-2007 (Hanson et al., 2007). In rating this item, if an offender demonstrates logic in arriving at a decision, an ability to clarify a problem, considers a range of responses, weighs the opinion of others, and considers the consequences of these strategies before implementing a solution, a score of 0 is given (Serin et al., 2012). If an offender does

not consider the consequences or demonstrates an inability to effectively problem-solve, they score a 2.

Sense of Entitlement. Entitlement refers to an individual's inflated sense of self worth. An offender's elevated sense of entitlement often includes the belief that they are different from other offenders, that they are a 'victim' of the system, and that their rights are more important than others. A sense of entitlement is associated with other criminal cognitions (Walters & White, 1989), and has been demonstrated to correlate with general and violent recidivism (Mills, Kroner, & Hemmati, 2004). To score a 2 on this item, an offender would show evidence of entitlement across time and setting, including making inappropriate requests of their probation officer and ignoring personal and professional boundaries (Serin et al., 2012). A score of 0 would suggest an offender has a realistic recognition of their limitations.

Attachment With Others. This item considers the extent to which an offender is callous and indifferent towards others. Other aspects of this item include whether the offender finds it difficult to confide in others and displays shallow or flat emotions. These characteristics form part of the construct of psychopathy, which is a strong predictor of future violent, sexual and general recidivism (Hemphill, Hare, & Wong, 1998). Parts of this item are also captured in the STABLE-2007 (i.e., a lack of concern for others; Hanson et al., 2007) and the VRS (i.e., callous and unemotional traits; Wong & Gordon, 2000). An offender who is indifferent to the feelings of others, who is unable to attend to the emotional consequences of their actions, or who identifies as a 'loner' would score a 2 on this item. An offender who scores highly on this item would also typically engage in brief, superficial interpersonal relationships.

Acute Risk Factors

Substance Abuse. Substance abuse is strongly related to criminal behaviour and is included as one the "Central Eight" risk factors (Andrews & Bonta, 2010). A history of abusing alcohol and drugs is included in a number of risk assessment tools, including the VRS (Wong & Gordon, 2000) and the LSI-R (Andrews & Bonta, 1995).

Although a history of substance abuse is often considered to be a stable dynamic risk factor, intoxication and the use of substances can change rapidly and has been included in the ACUTE-2007 as an acute risk factor (Hanson et al., 2007). For this item, ratings are based on recent behaviour and significant patterns of substance abuse. Incidences of problematic substance use (e.g., polysubstance use) or other risky behaviour (e.g., selling drugs, withdrawal from methadone) warrants a score of 2, while maintenance of sobriety/avoidance of drugs is given a score of 0.

Anger/Hostility. This item captures the extent to which an offender displays anger (in the form of emotional volatility) and hostility (in the form of antagonism towards others). Hostile beliefs are thought to disinhibit and reduce self-regulation and problem-solving skills (Serin et al., 2012), predisposing an offender to a negative outcome. Anger and hostility is reflected in the VRS (Wong & Gordon, 2000) and both the ACUTE-2007 and STABLE-2007 (Hanson et al., 2007). Evidence to rate this item includes an offender exhibiting an unfriendly way of engaging the world, being sensitive to slights, being callous and rude, and easily irritated and frustrated. An offender would score a 2 on this item if they currently have a marked presence of anger or hostility.

Opportunity/Access to Victims. If an offender has a preferred victim or pattern of victim selection, opportunity or access to them increases their risk of re-offending. It is thought that access to victims or opportunities for crime can act to destabilise an offender and increase the likelihood of criminal behaviour. An example of this item includes a domestic abuser being in an intimate relationship. Opportunity for victim access is included in the ACUTE-2007 for sexual offenders (Hanson et al., 2007). This item is scored as a risk factor if the offender has contact with a victim or if the potential for contact exists. Consideration is given to the most relevant and most likely risk scenarios for the offender to identify both potential victims and opportunities that may arise. Avoidance of preferred or past victims is scored a 0.

