Violent Offenders’ Within-Treatment Change in Dynamic Risk and Protective Factors: Associations with Violent Recidivism

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ABSTRACT

This thesis is about violent offender treatment and, specifically, how to understand and measure the changes that take place over the course of treatment and the role that protective factors play in risk prediction and treatment planning. Two separate literature reviews of current knowledge about dynamic risk and protective factors are presented, which are followed by two empirical studies that explore the association between dynamic risk and protective factors and whether change in these variables predicts post-treatment recidivism. Both studies utilised data from files relating to 201 adult male violent offenders who had completed a Violence Intervention Program at one of the State government-operated prisons in Victoria, Australia. The offenders were followed-up for an average 6.86 years (SD = 2.28) and had fairly high rates of violent (53.2%) recidivism (including new charges). A selection of risk and protection measures were scored retrospectively, including the Violence Risk Scale (VRS), the Historical-Clinical-Risk Management-20 version 3 (HCR-20v3), and the Structured Assessment of Protective Factors for Violence Risk (SAPROF). The Gain Scale of the Treatment Readiness, Responsivity, and Gain Scale: Short Version (TRRG:SV) was also employed to examine its use in capturing treatment-related changes or gains.

Analysis of the data revealed that pre- to post-treatment change scores on the VRS and HCR-20v3 indicated that significant reductions in risk had occurred as a consequence of treatment; however, the amount of treatment-related change did not predict future violence. When time at risk was considered, the TRRG:SV Gain scale scores did predict violent reoffending. SAPROF scores, although inversely related to VRS and HCR-20v3 scores, neither appeared to capture treatment targets common to violent offender treatment, nor added to the predictive validity of the HCR-20v3. Furthermore, changes on the SAPROF over the course of treatment did not predict violent reoffending.

Taken together, these results do not provide evidence that treatment-related changes in dynamic risk and protective factors translate into reductions in violent recidivism. Furthermore, contrary to previous research, there was no empirical support for the predictive, incremental, and conceptual validity of the SAPROF when used with incarcerated violent offenders. Overall, the results of this thesis suggest that more work is required to incorporate change-related information into violent offender risk.
assessment and to understand the role that protective factors play in mitigating risk and promoting behavioural change.
ACKNOWLEDGEMENTS

This thesis is dedicated to my beautiful mum, Jenny.

“If ever there is a tomorrow when we’re not together, there is something you must always remember. You are braver than you believe, stronger than you seem, and smarter than you think” – A.A. Milne, Winnie the Pooh

The completion of this thesis would not have been possible without the assistance of a number of people, to whom I would like to express my deepest gratitude. First, a heartfelt thank you to my supervisors, Professor Michael Daffern, Professor Andrew Day, and Dr. Caleb Lloyd. Thank you all for your generosity of time and knowledge. Your guidance, support, mentorship, and expertise have been invaluable, and I consider myself extremely fortunate to have had the opportunity to learn from each of you. Thank you to the teams at Corrections Victoria, the Department of Justice and Regulation, and Victoria Police who provided the data examined within this research. I also wish to thank Dr. Daniel Shea, who not only assisted with the data collection process, but also generously gave up his spare time to help me with the statistical analyses undertaken as part of this research.

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the strongest person I know, my best friend, and my inspiration. We have certainly faced many challenges throughout this degree, and there have been times (particularly toward the end) when I wanted to quit to be by your side. However, you have always been my biggest cheerleader, encouraging me to achieve my goals and finish what I started. I love you more than words can describe.
CANDIDATE DECLARATION

In accordance with Swinburne University of Technology regulations, the following declaration is made:

I, Gabrielle Klepfisz, hereby declare that this thesis contains no material which has been accepted for the award to the candidate of any other degree or diploma, except where due reference is made in the text of the examinable outcome. To the best of my knowledge this thesis contains no material previously published or written by another person, except where due reference is made in the text of the examinable outcome. Where the work is based on joint research or publications, the thesis discloses the relative contributions of the respective workers or authors.

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As the candidate, I bore principal responsibility for the ideas, research design, implementation, and writing of this thesis, under the supervision of Professor Michael Daffern, Professor Andrew Day, and Dr. Caleb Lloyd. In completing this thesis, I worked with the Centre for Forensic Behavioural Science and the School of Health Sciences, Swinburne University of Technology.

______________________________
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<tr>
<th>Acronym</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AUC</td>
<td>Area Under the Curve</td>
</tr>
<tr>
<td>CRN</td>
<td>Criminal Record Number</td>
</tr>
<tr>
<td>CSC</td>
<td>Clinically Significant Change</td>
</tr>
<tr>
<td>CVIMS</td>
<td>Corrections Victoria Intervention Management System</td>
</tr>
<tr>
<td>DRFs</td>
<td>Dynamic Risk Factors</td>
</tr>
<tr>
<td>EDD</td>
<td>Aggregate End Date / Sentence Expiry Date</td>
</tr>
<tr>
<td>EED</td>
<td>Earliest Eligibility Date</td>
</tr>
<tr>
<td>EFA</td>
<td>Exploratory Factor Analysis</td>
</tr>
<tr>
<td>HCR-20/v3</td>
<td>Historical-Clinical-Risk Management-20 version 3</td>
</tr>
<tr>
<td>HIVIP</td>
<td>High Intensity Violence Intervention Program</td>
</tr>
<tr>
<td>ICC</td>
<td>Intraclass Correlation Coefficient</td>
</tr>
<tr>
<td>JAID</td>
<td>Justice Accused Identifier</td>
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<tr>
<td>KMO</td>
<td>Kaiser Meier Olkin</td>
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<tr>
<td>LEAP</td>
<td>Law Enforcement Assistance Protocol</td>
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<tr>
<td>MIVIP</td>
<td>Moderate Intensity Violence Intervention Program</td>
</tr>
<tr>
<td>NPV</td>
<td>Negative Predictive Value</td>
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<tr>
<td>OBPs</td>
<td>Offending Behaviour Programs</td>
</tr>
<tr>
<td>OPB</td>
<td>Offence Paralleling Behaviour</td>
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<td>PAB</td>
<td>Prosocial Alternative Behaviour</td>
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<td>PIMS</td>
<td>Prisoner Information Management System</td>
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<td>PPV</td>
<td>Positive Predictive Value</td>
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<td>PSD</td>
<td>Presentencing Days</td>
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<td>RCI</td>
<td>Reliable Change Index</td>
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<td>RCZ</td>
<td>Residual Change Score</td>
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<tr>
<td>ROC</td>
<td>Receiver Operating Characteristic</td>
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<tr>
<td>RNR</td>
<td>Risk, Need, Responsivity</td>
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<tr>
<td>SAPROF</td>
<td>Structured Assessment of Protective Factors for Violence Risk</td>
</tr>
<tr>
<td>SPJ</td>
<td>Structured Professional Judgment</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>SVO</td>
<td>Serious Violent Offender</td>
</tr>
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<td>TRRRG:SV</td>
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<td>VIP</td>
<td>Violence Intervention Program</td>
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<td>VRS</td>
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Terminology

From the outset, it is important to define key terminology used throughout this thesis. *Violence* is operationally defined as actual, attempted or threatened infliction of bodily harm on another person, where bodily harm refers to physical and serious psychological harm (Douglas, Hart, Webster, & Belfrage, 2013). The act, attempt, or threat must, to some degree, have been deliberate; that is, acts of violence must be intended to cause bodily harm or else were so reckless as to cause bodily harm (that is, the person ought reasonably to have known that there was a substantial likelihood of harm) (Douglas et al., 2013). *Violent offences* are defined as violent crimes against the person that contravene the legal code, such as homicide-related offences, various assault offences, robbery, kidnapping, arson, and threats of violence (Australian Institute of Criminology, 2012; Wong & Gordon, 2006). For the purposes of this thesis, violent offences are distinct from self-directed violence (i.e. which people inflict upon themselves) and collective violence (i.e. instrumental violence perpetrated by groups such as nation states, militia groups, and terrorist organisations to achieve political, economic, or social objectives) (World Health Organization [WHO], 2014).

The term *violent offender* is used to describe an individual who perpetrates violent offences against another person. Offenders whose principal offence involves sexual violence are presumed to have specialist or additional treatment needs, and thus are excluded from the term violent offender as used in this thesis (although the author acknowledges that often the boundaries between categories of offences are not clear-cut and some offenders commit both violent and sexual offences).

In Australia, the term *prison* refers to both prisons and jails (which are usually considered distinct institutions in North America). *Recidivism* is a term used in the criminal justice literature to refer to repetitious criminal activity or reoffending (Payne, 2007). Although defining recidivism seems relatively straightforward, definitions differ with each methodological approach (Payne, 2007). In the current thesis, *violent recidivism* is defined as any new charge for a violent offence after release from prison; that is, any new charge laid by the police for actual, attempted, or threatened infliction of bodily harm of another person (Douglas et al., 2013). Finally, in a criminal justice context, *rehabilitation* is synonymous with treatment, and refers to programs that facilitate offenders to act prosocially and in accordance with the law (Heseltine, Day, & Sarre, 2011).
LIST OF PUBLICATIONS

This thesis is based on the following manuscripts, which were either published or under review at the time of submission:

**Chapter 2**  
Published by Taylor and Francis, available at http://www.tandfonline.com

**Chapter 3**  
Published by Elsevier, available at https://www.elsevier.com

**Chapter 6**  

**Chapter 7**  
CHAPTER ONE: ORIENTATION TO THE THESIS

“Violence pervades the lives of many people around the world and touches all of us in some way” (Brundtland, 2002, p. x)

1.1 Background

Over 1.3 million people die each year as a direct consequence of violence, with many more suffering from physical injuries and a range of negative behavioural, cognitive, and mental health sequelae that follow exposure to violence (WHO, 2014). Not only can violence inflict tremendous suffering on those directly (e.g., victims) and indirectly affected (e.g., the victim’s family) but, on a broader scale, also translates into an enormous economic burden; costing billions of dollars annually in the form of health care and treatment, legal and justice system costs, and reduced or lost productivity (WHO, 2010).

Given the enormous social and economic consequences of violence, correctional administrations worldwide have devoted substantial attention and resources to violent offender rehabilitation (Andrews & Bonta, 2010). In Australia, the most common offences for sentenced prisoners are acts intended to cause injury (23%), with nearly 8% of all sentenced prisoners committing acts of homicide (Australian Bureau of Statistics, 2016). The argument for rehabilitation is, in part, based on evidence that violent offenders are at a particular risk of recidivism (both violent and nonviolent), compared to any other group of offenders (Dowden, Blanchette, & Serin, 1999). Accordingly, the primary goal of violent offender rehabilitation is a reduction in (or elimination of) violent reoffending, with recidivism commonly used as the main indicator of treatment success (Jung & Gulayets, 2011). Researchers have typically employed statistical methods that compare the recidivism rates of treatment completers with those of non-completers or matched comparison groups. The rationale for this approach is that if a treatment program is efficacious, then treatment completers should be expected to reoffend at a lower rate than those who did not complete treatment (Bowen, 2012; Klepfisz, O'Brien, & Daffern, 2014). However, this approach has been criticised for ignoring the mechanisms through which treatment leads to change (i.e., ‘black box’ evaluation); more specifically, this approach to outcome evaluation is insufficient when trying to understand how treatment brings about change and for whom change occurs (Bowen, 2012).

There are other challenges that arise when recidivism is used as the sole
indicator of treatment effectiveness (Klepfisz et al., 2014). Firstly, since recidivism is considered a ‘distal’ outcome, which is not measured immediately following treatment completion, various non-treatment-related factors\(^1\) can impact reoffending rates (Klepfisz et al., 2014). Indeed, it is unclear whether changes which begin in treatment, actually persist after treatment in prison and into the community. Secondly, when evaluating treatment effectiveness, the use of official (e.g., police) records to gauge recidivism rates may introduce an important confound (Hanson, 1997). On the one hand, this may obscure positive treatment effects since events that occur post-treatment have the potential to destabilise the person and contribute to the commission of violence. On the other hand, when recidivism is used as a proxy or marker for treatment progress, it has the potential to overestimate positive treatment effects. This may occur in two ways. First, positive changes that occur post-treatment are presumably ignored, and thus attributed to treatment completion. Furthermore, many violent acts are never reported, and thus official estimates may not capture all violent crimes that occur; ostensibly, this may give the false impression that individuals have either ceased offending or are reoffending at lower rates than before treatment. For this reason, the present thesis examines reoffending in the form of charges rather than convictions.

1.2 Assessment of Change in Dynamic Risk Factors

The underlying logic of violent offender treatment is that violence arises in the context of the activation and influence of dynamic risk factors. It follows then that the assessment of change in dynamic risk factors should be important to the prediction of violent reoffending. Since the 1980s there has been extensive international interest in identifying dynamic risk factors (or criminogenic needs) that, when targeted in treatment, may be reasonably expected to reduce recidivism. Researchers have identified a number of promising dynamic risk factors for violence (for example, criminal attitudes, impulsivity, negative affectivity, and substance abuse) and several contemporary violence risk assessment instruments (e.g., the Violence Risk Scale and the Historical-Clinical-Risk Management-20) have been developed to appraise these factors. However, very few studies have been able to demonstrate that change in

\(^1\) including antisocial influences in the prison neighbourhood, whether or not the individual has gained meaningful and legitimate employment, and whether or not they have access to stable housing (Jung & Gulayets, 2011).
dynamic risk factors predicts violent recidivism, thus raising questions about whether dynamic risk factors are measurable and whether change in dynamic risk represents a plausible mechanism for behavioural change (Polaschek, Yesberg, Bell, Casey, & Dickson, 2015).

Related to this is a burgeoning interest in the role that protective factors play in the desistance process. For example, in their examination of offence analogue and offence reduction behaviours, Mooney and Daffern (2013) argued that most of the behaviours that are associated with reduced violence are those indicative of the use or acquisition of prosocial skills. This position is supported by the findings of recent research, which has demonstrated that increases in (or the development of) protective factors during treatment significantly predicts violent reoffending (de Vries Robbé, de Vogel, Douglas, & Nijman, 2015). As a result, specialised assessment tools have been developed, such as the Structured Assessment of Protective Factors for Violence Risk (de Vogel, de Ruiter, Bouman, & de Vries Robbé, 2012), which aims to identify whether changes in these positive areas facilitate the prediction of future violence. The value of doing so, however, is not yet clear (Monahan & Skeem, 2016) and limited scientific evidence exists for the inclusion of specific violence protective factors (de Vogel et al., 2012). In addition, the extant literature is imbued with inconsistencies in the way in which protective factors are defined and conceptualised (Klepfisz, Daffern, & Day, 2017).

1.3 Thesis Objective and Research Aims

In summary, there is a lack of consensus regarding how progress in violent offender treatment should be measured and the changes that need to occur to reduce reoffending (Baliousis, Huband, Duggan, McCarthy, & Völlm, 2015). As will be discussed throughout this thesis, this uncertainty is potentially linked to conceptual, definitional, and measurement issues in regard to key constructs, including dynamic risk and protective factors. In light of this, the overarching purpose of this thesis is to facilitate a better understanding of how forensic practitioners who work within a correctional environment can assess violence risk and violence protective factors and incorporate treatment change-related information on these variables into violence risk assessment. To this end, the present thesis is underpinned by three research aims, described below. A more detailed account of the specific research questions and
hypotheses addressed in this thesis is provided in *Chapter Four* and within each of the empirical chapters.

### 1.3.1 Research aim one.

The first research aim is to review the constructs of dynamic risk and protective factors, how they are currently conceptualised, defined, and measured, and how protective factors relate to dynamic risk factors for violence. This thesis addresses this aim in two ways. Firstly, it systematically reviews the existing psychological literature on both dynamic risk (Review Paper 1 – *Chapter Two*) and protective factors (Review Paper 2 – *Chapter Three*). Secondly, it reports the findings of an empirical investigation into the relationship between conceptually similar risk and protective factors to investigate whether they assess a singular latent construct (Empirical Study 2 – *Chapter Seven*).

### 1.3.2 Research aim two.

Ostensibly, uncertainty remains regarding how violent offender rehabilitation programs work. The rationale for current programs relies on the premise that if treatment is effective in changing those dynamic factors that underlie violent behaviour, then reductions in violent recidivism should be observed. Limited research, however, has directly examined the association between within-treatment changes in dynamic risk and protective factors and recidivism, particularly among incarcerated violent offenders. Accordingly, the second aim of the thesis is to conduct an empirical test of current program logic (i.e. that treatment-related changes from pre- to post-treatment will predict reoffending at follow-up). This is addressed through a critical review of contemporary approaches to measuring intra-individual treatment change among violent offenders, considering whether changes are ‘reliable’ and/or ‘clinically significant’ (*Chapter Five*). The empirical study then investigates the relationship between treatment-related changes on measures of dynamic risk and protective factors and violent recidivism (Empirical Study One – *Chapter Six*).

### 1.3.3 Research aim three.

Finally, this thesis aims to investigate whether, as theorised, there any substantive benefits from assessing protective factors for violence in addition to assessing risk factors. In order to address this aim, Empirical Study 1 (*Chapter Six*)
assesses the extent to which augmenting violence risk assessment with an assessment of protective factors adds incrementally to the prediction of violent reoffending in a correctional sample. Furthermore, consideration is given to the extent to which a commonly used protective factor instrument captures important treatment-related activities among violent offenders and, thus, whether it adds value to the assessment of treatment-related changes (Empirical Study 2 – Chapter Seven).

1.4 Thesis Structure

This thesis comprises eight chapters, including two manuscripts that have been published and two manuscripts that are currently under review in peer-reviewed journals. There is some overlap between the content included across the chapters, although attempts have been made to minimise any duplication of information. The two review papers and two empirical papers represent an original contribution to the field that, when considered collectively, serve to address the three overarching research aims presented in Section 1.3 above. To orient the reader to how each chapter relates to the preceding work, a brief preamble precedes each of the manuscripts. Australian English spelling is used throughout the thesis, except in the second review paper and the two empirical papers which conform to American spelling guidelines, consistent with journal formatting requirements. The sections below describe how the current thesis is organised.

1.4.1 Part I: Literature review.

Chapter Two of this thesis elaborates on the concept of ‘dynamic risk’ factors associated with future violence. The literature review critically examines how dynamic risk factors are conceptualised, and whether dynamic risk factors incorporated within two contemporary violence risk assessment instruments meet specific criteria to be considered truly ‘dynamic’. Gaps in the theoretical literature are identified, with the aim of highlighting current uncertainty surrounding how dynamic risk factors interact with other psychological mechanisms to culminate in violence. Directions for future research are provided, highlighting a need to consider how dynamic risk factors, which when targeted in treatment, are related to behaviour change.

Chapter Three provides a conceptual overview of what are commonly referred to as ‘protective’ factors; that is, those factors that purportedly act in the opposite way
to dynamic risk factors and have a positive impact on reducing violence. Conflicting operationalisations of protective factors are examined, highlighting the current lack of consensus regarding how protective factors should be defined and relatedly, how they should be measured. Considerations for clinical practice are discussed, and the need for further theoretical work is emphasised.

Chapter Four begins with a discussion of the limitations and gaps that currently exist within the violent offender literature. It describes the rationale for the current thesis and discusses the specific research questions and hypotheses associated with each of the empirical studies.