Negative Mood. Negative mood (e.g., depression, anxiety, hopelessness) has been identified in a number of studies as a precursor to criminal behaviour (Hanson & Harris, 2000; Lindsay et al., 2004). Negative mood may be caused by heightened levels of stress, and in reaction to environmental triggers (e.g., loss of a job; Zamble & Quinsey, 1997). Negative emotionality is included as a stable risk factor in the STABLE-2007 (Hanson et al., 2007). For this rating, both acute negative mood (e.g., anxiety as evidenced by hyper arousal or the offender appearing tense, jumpy or restless) and the continued presence of negative mood (e.g., ongoing depression) are scored as a 2.

Employment. Lack of employment has been identified as a factor that contributes to parole failure. It is also included in the “Central Eight” predictors of criminal behaviour in terms of problems in school and/or work (Andrews & Bonta, 2010). Employment is included in a number of risk assessment tools, including the LSI-R (Andrews & Bonta, 1995). For this item, unemployment is scored as a 2, while maintaining a job that matches an offender’s skills and expectations is scored as a 0. If an offender is participating in training or study towards employment or if they are between jobs but making efforts to secure work, a score of 1 is given.

Interpersonal Relationships. This item captures whether an offender is in an unstable and unhealthy close or intimate relationship, which may be marked by violence and intimidation. This relationship can be with either a close family member (e.g., parent) or an intimate partner. Poor family and marital relationships are included as one of the “Central Eight” risk factors for criminal behaviour (Andrews & Bonta, 2010). Instability of interpersonal relationships is also included as a risk factor in the VRS (Wong & Gordon, 2000) and the LSI-R (Andrews & Bonta, 1995). A score of 2 is given if there is evidence an offender has an unstable or conflicted relationship, while a stable relationship would be scored as a 0. Included in this item is any evidence that the relationship is not effective in managing risk (e.g., an offender is controlling their partner or they are estranged from their support).

Living Situation. Lifestyle instability is a significant predictor of reoffending and other negative outcomes (Andrews & Bonta, 2010). Lack of stable accommodation and homelessness has been linked to negative re-entry outcomes (Baldry, McDonnell, Maplestone, & Pieters, 2006). Offenders with an unstable living situation or lack of accommodation would receive a score of 2. An offender who is in a stable and suitable living situation would be scored as a 0. Considerations when rating this item include whether the accommodation is close to victim(s), employment, support, and whether it is the same place they lived prior to their index offence.

Protective Factors

Responsive to Advice. This item considers the extent to which an offender is willing to listen to the advice and guidance of positive influences (e.g., prosocial peers, probation officers). Research suggests that offenders who are resistant towards advice may not be ready to change (Prochaska, DiClemente, & Norcross, 1992). For this item, offenders who conscientiously follow direction from positive influences are scored a 2, while offenders who are resistant to advice are scored a 0. It is important to base the rating on more than evidence of the offender listening to and acting in agreement with staff; responsiveness to advice needs to be shown behaviourally.

Prosocial Identity. Re-alignment with prosocial values and differentiating oneself from criminal others is related to desistance from crime (Maruna, 2001). It has been suggested that desisters undergo a series of cognitive transformation processes, whereby criminal behaviour becomes inconsistent with their new prosocial identity (Giordano, Cernkovich, & Rudolph, 2002). Prosocial involvement is a protective factor against violence for youth in the SAVRY (Borum, Bartel, & Forth, 2006). For this item, an offender who has legitimately shifted their identity to being prosocial would score a 2. Evidence of behaviour change might include the offender leaving a criminal gang or participating in family or community activities (e.g., volunteer work).

High Expectations. This item captures the extent to which offenders themselves and their support network encourage and have high expectations regarding

parole/re-entry success. This item also picks up on whether the support network provides the offender with hope. Having unrealistic expectations for life after release has shown to predict parole failure (Bucklen & Zajac, 2009); therefore, it is important that the expectations be reasonable and that there is a plan in place for achieving goals. A similar item called life goals is included as a protective factors in the SAPROF (de Vogel, de Ruiter, Bouman, & de Vries Robbé, 2007), in which the offender has goals that provide meaning and that will lead to positive life fulfilment. If an offender has a high level of encouragement, engagement, and commitment by a support network and has high expectations of their own success, a score of 2 is given.