1.4.2 Part II: Methodology.

Chapter Five details the research methodology utilised to conduct the current research. It begins with a brief overview of the research design and sample selection and provides a description of Corrections Victoria’s Violence Intervention Programs (VIPs). The data collection procedure is then described, including an overview of the various sources of data used for this research and how the data were matched. The measures used in the research are presented and the data analytic approach is explained. Finally, a discussion of several ethical considerations relevant to the thesis is provided.

1.4.3 Part III: Empirical papers.

Chapter Six presents the first empirical paper, which utilises existing measures capable of detecting treatment change to explore whether changes in risk and/or protective factors are associated with reduced violence. The incremental predictive validity of protective factor assessment over and above risk factor assessment is also investigated. Important considerations for violence risk assessment are also discussed including whether there is benefit posed by using more than one measure to assess violence risk, when is the best time to administer violence risk assessments, and whether specific scales, which have been designed to evaluate an individual’s gains in treatment, can predict post-treatment reoffending.

Chapter Seven presents the second empirical paper, which focuses on the relationship between risk and protective factors. Specifically, using an exploratory factor analysis (EFA) approach, this paper seeks to determine whether conceptually similar risk and protective items load onto the same factor, and thus whether these risk
and protective factors appear to be assessing a singular latent construct. Furthermore, this paper aims to explore whether the factors produced in the EFA reflect areas of treatment need that are commonly targeted in violent offender treatment programs.

1.4.4 Part IV: Discussion.

*Chapter Eight* integrates the results of the two review papers and two empirical studies and it discusses these results with respect to the three overarching research aims outlined in this chapter. It reviews several important limitations of the present research and considers the potential implications of the main results. The chapter closes with suggested directions for continued research and some concluding remarks. Following this chapter, a list of references cited throughout this thesis and appendices are provided.
PART I: LITERATURE REVIEW
CHAPTER TWO: UNDERSTANDING DYNAMIC RISK FACTORS FOR VIOLENCE

2.1 Preamble

As discussed in Chapter One, violent behaviour is believed to arise due to the influence and activation of dynamic risk factors, and there is growing consensus that reductions in violent recidivism are achieved when reductions in dynamic risk factors occur. In other words, the presumed mechanism that underlies effective violent offender treatment is purported to be a reduction in dynamic risk factors that cause and maintain violent behaviour (Andrews & Bonta, 2010; Yesberg, 2015). As Ward and Fortune (2016) argue, many people regard dynamic risk factors as possessing satisfactory epistemic and program credentials. However, in recent years, there have been concerns about the conceptual status of dynamic risk, and whether dynamic risk factors can adequately inform correctional policy, research and practice. It is in this context that the current paper arises.

This chapter presents the first published paper, a critical literature review of current knowledge about dynamic risk factors associated with future violence (Research Aim One). It provides a critical overview of how dynamic risk factors are defined and conceptualised, and the evidence that exists to demonstrate their utility in predicting violent behaviour and informing treatment. Risk-related theoretical issues are considered, with the aim of highlighting the need for further work which integrates applied violence risk assessment with an understanding of etiological processes that culminate in violence.

This literature review, titled ‘Understanding Dynamic Risk Factors for Violence’ has been published in Psychology, Crime & Law. The Author Indication Form detailing the nature and extent of the candidate and co-authors’ contributions to this published paper is included in Appendix I. The article is presented below in its published form (for copyright permissions, refer to Appendix II). The complete citation is as follows:

Understanding dynamic risk factors for violence

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\textbf{ABSTRACT}

Recent years have seen a consensus emerge regarding the dynamic risk factors that are associated with future violence. These risk factors are now routinely assessed in structured violence risk assessment instruments. They provide a focus for treatment in structured group programmes. However, relatively little attention has been paid to risk-related theoretical issues, whether these dynamic risk factors are causally related or simply correlates of violent offending, or the extent to which they change as a consequence of treatment. More challenging is the lack of evidence to suggest that changes in these dynamic risk factors actually result in reductions in violent offending. In this paper we consider the meaning of the term dynamic risk, arguing that only those factors that, when changed, reduce the likelihood of violent recidivism, can be considered to be truly dynamic. We conclude that few of the violence risk factors commonly regarded as dynamic fulfil this requirement. There is a need to think more critically about assessment findings and treatment recommendations relating to dynamic risk, and conduct research that establishes, rather than assumes, that certain dynamic risk factors are directly related to violence. Some suggestions for advancing knowledge and practice are provided.

Assessing the potential for future violence is an everyday activity for many forensic mental health professionals. Although this may appear to involve the simple identification of those factors that are associated with violent behaviour, the multifaceted, multiply determined, and multifunctional nature of violence (Anderson & Bushman, 2002; Daffern, Howells, & Ogloff, 2007; Douglas & Skeem, 2005) presents many challenges. The aim of this paper is to critique current knowledge about a key area of violence risk assessment, the identification of what are commonly known as \textit{dynamic risk factors}. We provide a critical overview of how dynamic risk factors are defined, and the evidence that exists to demonstrate their utility in both predicting violent behaviour and informing treatment. We then discuss some of the limitations of current knowledge and offer suggestions for advancing practice in this area.
What are dynamic risk factors?

Modern conceptualisations of dynamic risk factors can be traced back to Andrews’ (1989) suggestion that practitioners and researchers should seek to identify the characteristics of prisoners and their circumstances that might be subject to change during a sentence, considering which of these might reasonably be expected to increase or reduce recidivism. Andrews referred to these changeable, active, and dynamic factors as criminogenic needs and, over 25 years later, our core understanding of dynamic risk remains essentially unchanged, although increasingly subject to critique and reformulation (Douglas & Skeem, 2005; Ward, 2015a). Andrews’ suggestion was notable in a historical context in which assessments of risk were often based on unstructured clinical judgement or restricted to the appraisal of a small number of static historical factors, such as an offender’s age or number of previous offences. Although these factors statistically predict future violent offending, they are, by definition, immutable (Jones, Brown, & Zamble, 2010) and, as such, they are likely to be of limited value in guiding treatment or assessing change in risk over time. As McNaughton Nicholls and Webster (2014) have subsequently observed, the identification of dynamic risk factors can help to establish reasonable targets for interventions that reduce the likelihood of violent re-offending, establish whether meaningful progress is being made against set treatment targets, and inform the choice of appropriate risk management strategies. Indeed, one of the main reasons to consider dynamic risk is in relation to the suggestion that interventions are most effective when they change those factors that are most closely related to violence (Andrews & Bonta, 2010). Implicit in this idea is that risk is imminent and greatest when dynamic risk factors are active (e.g. for an individual whose alcohol use increases their violence propensity, violence risk would be imminent and heightened when the individual is intoxicated).

How are dynamic risk factors conceptualised?

Inherent in most conceptualisations of dynamic risk is a distinction between risk status and risk state. Risk status refers to inter-individual differences in risk level, which are largely based on static factors that are invariant over time (Blanchard, 2013). An individual’s risk status tells us about both his or her level of baseline risk and the required intensity of intervention. Conversely, risk state refers to the risk level of a particular individual at a particular time, taking into account biological, psychological, social, and situational variables (Douglas & Skeem, 2005). It has been suggested that risk state factors can be meaningfully grouped into two categories based on the extent to which they are changeable: stable dynamic risk state factors (e.g. normative beliefs supportive of violence) are learned behaviours and personal skills, deficits, or self-management styles that are not expected to change over months or years; acute dynamic risk state factors (e.g. angry mood) can change rapidly, within minutes, hours, or days (Hanson & Harris, 2001; Hanson, Harris, Scott, & Helmus, 2007; Hendry, 2013).

Douglas and Skeem (2005) suggest that for a risk factor to be considered ‘dynamic’ it must possess three components: it must be an antecedent to, and increase the propensity for, violence; it must be able to change spontaneously or as a result of treatment efforts; and it must predict changes in violent recidivism as a result of intervention. However, it is common practice to simply record whether commonly occurring dynamic risk factors are
PART I: LITERATURE REVIEW

present or absent for a given individual and whether they are associated with violence propensity, rather than to determine whether they meet each of these criteria for the particular individual being assessed. An improvement would be to consider whether the risk factor, if present, is relevant for the individual. Relevant risk factors are those that are functionally related to the commission of violence (Hart & Logan, 2011) and thus represent those needs that should be targeted both in treatment and risk management plans (Douglas, Hart, Webster, & Belfrage, 2013). For example, the dynamic risk factor of substance use may be assessed as present for an individual who has a history of substance use, but if there is no history of violence occurring under the influence of, or withdrawing from, drugs or alcohol, then substance use is unlikely to be relevant to any judgement about the potential for future harm (Logan, 2014). Changes in relevant risk factors should, theoretically, result in changes in violent recidivism.

This distinction highlights the need to also differentiate between dynamic risk factors on the basis of the degree or type of association with violence (see Blanchard, 2013). According to Kraemer and colleagues (Kraemer et al., 1997), a correlate is a variable that is associated with violence, but where no temporal or directional association is known, that is, whether the risk factor either precedes or follows violence and whether the risk factor is a proximate trigger for violence or distal predisposing factor; a risk factor is a correlate that precedes violence and is associated with an increased likelihood of violence; and a causal risk factor is a variable that precedes, and increases, the likelihood of violence, fluctuates over time, and when changes in this risk factor occur, concomitant change in the likelihood of violence also occurs. The definition of a causal risk factor is consistent with that of a dynamic risk state factor and places emphasis on the need to establish, rather than assume, that a risk factor is, in a meaningful way, causative of violence. In short, it requires that a logical connection is established and that alternate explanations are excluded (Haynes, 1992).