Costs/Benefits. This item considers whether an offender recognises that the costs of engaging in criminal behaviour outweigh the benefits. Evidence for this item would be an offender ceasing contact with antisocial peers because he does not want to risk losing his new job or relationship. An offender who recognises that prosocial behaviour is more important and rewarding than criminal before would score a 2 on this item.

Social Support. Research has shown that having stable and prosocial support provides protection against engaging in criminal behaviour, including violence (Ullrich & Coid, 2011). Social support can come in the form of a partner, family, employment, and leisure activities (e.g., sports team). Social support is included in a number of measures of protective factors, including the SAPROF (de Vogel et al., 2007), the START (Webster, Martin, Brink, Nicholls, & Middleton, 2004), and the SAVRY (Borum et al., 2006). This item considers the availability of a support network and the overall quality of it. Offenders who have meaningful and accessible prosocial supports would score a 2 on this item. It is important to keep in mind that the size of the support network is less important than its quality.

Social Control. Social control considers the extent to which an offender is appropriately influenced by prosocial models and is attached to his support. An increase in informal social controls and structured routine activities has been linked to

desistance from crime (Sampson & Laub, 1993). Strong attachment and bonds is included as a protective factor against violence for adolescents in the SAVRY (Borum et al., 2006). In scoring this item, if an offender has strong internalised bonds with prosocial models and accepts the advice of his support network, a score of 2 is given.

Appendix B

Information Sheet and Consent Form for Parole Project Data Collection

Prisoner Parole Study
Information sheet for men taking part in the study

You are invited to take part in research led by Dr Devon Polaschek, Associate Professor of Psychology, at Victoria University of Wellington. The overall research project is expected to take 3 to 4 years. As men come up for release, we will be interviewing them and then catching up with them again in the community to see how they are doing. The aim of the research is to help the Department of Corrections with their rehabilitation and reintegration programmes for high risk men, so that more men succeed on parole.

If you agree to take part today, we will take you through a series of questions covering several different areas. We will ask you for your opinions about your time in prison, your goals and plans for your life once you are released, and what challenges you expect to face. We have quite a lot of questions. Depending on how much you have to say, this interview could take anything from one to three hours, but we can take breaks whenever you need them. We will be writing down your answers on paper, but not recording them in any other way. At the end of the interview, we have some brief questionnaires we also would like you to fill out. We can help you with those if you like, or you can do them on your own.

Dr Polaschek is a registered clinical psychologist, and because she is overseeing this project, she and the other members of the research team are required to follow strict rules about ethical practice in doing this research. This project also has the approval of the Victoria University of Wellington School of Psychology's Human Ethics Committee. The project is independent of the Department of Corrections. Any information you provide is confidential to the Victoria University research team. It will have no effect on how you are treated here in prison or on parole.

We will not talk to anyone outside of the research team about what you say. No information you provide will be given to anyone from the Department of Corrections. The only exception is if you say something to us that indicates that you or someone else is at immediate risk of serious harm. Then we will have to break confidentiality if there is someone we could tell who could help prevent that harm happening.

If you agree to take part, then after the interview we will also invite one of the prison staff to give his or her opinion of how you have been doing in the unit. We will not reveal any information you have given us today, when we talk to custody staff. It is just *their* opinions we are asking them about.

We do not think that participating in this will be harmful to you in any way. In fact we think you might find it interesting. However, if you agree to take part, and then you change your mind later, you can just tell us that, and you will not have to continue the interview. If you *do* change your mind, we will ask you if you are still OK about us keeping the information you have provided up to that point, to help us in revising the interview questions. If you request we do so, we will destroy any information you have provided.

Otherwise, if you agree to take part in the interview today, we will keep the notes we take on your answers in a locked cupboard in Dr Polaschek's lab at Victoria University. The notes will not have your name on them, only an identifying number. Your consent form, which does contain your name, will be kept in a separate locked cupboard.

When we are finished the interview and the questionnaires, we will ask you whether you would be comfortable having us contact you in the first two months after you get out, to take part in the next phase of the study. That part is still being developed at the moment.

Finally, if after taking part in the session today, you have any other questions or concerns about the project, you are welcome to contact Devon Polaschek or Rebecca Bell (the project administrator) using the contact details listed below.

Devon Polaschek, Associate Professor
School of Psychology
Victoria University of Wellington
P O Box 600
Wellington 6140

Rebecca Bell
School of Psychology
Victoria University of Wellington
P O Box 600
Wellington 6140



Prisoner Parole Study
Consent form for men taking part in the study

I have read/heard the information about this research and any questions I wanted to ask have been answered to my satisfaction.

I understand that the project is independent of the Department of Corrections and will not affect how I am treated in prison or on parole.

I agree to participate in this research. I understand that I can change my mind and stop taking part at any time. If I do change my mind, the information I have provided up until then can be destroyed or kept in the project; it's my choice.

Name:	
Signature:	
Unit:	
Date:	_____/_____/_____

Appendix C

Absolute Reductions in Reimprisonment for Programmes Delivered by the New Zealand Department of Corrections

	Reimprisonment within 1 year		
	2011-12	2012-13	2013-14
High-Risk Special Treatment Unit	-2.5	-12.9*	-11.9*
Child Sex Offender Programme	-3.7	-6.8*	-5.6*
Dependency Treatment Unit	-6.4	-3.6	-1.2
Medium Intensity Rehabilitation Programme	0	-3.8*	-4.9*
Short Motivational Programme	-7.0	-4.5	-3.8
Release to Work	-8.1	-3.2	-1.4

Note. No data regarding statistical significance was available for the year 2011-12. The figures in the table represent absolute reductions in rates of reimprisonment for treated offenders compared to matched comparison offenders.

* $p < .05$.

Appendix D

Violence Risk Scale Score Sheet

Name: _____

Client #: _____

Pre-Treatment Rater: _____

Pre-Treatment Rating Date: _____

Post-Treatment Rater: _____

Post-Treatment Date: _____

VRS Score Sheet ©**Static Variables**

					<u>I or N</u>
S1	Current Age	0	1	2	3
S2	Age at First Violent Conviction	0	1	2	3
S3	Number of Young Offender Convictions	0	1	2	3
S4	Violence throughout Lifespan	0	1	2	3
S5	Prior Release Failures/Escapes	0	1	2	3
S6	Stability of Family Upbringing	0	1	2	3

Total Static Variable Score before Treatment: _____

Total Static Variable Score after Treatment: _____
 (only if there are changes to S1 or S5)

If it is necessary to omit rating a Static or Dynamic Variable, the rater should indicate whether the omission is because there is insufficient information (I) or because the item is not applicable (N).

FOR STAGE OF CHANGE:

P/C = Pre-contemplation/Contemplation

P = Preparation

A = Action

M = Maintenance

Use these symbols to indicate the Stage of Change:**O** = Pre-treatment**X** = Post-treatment**# of Stages changed:**

no change = 0

1 stage = .5

2 stages = 1.0

3 stages = 1.5

DYNAMIC VARIABLES AND TOTAL SCORES

		Pre-Tx (a)				Stage of Change				# of Stages Changed x.5 (b)				Post-Tx (a-b)		I or N	
D1	Violent Lifestyle	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D2	Criminal Personality	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D3	Criminal Attitudes	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D4	Work Ethic	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D5	Criminal Peers	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D6	Interpersonal Aggression	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D7	Emotional Control	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D8	Viol. During Institutionalisation	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D9	Weapon Use	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D10	Insight into Violence	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D11	Mental Disorder	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D12	Substance Abuse	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D13	Stability of Relationships	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D14	Community Support	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D15	Released to High Risk Situations	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D16	Violence Cycle	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D17	Impulsivity	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D18	Cognitive Distortion	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D19	Compliance with Supervision	0	1	2	3	P/C	P	A	M	1.5	1	.5	0				
D20	Security Level of Release Inst.	0	1	2	3	0	1	2	3	1.5	1	.5	0				
						← Total Dynamic Variable Score →											
						← Total Static Variable Score →											
						← T. Static + T. Dynamic Variable Score →											