According to Ward and Beech (2015), a significant problem with current practice in this area is that many risk factors currently referred to as dynamic are not causal in any straightforward sense. Ward (2015a) argues that once a risk factor is conceptualised as causal, one is obligated to articulate the nature of the underlying causes or processes that lead to violence. However, even if one can demonstrate that violence follows the presence of a particular risk factor, this neither establishes causality nor how different risk factors interact and combine to explain why an individual offends violently. Ward’s suggestion is that current descriptions of dynamic risk factors refer to vague and composite constructs that include both trait and state components and which do not adequately explain offending. Problems with self-regulation, for example, are often described in terms of dynamic risk, but include both angry mood (a mental state) and poor problem-solving (an enduring trait). Ostensibly, both angry mood and poor problem-solving may influence self-regulation via different causal pathways, and these components of self-regulation problems may be more or less dynamic. Although angry mood is highly changeable, difficulties with problem-solving tend to be more stable over time and context.

An additional issue that requires consideration is the mechanism by which a dynamic risk factor causes violence. For instance, it can act as a driver (motivator) by increasing the perceived rewards or attractiveness of violence as a behavioural option; it can act as a destabiliser which impairs the individual’s ability to monitor and control
decision-making; or it can act as a disinhibitor which decreases the perceived costs or negative consequences of violence (Douglas et al., 2013; Hart & Logan, 2011). Each risk factor will have to be considered for every individual being assessed to determine whether the risk factor acts as a driver, destabiliser or disinhibitor. If it does none of these things then it cannot be considered relevant to the risk for violence.

**Dynamic risk factors for violent re-offending**

Notwithstanding these conceptual issues, Douglas and Skeem (2005) have identified what they consider to be the most promising dynamic risk factors for violence. These include impulsiveness, negative affectivity, psychosis, antisocial attitudes, substance use and related problems, interpersonal relationships, and treatment alliance and adherence. Other commonly cited dynamic risk factors for violence include a lack of insight, negative distrustful attitudes, and egocentricity/narcissism (Hildebrand & de Ruijter, 2012). A number of contemporary violence risk tools require these items to be rated in their assessment protocols. For example, completion of the Violence Risk Scale (VRS; Wong & Gordon, 2003) requires consideration of 20 different dynamic risk factors (violent lifestyle, criminal personality, criminal attitudes, work ethic, criminal peer association, interpersonal aggression, emotional control, violence during institutionalisation, weapon use, insight into violence, mental disorder, substance abuse, relationship stability, community support, release back to high-risk situations, violence cycle, impulsivity, cognitive distortions, adherence with community supervision, and security level of anticipated release institution). Another widely used tool to assess violence risk, the Historical-Clinical-Risk Management-20 version 3 (HCR-20v3; Douglas et al., 2013), includes recent problems with insight, violent ideation or intent, symptoms of major mental disorder, instability, and treatment/supervision response, and predicted future problems with professional services and plans, living situation, personal support, treatment/supervision response, and stress/coping. Critically, the HCR-20v3 also assesses the relevance of each dynamic risk factor.

Many dynamic risk factors are common to both instruments (e.g. adherence with supervision/supervision response; mental disorder and symptoms of major mental disorder; see Table 1, below) and this likely explains why the dynamic scales on these different risk assessment instruments have broadly similar levels of predictive validity when they are used actuarially (see Yang, Wong, & Coid, 2010; note, this analysis was based on the earlier version of the HCR-20, which bears considerable similarity with the latest version, but does assess some different dynamic variables).

**Are dynamic risk factors for violence truly dynamic?**

The dynamic risk factors identified in the VRS and the HCR-20v3 were selected on the basis of their empirical and theoretical relationships with violent behaviour. Guy et al. (2013), for example, describe the evidence that supports the inclusion of HCR-20v3 items (evidence for HCR-20v2 items is discussed by Guy & Wilson, 2006); evidence for the inclusion of the VRS items is presented in the VRS manual. Accordingly, we examine the grounds for whether certain risk factors should be considered to be dynamic using the criteria proposed by Douglas and Skeem (2005): that the factor is an antecedent to, and increases
the propensity for violence; that it is able to change spontaneously or as a result of treatment efforts; and that it can predict change in violent recidivism as a result of intervention.

As mentioned, a risk factor is a variable that precedes violence and is associated with an increased likelihood of violence (Kraemer et al., 1997). Notably, establishing whether a dynamic risk factor is an antecedent to violence is difficult in the absence of robust longitudinal studies to show that it precedes violence. Although many prospective studies have explored associations between dynamic risk factors and subsequent violence, temporality cannot be established when participants have a history of violence, given that violence may, of course, have led to the establishment of the dynamic risk factor. For example, attitudes that support violence may have arisen from or developed as a consequence of engaging in prior acts of violence. Nevertheless, multiple individual risk factors for violence have been identified. For example, procriminal attitudes (that is, attitudes supportive of crime, seeing little need to maintain law, and having little respect for law/authority) have been identified as one of the strongest predictors of criminal offending (whether sexual, violent, or general) in a series of studies (Gendreau, Little, & Goggin, 1996; Helmus, Hanson, Babchishin, & Mann, 2013) and a body of research has established that psychosis is significantly associated with an increase in the odds of future violent behaviour (e.g. Douglas, Guy, & Hart, 2009). However, the evidence for other factors is

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<th>Table 1. Dynamic risk factors for violence as assessed by the VRS and HCR-20 v3.</th>
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<td><strong>HCR-20 C1. Recent problems</strong></td>
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<td><strong>D2. Criminal personality</strong></td>
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inconsistent. Harris and Rice (2015), for example, recently reported data on the association between violent recidivism and a range of variables reflecting offenders' attitudes and circumstances, usually during their first post-index offence admission. Even in a study with considerable statistical power, some of the most commonly assessed dynamic risk factors (e.g. denial) bore no predictive relationship with violence, while others (e.g. criminal attitudes, unsatisfactory accommodation) were considerably more influential. The absence of insight and wanted or interested in treatment, for example, bore no relationship with violent recidivism, despite comparable items being included in the HCR-20v3 (Recent problems with insight) and VRS (insight into violence). Furthermore, some factors included in these prominent risk assessment instruments, such as violence during institutionalisation and recent problems with treatment and/or supervision response do not appear to represent truly dynamic risk factors based on Douglas and Skeem's (2005) criteria. Violence during institutionalisation, for example, is a manifestation of other dynamic risk factors; this variable may best be considered to be a proxy variable or a risk marker for pervasive criminal attitudes, and established tendencies, or involvement with an antisocial peer group, that actually underlie and contribute to an individual's violent behaviour. Although it is clearly important to manage violence during institutionalisation, and this is clearly a correlate of violence following release (see Mooney & Daffern, 2011), violence during institutionalisation is not a true dynamic risk factor in the sense in which we are using the term here. Another way of thinking about this difference between proxy and truly dynamic variables is by considering the treatment that would be required to reduce these areas of risk; we would think more here about treating the variables that contribute to violence during institutionalisation rather than treating violence during institutionalisation per se. Finally, it is incumbent on clinicians to determine whether particular risk factors are functionally related to violence propensity for the individual being assessed, and to thus differentiate those variables that have a causal relationship with violence and differentiate these from risk markers. Critically, the relevance ratings included in the HCR-20v3 require assessors to consider whether each risk factor is important for the individual being assessed and this may overcome some of the limitations in drawing from nomothetic analyses and applying these findings to individuals.

The second criterion for dynamic risk is that relevant risk factors can change, either spontaneously (over time) or as a result of intervention. Less attention is given to this criterion than the former, which focuses on establishing predictive accuracy. A good example of a risk factor that meets this second criterion is angry arousal. Although anger is neither necessary, nor sufficient, for the perpetration of violence, angry arousal has been shown to be associated with both aggressive and violent behaviour (Howells, 2004; Novaco, 2011). In addition, both the intensity and the experience of anger and its expression can fluctuate over time, and can decrease as a result of anger management or similar intervention strategies (Deffenbacher, Oetting, & DiGiuseppe, 2002). The extensive literature on persuasion and attitude change (e.g. Petty, Wheeler, & Tormala, 2003), and evidence that violent offenders who complete medium- and high-intensity violence intervention programmes can show significant reductions in criminal attitudes over the course of treatment (Klepfisz, O'Brien, & Daffern, 2014), provide further support for suggestions that criminal thinking styles also fulfil this criterion. Another example is substance use, given that intoxication and the use of substances wax and wane, even among heavy users, and evidence suggests that substance use can change following treatment (Messina, Grella, Cartier, & Torres,
part of dynamic risk is that changes in the risk factor must predict changes in violent recidivism as a result of intervention. Inherent in the logic of many treatment programmes is the idea that changes in dynamic risk will reduce violence propensity (Beggs, 2010). There is, however, only limited evidence to suggest that completion of violent offender treatment will lead to a reduction in violent recidivism (Polaschek & Collie, 2004), and even less evidence that reduced re-offending results from change in identified areas of dynamic risk. A review by Serin, Lloyd, Helmus, Derksen, and Luong (2013), for example, examined the relationship between intra-individual change in risk factors and recidivism. They concluded that although decreases in pro-criminal attitudes, criminal peers, family dissention, anger, and negative affect were all associated with decreased recidivism, only three out of the 53 studies reviewed examined violent re-offending and there were a number of methodological limitations in many of the studies included.

Several studies have examined change across time using repeat administration of structured risk assessment tools. Lewis, Olver, and Wong (2013), for example, reported that VRS change scores were significantly negatively correlated \( r = -0.21, p = .01 \) with violent recidivism, and maintained at 3-year follow-up \( r = -0.23, p = .02 \), even after controlling for pre-treatment levels of risk. In a sample 662 male offenders (both violent and non-violent) under community supervision following release from prison, Kroner and Yessine (2013) examined whether a cognitive-behavioural intervention targeting criminal and antisocial attitudes would lead to reductions in recidivism. At the group level, the treatment group was 53% less likely to be convicted of a new offence than the control group. At the individual-level, however, only the variable measuring attitudes towards associates, which was not a central focus of the treatment programme, was associated with decreased recidivism.

Although useful, dual-time point studies are limited in so far as one can only infer linear change (i.e. increasing or decreasing). For this reason, multiple time-point studies should be considered, as they allow for the measurement of different patterns and trajectories of change (Hendry, 2013). Furthermore, these typically provide a more robust method of examining the dynamic nature of risk as the systematic assessment and re-assessment of dynamic risk can help establish whether meaningful progress is being made against set treatment targets. There are only a few published studies that have used this method. In one, Douglas, Strand, and Belfrage (2011) used repeated measures ANOVA to show that change on the HCR-20 Clinical scale was significantly associated with reduced violence in a sample of 174 forensic psychiatric inpatients. They reported a linear decrease in total Clinical scale scores over four assessments, each six months apart, although it was change from the first assessment to the second assessment that predicted subsequent violence.

One limitation of this study (and others that have reported data on the association between change scores on the HCR-20\(^3\) Clinical and Risk Management Scales and subsequent violence) is that it relies on aggregated data and does not report the association between individual items and violence. Such analyses may also attenuate or mask significant effects among those who do, or do not, benefit from treatment (Beggs, 2010), highlighting the importance of also measuring change in dynamic risk at the individual-level.
(Fazel, Singh, Doll, & Grann, 2012). In one of the few studies of violent offender treatment that has attempted this, Klepfsiz et al. (2014) reported that raw change, reliable change, and clinically significant change for scores on measures of three dynamic risk factors did not predict either re-offending or the time taken to re-offend (violently) in a sample \((n = 42)\) of violent offenders. Only one participant achieved reliable change on all three variables and only four achieved reliable change on at least two measures. In another, this time involving a sample of sexual offenders, Beech and Ford (2006) reported that all 51 offenders who obtained clinically significant change did not re-offend, whereas 14% of those who did not change, did. However, in a much larger sample of 3402 sexual offenders receiving community-based treatment, Barnett, Wakeling, Mandeville-Norden, and Rakestrow (2013) found no relationship between clinically significant change and recidivism once risk level was taken into account. Finally, Olver, Kingston, Nicholaichuk, and Wong (2014) reported very small to moderate pre-treatment and post-treatment change on measures of cognitive distortions, aggression/hostility, empathy, loneliness, social intimacy, and sex offender acceptance of responsibility, with scores on these measures being only weakly and inconsistently related to sexual, violent, and general recidivism.

**Discussion**

Ostensibly the identification of dynamic risk factors is important for three reasons: (1) to assess risk for future violence; (2) to establish targets that can guide treatment; and (3) to measure treatment progress or change that leads to reductions in recidivism. It seems clear from this review, however, that more rigour is needed in the identification of dynamic risk factors that, when changed, will be followed by reductions in recidivism. A list of broad treatment targets cannot substitute for an adequate understanding of how change processes work and of the relevance of dynamic risk factors for any individual in treatment (Polaschek, 2012). It is important then to understand how and when individual influences operate and which factors are directly related to behaviour change. In order to accomplish this, we make several proposals.

First, clinicians and researchers need to determine not only whether particular risk factors are present, but also the relevance of each risk factor to the person in light of Blanchard and Douglas (2011) finding that relevance ratings are stronger than presence ratings for the prediction of violence. By determining which risk factors are relevant, we can begin to develop hypotheses about what caused an individual to perpetrate violence and how best to prevent future violence. It thus moves the assessment process from descriptive accounts of dynamic risk to more causal models and provides a bridge between nomothetic and idiographic levels of analysis (Douglas et al., 2013). Relevance ratings also allow practitioners to more fully consider whether the offender has achieved intra-individual treatment change on those variables that are functionally related to their offending. As both Polaschek (2012) and Ward (2015b) have argued, a priority for future development is to bridge the conceptual gap that exists between an identified list of high priority dynamic risk factors, or targets for change, and the theoretical resources needed to translate these factors into intervention design, individual clinical formulations, treatment plans, and methods to assess change. Second, it is critical that a treatment
outcome literature builds so that evidence relating to change in dynamic risk factors and its association with subsequent violent offending can be acquired.

Finally, much more work is needed to integrate theoretical and empirical research into applied violence risk assessment. A pressing concern here is the lack of coherence between theoretical explanations of violent behaviour and the prediction and management of violence risk (Ward, 2014). Currently, the theoretical foundations of contemporary violence risk assessment tools are not clear, and dynamic risk factors identified as important to the assessment task are not always selected in ways that are consistent with all three criteria identified by Douglas and Skeem (2005).

More attention needs to be paid to the underlying explanatory (etiological) processes that culminate in violence given that it is currently unclear how dynamic risk factors and psychological mechanisms interact (Heffernan & Ward, 2015). Nonetheless, when considering violent offending, it is easy to see how existing theories can accommodate a conceptualisation of dynamic risk. The General Aggression Model (GAM; Anderson & Bushman, 2002), for example, draws heavily on the development and use of knowledge structures for perception, interpretation, decision-making and action, highlighting the role of the person in the situation. Static and stable dynamic factors (features of the person), which together may be thought of as the person’s preparedness to be aggressive, interact reciprocally with situational factors to influence aggression propensity by affecting cognition (e.g. activating aggressive thoughts/procriminal attitudes), affect (e.g. stimulating anger) and arousal (e.g. increasing physiological arousal). Both person and situational factors may exacerbate or exaggerate the likelihood of violence. The knowledge structures that increase violence propensity include perceptual schemata (used to identify phenomena, including social events and personal insults); person schemata (such as beliefs about a particular person or group of people); and behavioural scripts (which contain information about how people behave under certain circumstances). Although the GAM is not immersed in the language of dynamic risk, it views violence as multiply determined and transactional in nature, and illustrates how static and dynamic risk factors might be broken down into their causal elements. These include psychological and social processes associated with goals, plans, and actions that reduce an individual’s capacity to function in an adaptive and prosocial way, both internally and in the context of wider social, cultural, and environmental networks (see Ward, 2015b).

What is clear is that the causes of aggression and violence comprise a number of interacting processes, none of which are necessary or sufficient for violence to occur. Accordingly, even if a specific dynamic risk factor exhibits a causal relationship with violence, it is unrealistic to expect change in any single dynamic risk factor to predict recidivism; violence is related to an array of risk factors and we would need to see change in various areas for there to be meaningful reductions in the risk for violence. The MacArthur Violence Risk Assessment Study noted this many years ago (Monahan et al., 2001):

Of the scores of variables whose relationship with violence we studied in this project, many (indeed most) had some significant association with future violence. None of these relationships was sufficiently strong, however, for it to be fairly said that a given variable constituted the cause of violence, even for a subgroup of patients. Our data are most consistent with the view that the propensity for violence is the result of the accumulation of risk factors, no one of which is either necessary or sufficient for a person to behave aggressively toward
others. People will be violent by virtue of the presence of different sets of risk factors. There is no single path in a person’s life that leads to an act of violence. (p. 142)

Accordingly, when measuring treatment-related changes, it seems prudent to employ multi-item risk assessment instruments that capture numerous risk factors for violence, rather than measuring single constructs. This approach is supported by research that has shown that change in total dynamic scores (on the VRS and the HCR-20v3) is significantly related to change in violent recidivism (Douglas et al., 2011; Lewis et al., 2013). Similarly, recent research on change in protective factors has shown that an increase in these factors may also be associated with reductions in violent behaviour (de Vries Robbé, de Vogel, Douglas, & Nijman, 2014). It is important to note however that very little research on the nature and operation of protective factors for violence has been conducted, and attempts to identify protective factors should be subject to scrutiny such as using equivalent criteria to those established by Douglas and Skeem (2005).

Another possible way to bridge the gap in evidence that exists between the influence of single causal dynamic risk factors and aggregated scores is to conceptualise dynamic risk in terms of broad levels, or domains, that subsume a number of more specific risk factors. In the sexual offending field, for example, Thornton (2002, 2013) has proposed that the dynamic risk factors that are thought to underlie sexual offending can be grouped into four risk-relevant domains, which then draws attention to a wider range of dynamic risk factors than is assumed in much clinical practice (2002, p. 140).

Polaschek (2006) identifies four risk factor domains commonly targeted in violent offender rehabilitation: (i) attitudinal factors (e.g. procriminal attitudes and cognitive or information-processing biases); (ii) impulsivity and self-regulation deficits; (iii) affective dyscontrol (e.g. anger, hostility, and poor coping skills); and (iv) lifestyle related needs that also predict general criminality (e.g. substance abuse, criminal peers, poor interpersonal skills, and family relationships). Notably, existing theories, such as the General Aggression Model, provide one way to conceptualise risk that also accommodates these broader categorisations or domains. For example, static and stable dynamic factors (features of the person), interact with lifestyle factors associated with criminality, such as being released back to high-risk situations with criminal associates, which then influence the person’s affect (emotional control and aggression), attitudes/cognition (criminal attitudes, beliefs that violence is acceptable), and arousal (impulsivity, ability to cope with stress). Ostensibly these composite constructs interact to determine an appraisal of the situation and whether violence/aggression is an appropriate behavioural outcome. Table 1 (above) shows how the VRS and HCR-20v3 dynamic items map onto these proposed domains, illustrating how some dynamic items do not fit within the broad domains identified by Polaschek (2006), possibly indicating that more domains are required. Additionally, more of the VRS items consider lifestyle factors. Both measures provide little assessment of impulsivity and self-regulation deficits, although multiple items from both tests explore the other domains.

Future research might investigate whether change at the domain/s level in the VRS and HCR-20v3 is helpful for assessing change following treatment, and whether such change significantly predicts violence propensity beyond global assessment of change in all dynamic risk factors. The ability to detect change will, of course, depend largely on the ability to operationalise the constructs (Blanchard, 2013), and there is an opportunity to explore and improve approaches to the measurement of both domains of dynamic risk.
and for individual risk factors. For example, there are very few methods that permit the reliable and valid assessment of some risk factors, such as violent ideation and intent, including aggressive behavioural script rehearsal (Gilbert & Daffern, submitted for publication).