Appendix E1

Factor Loadings for DRAOR PCA 1-Component Solution With Orthogonal Rotation

DRAOR Item	Component 1
P3 High expectations	-.68
P2 Prosocial identity	-.66
P6 Social control	-.66
S4 Problem solving	.65
P1 Responsiveness to advice	-.65
S2 Attitudes towards authority	.63
P5 Social support	-.62
S3 Impulse control	.61
S5 Entitlement	.61
P4 Costs/benefits	-.60
S6 Attachment with others	.55
S1 Peer associations	.52
A3 Opportunity/access to victims	.44
A7 Living situation	.43
A1 Substance abuse	.39
A4 Negative mood	.34
A5 Employment	.33
A6 Interpersonal relationships	.31
A2 Anger/hostility	.26

Note. Loadings of .4 or above are highlighted in bold.

Appendix E2

Factor Loadings for DRAOR PCA 2-Component Solution With Orthogonal Rotation

DRAOR Item	Component 1	Component 2
P3 High expectations	.75	-.09
P2 Prosocial identity	.75	-.07
P6 Social control	.74	-.07
P5 Social support	.65	-.13
P4 Costs/benefits	.65	-.10
P1 Responsiveness to advice	.65	-.19
S6 Attachment with others	-.53	.19
S3 Impulse control	-.54	.42
A6 Interpersonal relationships	-.25	.17
A4 Negative mood	.01	.64
A2 Anger/hostility	.08	.59
A1 Substance abuse	-.10	.57
A3 Opportunity/access to victims	-.17	.54
S4 Problem solving	-.47	.47
A7 Living situation	-.21	.46
S2 Attitudes towards authority	-.45	.46
S5 Entitlement	-.43	.45
S1 Peer associations	-.35	.42
A5 Employment	-.22	.27

Note. Loadings of .4 or above are highlighted in bold.

Appendix E3

Factor Loadings for DRAOR PCA 3-Component Solution With Orthogonal Rotation

DRAOR Item	Component 1	Component 2	Component 3
P3 High expectations	.73	-.21	-.08
P6 Social control	.72	-.16	-.11
P2 Prosocial identity	.71	-.26	.02
P5 Social support	.66	.00	-.39
P4 Costs/benefits	.61	-.26	.00
P1 Responsiveness to advice	.60	-.31	-.09
S6 Attachment with others	-.52	.11	.31
S4 Problem Solving	-.34	.65	.04
S2 Attitudes towards authority	-.32	.65	.04
S5 Entitlement	-.30	.62	.05
S3 Impulse control	-.34	.56	.08
A3 Opportunity/access to victims	-.07	.53	.23
S1 Peer associations	-.24	.52	.11
A2 Anger/hostility	.19	.48	.32
A7 Living situation	-.19	.10	.67
A4 Negative mood	.08	.30	.64
A6 Interpersonal relationships	-.30	-.18	.59
A1 Substance abuse	-.02	.36	.48
A5 Employment	-.18	.20	.24

Note. Loadings of .4 or above are highlighted in bold.