An additional problem associated with assessment tools that neglect aggression theory is the danger of selectivity. Whilst comprehensive, contemporary risk assessment measures such as the VRS and HCR-20\textsuperscript{3} do not claim to provide an exhaustive list of dynamic risk factors, and they may fail to adequately consider some important dynamic risk factors that are implicated in theories of aggression and violence. For example, in their Comprehensive Assessment of Psychopathic Personality (CAPP), Cooke, Hart, Logan, and Michie (2012) recommend specific assessment of the interpersonal drivers (captured by the CAPP’s attachment\textsuperscript{1} and dominance\textsuperscript{2} domains) of violence. There is evidence that interpersonal style, particularly hostility and dominance, is associated with violent offending and as well as indications that reductions in interpersonal hostile-dom-inance are meaningfully associated with reductions in violent offending (Daffern et al., 2013). This may provide grounds for inclusion in new iterations of multi-component risk assessment tools.

In summary, to be classified as a dynamic risk factor it is important to consider whether the factor is an antecedent to, and increases the propensity for, violence; the extent to which it is able to change spontaneously or as a result of treatment efforts; and whether change is associated with reduced violent re-offending. Dynamic risk factors are clearly relevant to assessment and treatment; the way they are conceptualised in risk assessment instruments provides a framework for comprehensive assessments and risk management and intervention. However, there is clearly much work to be done to ensure that those factors often considered to be dynamic do, indeed, meet these criteria and are relevant to the needs of the individual being assessed. Although many dynamic risk factors have predictive validity, they have limited explanatory power and some are simply proxies, and thus cannot be directly targeted in treatment. Problems with the identification of single dynamic risk factors, as well as with the measurement of composite categories of risk, also require attention, as well as the lack of evidence to suggest that changes in dynamic risk as a result of treatment are closely and directly related to behaviour change. Although, theoretically, we need to be more precise about the causal mechanisms underpinning violence, practically we need to look broader, and consider how reductions in multiple dynamic risk factors or risk domains, might independently and cumulatively be related to reduced violence.

Notes

1. Which refers to difficulties with interpersonal affiliation, such as the failure to form close, stable emotional bonds with others.
2. Which refers to difficulties with interpersonal agency, such as excessive status-seeking and assertiveness.

Disclosure statement

No potential conflict of interest was reported by the authors.
PART I: LITERATURE REVIEW

References


Hendy, M. C. (2013). Hostile attribution bias as a dynamic risk factor in civil psychiatric patients and criminal offenders: Change over time and relationship to violence and recidivism. (Doctor of Philosophy), Simon Fraser University, Canada.


PART I: LITERATURE REVIEW


CHAPTER THREE: UNDERSTANDING PROTECTIVE FACTORS FOR VIOLENT REOFFENDING IN ADULTS

3.1 Preamble

Although the value of assessing treatment-related changes in dynamic risk factors is now broadly accepted, only recently has research focused on the added benefit of assessing changeable protective factors (de Vries Robbé et al., 2015). It has now been proposed that reductions in dynamic risk factors during treatment, in addition to increases in dynamic protective factors, may be valuable indicators for treatment progress among violent offenders. For this reason, it is important to consider what is meant by the term ‘protective factors’, how protective factors relate to risk factors, and how protective factors relate to desistance from violence (and the change process).

This chapter presents the second published paper, a critical literature review of current knowledge about protective factors for violent reoffending in adults (Research Aim One). It provides a conceptual overview of what are commonly referred to as ‘protective’ factors. Conflicting operationalisations and measurement approaches are examined, highlighting current uncertainty regarding the relationship between risk and protective factors. Similar to the notion of dynamic risk factors, this paper discusses how protective factors have not been derived from broader theories of desistance from violent reoffending. Considerations for clinical practice are discussed, and the need for further theoretical work is emphasised.

This literature review, titled ‘Understanding Protective Factors for Violent Reoffending in Adults’ has been published in Aggression and Violent Behavior. The Author Indication Form detailing the nature and extent of the candidate and co-authors’ contributions to this published paper is included in Appendix I. The article is presented below in its published form (please note, Elsevier do not require authors to request permission for their work to be reproduced in a doctoral thesis). The complete citation is as follows:

Understanding protective factors for violent reoffending in adults

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Although there has been long-standing interest in identifying those factors that have the potential to increase the likelihood of violence, it is only relatively recently that attention has been given to those factors that act in the opposite way, or what are commonly referred to as protective factors. This paper considers the meaning of the term protective factor and how this and similarly termed constructs have been conceptualized and operationalized in violent offender assessment instruments. We discuss the relationship between risk and protective factors and identify a number of conceptual and definitional issues that arise. Finally, we consider the measurement of protective factors as they pertain to their inclusion in contemporary violent offender assessment instruments.

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1. Introduction

Recent years have seen the identification of a number of personal, situational, and offense-related characteristics that are commonly associated with an increased risk of future violence (e.g., Klepfisz, Daffern, & Day, 2016). These are now routinely assessed by professionals who work in forensic settings who use structured assessment instruments to inform a range of decisions; including those related to risk management, selection into treatment, and the extent to which change over time has occurred. The focus of this paper, however, is not on understanding those factors that increase risk, but on those that have the potential to mitigate risk. These are increasingly being referred to as ‘protective’ factors, but are denoted by various other terms including ‘strengths’, ‘promotive factors’, ‘stabilizers’, and ‘desistance factors’ (Serin, Chadwick, & Lloyd, 2015). Although these terms are sometimes used interchangeably, there appears to be a lack of agreement regarding what they refer to and, indeed, whether this different terminology simply reflects semantic differences. For Polaschek (2015), one of the obvious causes of this confusion is the failure to distinguish between causal factors in the onset of offending and those that maintain the propensity to offend. It is understanding this latter set of factors, those that ‘protect’ against violent reoffending, that is the aim of this review.

The idea that certain characteristics can protect against, or reduce the likelihood of, offending can be traced back to the 1980s (see Garmezy, Masten, & Tellegen, 1984; Rutter, 1987), although there is still no accepted definition of what a protective factor is. Afifi and MacMillan (2011), for example, contend that “a protective factor may influence, modify, ameliorate, or alter how a person responds to the adversity that places them at risk for maladaptive outcomes” (p. 268). For de Vries Robbé, Mann, Maruna, and Thornton (2015), however, protective factors are those “that enable or assist desistance from (sexual) offending among those that have already offended” (p. 17), while de Vogel, de Ruiter, Bouman, and de Vries Robbé (2012) define them as “any characteristic of a person, his/her environment or situation which reduces the risk of future violent behavior” (p. 23). These

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definitions invoke distinct, but potentially related, phenomena. The first links to the concept of resilience and applies to those factors that have the potential to help the individual to improve the ability to overcome stress or adversity, and therefore to avoid engaging in violence despite the presence of risk (Rutter, 2006). In this context, protective factors moderate pre-existing risk to reduce the likelihood of a negative outcome (see Lösel & Farrington, 2012). Conversely, the second and third definitions suggest that protective factors are relevant to the process of abstaining from crime among those who previously engaged in offending (e.g., Maruna, 2010). From this perspective, protective factors can only exist when an offense has occurred and are most relevant to the assessment of risk of violent re offending in adults. They can either mediate risk directly (through what de Vries Robbé, 2014 refers to as ‘promotive’ factors), or reduce risk by moderating the impact of risk factors.

It is important to note from the outset that the presence of a protective factor does not guarantee a protective effect (Heffernan, 2015) and individuals must exercise agency for protective factors to influence behavior. Thus, when opportunities for crime arise the individual must still actively choose an adaptive, functional, and non-criminal response even when protective factors are present (Serin et al., 2015). For instance, an individual may have a significant supportive relationship in which prosocial attitudes are modelled and encouraged; however, if the individual is either unwilling or unable to draw on this support, then the presence of this relationship alone will not mitigate risk. Accordingly, we argue that protective factors should only be regarded as ‘strengths’ or ‘capabilities’ when the individual demonstrates an ability and preparedness to utilize them. As such, instruments that seek to assess the likelihood of future violence should consider not only the presence of protective factors, but also their impact. The inclusion of ‘relevance’ ratings for risk factors in the Historical-Clinical-Risk Management-20 version 3 (HCR-20v3; Douglas, Hart, Webster, & Belfrage, 2013) illustrates how this might occur. For the purpose of simplicity, the discussion that follows will regard a protective factor simply as any individual or contextual factor that has the potential to have a positive impact on reducing violent reoffending. Although this inevitably oversimplifies matters, our focus in this paper is practical, particularly with regard to encouraging a consideration of protective factors in forensic practice, as well as orienting professionals toward the development of specialized assessment tools.

2. How have protective factors been conceptualized and operationalized in assessment instruments?

Attempts to operationalize protective factors in current violent offender assessment instruments have been limited by the use of similar terms to refer to different things and by the use of different terms to refer to the same psychological process (Fowler, 2016). For example, in several structured violence risk assessment instruments, protective factors are considered to simply be the absence (Costa, Jessor, & Turbin, 1999) or the opposite of risk factors (Harris & Rice, 2015). To illustrate, the protective equivalent of the risk item ‘impulsivity’ might be operationalized in an item designed to assess ‘self-control’; the protective factor ‘prosocial attitudes’ might be conceptualized as lying at the positive end of the ‘antisocial attitudes’ domain; and ‘alcohol addiction’ might be regarded as protective when it is reframed as ‘abstience’. In many ways, the practice of conceptualizing risk and protective factors on a continuum (with risk representing the negative extreme and protection representing the positive extreme) is appealing in terms of its simplicity (Rutter, 1987). However, if we consider that risk and protective factors can actually co-exist within a single domain, then the approach quickly loses coherence. De Vries Robbé (2014) has argued persuasively that an offender can have both positive and negative social influences at the same time (for example, a supportive prosocial friend who encourages employment and abstinence as well as drug using peers who encourage intoxication and acquisitive offending). Similarly, Webster, Martin, Brink, Nicholls, and Middleton (2004) offer the example of ‘insight’ and describe how an offender may display little understanding of the relationship between his or her substance use problem and violent behavior, but may also readily express the value of family support and treatment compliance in overcoming his or her substance use. Relatedly, an individual might, for example, demonstrate excellent problem-solving skills, but these become compromised when he/she is intoxicated. These complexities are unlikely to be adequately captured in any simple conceptualization of risk and protective factors as lying on a continuum (such as when these are measured on a single scale, from +2, +1, 0, −1, −2). If, however, the assessment of each item or domain is first scored for risk and then for its protective value, then it becomes possible to rate a client as having both risks and strengths simultaneously in a single domain (see Webster et al., 2004).