Appendix F

Means, Standard Deviations and Range for DRAOR Item Scores

	Initial	Variability	Change
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
<u>Stable Subscale</u>			
Peer Associations	1.35 (.53)	.12 (.20)	-.01 (.51)
Attitudes Toward Authority	.91 (.67)	.13 (.21)	.13 (.50)
Impulse Control	1.27 (.50)	.11 (.20)	-.02 (.51)
Problem Solving	1.12 (.52)	.11 (.20)	.02 (.51)
Entitlement	1.13 (.62)	.09 (.18)	.00 (.41)
Opportunity/Access to Victims	.94 (.58)	.09 (.18)	.02 (.41)
<u>Internal Acute Subscale</u>			
Substance Abuse	.62 (.58)	.24 (.24)	.24 (.74)
Anger/Hostility	.30 (.51)	.24 (.25)	.20 (.72)
Negative Mood	.34 (.56)	.22 (.25)	.14 (.62)
<u>External Acute Subscale</u>			
Interpersonal Relationships	1.04 (.52)	.12 (.21)	.10 (.50)
Living Situation	.48 (.59)	.18 (.26)	.06 (.62)
Employment	1.56 (.68)	.20 (.30)	.16 (.66)
Attachment with Others	.90 (.53)	.07 (.16)	.11 (.40)
<u>Protective Subscale</u>			
Responsiveness to Advice	1.00 (.46)	.10 (.18)	-.07 (.44)
Prosocial Identity	.89 (.48)	.09 (.18)	-.08 (.46)
High Expectations	1.15 (.51)	.09 (.19)	-.10 (.43)
Costs/Benefits	1.15 (.55)	.10 (.19)	-.10 (.47)
Social Support	1.11 (.48)	.10 (.18)	-.14 (.45)
Social Control	.86 (.47)	.08 (.17)	-.04 (.41)

Appendix G

Logistic Regression of DRAOR Outcomes Predicting Recidivism at 12 Months

DRAOR Outcome	Violent Conviction				Reimprisonment			
	B (SE)	Wald (df=1)	Odds Ratio	95% CI	B (SE)	Wald (df=1)	Odds Ratio	95% CI
<u>Initial</u>								
Stable	.08 (.11)	.51	1.084	[.87, 1.36]	.25 (.09)	7.27**	1.290	[1.07, 1.55]
Internal Acute	.05 (.21)	.06	1.054	[.70, 1.58]	.02 (.16)	.01	1.015	[.74, 1.39]
External Acute	-.02 (.19)	.01	.980	[.67, 1.43]	.24 (.15)	2.52	1.274	[.95, 1.72]
Protective	-.18 (.13)	1.87	.838	[.65, 1.08]	.01 (.10)	.01	1.011	[.83, 1.23]
DRAOR Total	.05 (.05)	.88	1.051	[.95, 1.17]	.07 (.04)	2.92	1.075	[.99, 1.17]
<u>Variability</u>								
Stable	-.29 (2.58)	.01	.752	[.01, 118]	2.07 (1.97)	1.10	7.890	[.17, 374]
Internal Acute	1.60 (1.50)	1.13	.288	[.26, 93.24]	2.01 (1.19)	2.87	7.435	[.73, 75.85]
External Acute	-2.05 (2.33)	.77	.129	[.00, 12.40]	1.43 (1.59)	.81	4.172	[.19, 93.90]
Protective	1.11 (2.39)	.22	3.046	[.03, 332]	1.66 (1.87)	.78	5.231	[.13, 205]
DRAOR Total	.77 (3.16)	.06	2.167	[.00, 1060]	4.13 (2.51)	2.72	62.26	[.46, 8469]
<u>Change ^a</u>								
Stable	-.32 (.16)	3.70	.729	[.53, 1.01]	-.26 (.14)	3.66	.773	[.59, 1.01]
Internal Acute	-.21 (.22)	.92	.811	[.53, 1.25]	-.29 (.18)	2.68	.747	[.53, 1.06]
External Acute	-.57 (.30)	3.63	.567	[.32, 1.02]	.05 (.22)	.06	1.054	[.68, 1.63]
Protective	.23 (.17)	1.90	1.260	[.91, 1.75]	.01 (.13)	.00	1.008	[.78, 1.30]
DRAOR Total	-.14 (.07)	4.44*	.866	[.76, .99]	-.07 (.05)	1.93	.929	[.84, 1.03]

** $p < .01$ * $p < .05$ ^a For the analyses where net change was the predictor variable, Initial DRAOR scores were controlled for.