A protective factor can also exist without a corresponding risk factor being present (Farrington & Loebro, 2000). Thus, for example, although religiosity is known to have a negative relationship with delinquency (Pearce, Jones, Schwab-Stone, & Ruchkin, 2003), the absence of religion is not an established risk factor for violent reoffending (de Vries Robbé, 2014). This means that currently identified risk and protective factors may apply differentially – while some protective items may be the reverse, or inverted, risk factors, others may exist as qualitatively distinct entities. Furthermore, it is likely that some putative risk factors (for example, the absence of recent participation in organized leisure activities as measured by the LS/RNR; Andrews, Bonta, & Wormith, 2008) might actually be better conceived as the absence of a protective factor (i.e., involvement in structured leisure activities) rather than as a risk factor. There have been few attempts, to date, however, to identify those protective factors that might be conceptually independent to risk (although Woldgabreal, Day, & Ward, 2014 have reported mediating effects of a range of positive psychology variables on risk in a sample of community corrections clients).

As with risk factors for violent reoffending, protective factors can be divided into static and dynamic factors. Static protective factors include personal historical variables such as intelligence and secure childhood attachment, which are not presumed to change over time (de Vries Robbé, 2014), although it is relevant to consider how they manifest in the future; that is, what are the products of a secure childhood attachment that influence an individual’s capacity to desist? Dynamic, or changeable, protective factors are those endogenous personal characteristics that reduce future violence (e.g., coping style, problem-solving skills, self-control, participation in work and leisure activities, and motivation for treatment), in addition to exogenous factors, which offer protection from outside the individual (e.g., social networks, professional care, and living circumstances). It is, of course, also possible that a protective factor for violent recidivism will contain multiple, inter-related concepts and therefore represent a composite construct, encompassing both state and trait aspects. Consistent with this, de Vries Robbé et al. (2015) distinguish between a protective factor as an underlying propensity (psychological or personality characteristics) and the observable manifestations of that propensity (e.g., an underlying propensity of ‘good social skills’ may be manifest in generally well-functioning intimate relationships; de Vries Robbé et al., 2015).

The different ways in which protective factors have been conceptualized is reflected in contemporary violence risk assessment instruments. The Violence Risk Scale (VRS; Wong & Gordon, 2003), for example, is a violence risk assessment instrument that requires consideration of six static and 20 dynamic risk factors for violence. The manual proposes that risk variables rated as a “0” are the client’s areas of strength, suggesting that protective factors are regarded as the absence of risk or criminogenic needs. However, elsewhere in the manual a “0” rating refers to a situation in which “the factor in question has no relationship with violence” (p. 15), creating ambiguity about the role of protective/strength factor assessment. The Historical-Clinical-Risk Management-20 version 3 (HCR-20v3; Douglas et al., 2013) does not consider protective factors in its scoring procedures.
General assessment instruments, such as the Level of Service/Risk Need Responsivity (LS/RNR; Andrews et al., 2008), require raters to judge whether a domain of risk/need acts as an area of ‘strength’. Accordingly, in this instrument, protective factors represent the opposite of risk factors, which can be measured along a continuum with the positive/strengths pole at one end and the negative/risk pole at the other end. Some LS/RNR ‘risk’ factors probably reflect desistance-promoting factors (e.g., the presence of pro-social acquaintances); however, the emphasis is on the identification of risk and thus the language used in the instrument reflects this (i.e., ‘few anti-social acquaintances’). Nevertheless, by encouraging assessors to consider whether each domain reflects an area of strength for the person, the LS/RNR does encourage consideration of co-existing risk and protective factors within a single domain. In two studies using a predecessor of the LS/RNR, the Level of Service/Case Management Inventory (LS/CMI; Andrews, Bonta, & Wormith, 2004), Wormith, Hogg, and Guzzo (2012, 2015) found that ‘strength ratings’ were negatively correlated with recidivism among nonsexual, Aboriginal, and non-Aboriginal offenders in Canada. Girard and Wormith (2004), however, found that strength ratings on the Level of Service Inventory-Ontario Revision (LSI-OR; Andrews, Bonta, & Wormith, 1995) did not contribute any incremental validity to the prediction of violence. Since the LSI strength ratings do not affect the formal scoring, it remains unclear how seriously assessors treat the idea of protective factors when using these instruments.

Another risk assessment instrument that purports to assess ‘strengths’ (protective factors) as the opposite of ‘vulnerabilities’ (risk factors) and yet measures both ends of each domain simultaneously is the Short-Term Assessment of Risk and Treatability (START; Webster et al., 2004). The START comprises 20 dynamic items each scored on a 3-point scale: first in terms of vulnerabilities and then in terms of strengths (or vice versa). A “0” rating indicates ‘no/minimal vulnerability or strength evident’, whereas a “2” rating indicates ‘high vulnerability/ strength’. One study by Desmarais, Nicholls, Wilson, and Brink (2012) reported that the ‘vulnerability’ total scores improved the prediction of any aggression and verbal aggression, whereas ‘strength’ total scores improved the prediction of physical aggression toward others. More recently, O’Shea, Picchioni, and Dickens (2016) reported that the total ‘strength’ score added predictive validity (over the total ‘vulnerability’ score) and significantly improved the model fit for the prediction of any aggression, physical aggression, and verbal aggression. As such, this study provides some evidence to support the hypothesis that the assessment of protective factors can improve the accuracy of risk estimates for physical aggression toward others. Furthermore, this also suggests that there may be some benefit in assessing specific dynamic items through a protective lens when a factor is considered from both a risk and protection perspective.

The Structured Assessment of Protective Factors in Youth (SAVRY; Borum, Bartel, & Forth, 2006) is a youth-adapted version of the HCR-20. Although our interest in this paper is on the assessment of violent offenders, it is important to consider how current assessment tools can document change in risk. The specialized assessment tools that are reviewed in this paper make the assumption that offenders will desist from crime when risk factors for violence are weakened and/or managed or alternatively when protective factors are strengthened (Walker, Bowen, & Brown, 2013). These instruments, however, comprise a narrow subset of risk and protective factors that, for the most part, have not been derived from broader theories of desistance from violent reoffending. In some ways desistance involves a reduction in or a reversal of dynamic risk factors, and this is captured by those protective factors, which represent the opposing end of a risk domain (De Vries Robbé, 2014). However, just as violence is multiply determined, the transition to a life without violence involves a complex interaction with the presence of risk factors alone. Rennie and Dolan (2010) similarly reported that the presence of even one protective factor was associated with reduced recidivism. A third, more recent, study by Shepherd, Luebbers, and Ogloff (2016) has reported that participants in a ‘high protective factor group’ had significantly longer times to re-offense than those in a ‘low protective factor group’, suggesting that the presence of SAVRY protective factors lessens the likelihood of recidivism or other adolescent problem behaviors.

The Structured Assessment of Protective Factors for Violence Risk (SAPROF; de Vogel et al., 2012) is the first adult assessment instrument designed specifically to identify protective factors for violence in adult offenders. It is a clinician-rated instrument that is intended for use in conjunction with predominantly risk-focussed assessments. The SPROF comprises 17 items, which include individual protective factors and environmental support factors. In the SPROF, a subset of protective items are listed at the opposite end of well-known risk factor domains (e.g., ‘self-control’ versus ‘impulsivity’, ‘coping’ versus ‘stress’), while others do not have a corresponding risk factor (e.g., ‘life goals’ (de Vries Robbé, de Vogel, & Douglas, 2013). As the authors of the SPROF argue, “the concept of protective factor is ambiguous” (de Vogel et al., 2012, p. 14) and furthermore, “understanding the nature of protective factors is no simple task” (Douglas & Hart, 2012, p. 7). In Table 1 we highlight some conceptual overlaps between the dynamic protective factors included in the SPROF and the risk factors that are assessed in commonly used violence risk assessment instruments (the VRS and the HCR-20\textsuperscript{08}). Manifestly, most of the SPROF protective factors are primarily assessed through their polar opposite (risk focused) equivalent assessment, which may in part explain why SPROF and HCR-20 assessments have comparable levels of predictive validity (see de Vries Robbé, de Vogel, Wever, Douglas, & Nijman, 2016).

A recent study on the SPROF by de Vries Robbé, de Vogel, Douglas, and Nijman (2015) has suggested three things: that total SPROF scores are associated with future violence; that improvement on SPROF scores over the course of treatment is related to reduced recidivism; and that using the SPROF in conjunction with risk-only structured professional judgment instruments (such as the HCR-20\textsuperscript{09}) results in increased predictive validity for violent recidivism (Kivistö, 2015). There is also some evidence that gender moderates predictions of severe aggression when using the SPROF. Thus, while SPROF total scores have been shown to modestly predict violence among men (AUC = 0.67), Viljoen et al. (2016) found that SPROF total scores did not significantly predict any outcome of aggression in female patients at any time frame. Furthermore, the HCR-SPROF index (which integrates risk and protective total scores) has been reported to have good predictive validity for (no) violent recidivism. In a sample of 105 male psychiatric inpatients, de Vries Robbé, de Vogel, and de Spa (2011) found that HCR-SPROF index scores predicted violent recidivism significantly better than the HCR-20 total score alone, with AUC values of 0.80 and 0.72 at 1 and 2 years’ follow-up, respectively.

3. A word about theory

Since the overarching aim of any forensic assessment is to reduce violent reoffending, it is important to consider how current assessment tools can document change in risk. The specialized assessment tools that are reviewed in this paper make the assumption that offenders will desist from crime when risk factors for violence are weakened and/or managed or alternatively when protective factors are strengthened (Walker, Bowen, & Brown, 2013). These instruments, however, comprise a narrow subset of risk and protective factors that, for the most part, have not been derived from broader theories of desistance from violent reoffending. In some ways desistance involves a reduction in or a reversal of dynamic risk factors, and this is captured by those protective factors, which represent the opposing end of a risk domain (De Vries Robbé, 2014). However, just as violence is multiply determined, the transition to a life without violence involves a complex interaction...
Table 1
Established and promising protective factors for violence and their corresponding negative poles.

<table>
<thead>
<tr>
<th>SAPROF protective factor</th>
<th>Corresponding negative pole</th>
<th>Item on the HCR-20 or VRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empathy</td>
<td>Lack of empathy or concern for others/callousness</td>
<td>No obvious opposite item although it is noteworthy that empathy is measured as a relatively stable personality characteristic of the Psychopathy Checklist-Revised, high scores on which are associated with violence.</td>
</tr>
<tr>
<td>Self-control</td>
<td>Loss of control/impulsivity</td>
<td>Lack of self-regulation; impulsivity; recklessness; and behavior characterized by little or no forethought. Examples: states of agitation such as fighting, screaming, and uncontrollable weeping.</td>
</tr>
<tr>
<td>Work</td>
<td>Lack of structured or organized work/education</td>
<td>No obvious corresponding item although it is noteworthy that the LS/RNR includes two related items, ‘Absence of recent participation in an organized activity’ and ‘Could make better use of time’.</td>
</tr>
</tbody>
</table>

Table 1 (continued)

<table>
<thead>
<tr>
<th>SAPROF protective factor</th>
<th>Corresponding negative pole</th>
<th>Item on the HCR-20 or VRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leisure activities</td>
<td>Lack of structured/organized leisure activities</td>
<td>Lack of steady income and poor financial management. Possible debts with official authorities or other money providers. Impulsive spending.</td>
</tr>
<tr>
<td>Financial management</td>
<td>Poor financial management</td>
<td>Lack of steady income and poor financial management. Possible debts with official authorities or other money providers. Impulsive spending.</td>
</tr>
<tr>
<td>Motivation for treatment</td>
<td>Lack of motivation for treatment</td>
<td>Lack of motivation to participate in treatment; demonstrates an unwillingness to actively deal with problems that are related to violent behavior.</td>
</tr>
<tr>
<td>Problem with treatment or supervision response (HCR)</td>
<td>Problems with attendance, compliance, participation, and responsiveness, including: refusal to participate in available intervention/management programs, failure to engage with programs or staff, showing little motivation or effort, and appearing to sham or fake genuine participation.</td>
<td></td>
</tr>
<tr>
<td>Criminal attitudes (VRS)</td>
<td>Procriminal attitudes and values (e.g., supportive of crime, seeing little need to maintain law, and having little respect for law or authority).</td>
<td></td>
</tr>
<tr>
<td>Problems with treatment or supervision response (HCR)</td>
<td>Engages in behavior that counters the aims of intervention or programming (e.g., substance abuse) and non-compliance with intervention or management activities. No obvious corresponding item.</td>
<td></td>
</tr>
</tbody>
</table>

(continued on next page)
Table 1 (continued)

<table>
<thead>
<tr>
<th>SAPROF protective factor</th>
<th>Corresponding negative pole</th>
<th>Item on the HCR-20 or VRS</th>
</tr>
</thead>
</table>
| Medication non-compliance | The individual fails to understand the need for medication or is ambivalent or resistant to taking it. | Problems with treatment or supervision response (HCR)
| Intimate relationship | Stability and quality of the intimate relationship should be considered. | History of problems with relationships (HCR)
| Professional care | Concerns the availability and intensity of treatment. | Future problems with professional services and plans (HCR)
| Living circumstances | Provides an appropriate degree of support and supervision. | Future problems with living situation (HCR)
| External control | Lack of external control | Future problems with external control |

4. Discussion

What emerges from this review is an understanding that a consensus has yet to emerge around how protective factors should be defined and, importantly, how they relate to, and interact with, risk factors in violent offending. This has important implications for how protective factors are assessed, and it would appear that the development of violent offender assessment instruments has proceeded largely in the absence of any coherent underlying conceptualization of this area. It is clear that the list of protective factors that has been proposed (Table 1) has not been derived from criminological theory. Although there is a body of knowledge concerning child and adolescent offending trajectories (for example, factors that promote resilience to violence among children and adolescents; see Løsel & Bender, 2003; Rutter, 2012), there is little reference to protective factors in contemporary theories of aggression or violence (e.g., the General Aggression Model; GAM; Anderson & Bushman, 2002). First, any comprehensive theoretical model of violence should be able to: identify static historical risk factors to establish the base rate of risk for future violent behavior; identify a set of dynamic risk factors which, when targeted through intervention, demonstrably diminish risk; and identify a set of protective factors, which theoretically decrease the risk of violence (de Ruiter & Nicholls, 2011; Farrington & Loeber, 2000; Rogers, 2000). Second, any comprehensive theory should lead to a set of hypotheses about which factors are protective.

An important initial task will be to ensure psychometric rigor in identifying and applying protective factors to the assessment of violent offenders. Notably, when developing the SAPROF, the only instrument specifically designed to assess protective factors in adults, forensic mental health professionals were asked to suggest factors that may protect against relapse into violent behavior. As such, the SAPROF items were developed pragmatically, in a bottom up fashion and based on clinical experience. As the authors of the SAPROF concede: “the most important limitation of the SAPROF is that there is still relatively little scientific evidence for protective factors for violence risk” (de Vogel et al., 2012, p. 23). As yet, very little research has examined the relationship between individual protective factors and future violence (Kivisto, 2013) and furthermore, in most studies employing the SAPROF, protective items are of psychological, biological, and situational factors (Serin & Lloyd, 2009), which is not considered in this type of assessment. Desistance theories, for example, suggest that criminal conduct is often influenced by the development of a positive personal identity through later life events and attachments to adult institutions such as family, the military and work (Walker et al., 2013). Furthermore, desistance must be maintained by internal motivations that involve self-regulation, intrinsic rewards, and long-term goals (Serin & Lloyd, 2009). Seemingly, specialized violence tools do not appear to give any coherent thought to these desistance processes and general desistance factors such as meaningful commitments to community or family, enhanced personal agency, and positive beliefs about one’s self worth and identity are often ignored (Serin & Lloyd, 2009).
only rated at a single point in time. As such, it is not possible to know if protective factors are truly dynamic and whether change translates into reduced recidivism (although we do know that a reduction in aggregate protective factors is associated with reduced reoffending; de Vries Robbé et al., 2015).

If, as de Vries Robbé and colleagues (2012) suggest, that like risk factors protective factors can be dynamic in nature, they should also provide promising goals for treatment and risk management planning. Indeed, there are a number of possible advantages for rehabilitation practice that arise from attending to protective factors. For instance, focusing on protective factors may foster the development of a stronger therapeutic alliance. The identification of protective factors may also enhance insight into an individual’s capacity for growth and recovery and, in doing so, has the potential to strengthen motivation to change. Furthermore, consideration of protective factors may facilitate creative thinking around risk prevention and management (Borum et al., 2006; Webster, Martin, Brink, Nicholls, & Desmarais, 2009). Although de Vries Robbé et al. (2011) do acknowledge that the idea of considering positive/strength factors in offender treatment is not new – see, for example, the Good Lives Model (Ward & Brown, 2004) and the Positive Psychology approach (Seligman, 2002) – linking these approaches to those that are predicated on the notion of risk is still relatively uncommon. Furthermore, to date, there have been no studies that explore whether the consideration of protective factors actually generates greater motivation to participate in treatment, or produce more balanced assessments, a critical goal of the SAPROF (de Vogel et al., 2012).

Current knowledge about the potential advantages of assessing protective factors has been largely derived from studies that have sought to establish the predictive validity of these measures. These studies are based on the assumption that current assessment practices offer a valid assessment of the constructs, however, the effect of operationalizing protective factors in different ways has yet to be demonstrated. Furthermore, often the method used in these studies to arrive at an integrated ‘Final Risk Judgment’ is illogical. For example, the HCR-SAPROF index is generated by subtracting the SAPROF total score from the HCR-20 total score. However, Borum et al. (2003) do not recommend summing protective scores to reduce risk estimates by means of simple arithmetical subtraction primarily because the HCR-20 and the SAPROF contain items that are conceptually similar, yet inverted constructs (see Table 1). If, for example, the HCR-20 and SAPROF were used together, then we may be assessing some items on the HCR-20 (e.g., impulsivity) and then subtracting a score derived from an assessment of the same domain (i.e., self-control); this is both inefficient and allows for the unfounded inclusion of potentially duplicated risk factors, with some now being called ‘protective’ (Polaschek, 2015). If a subset of protective factors are indeed inverse risk factors, it should be easy to establish whether the risk or protective counterpart has the stronger relationship with recidivism, and then, only the strongest predictor should be retained in the assessment. To achieve this goal, one must first establish the relationship between each comparable risk/protection domain (establishing or rejecting the proposition that they are opposite ends of the same construct) and then determine which one has the strongest relationship with violent recidivism. Alternatively, a comparable risk focussed measure comprising the SAPROF equivalent items from the VRS and HCR-20 could be constructed and compared with the predictive validity of the SAPROF items, which would reveal

Table 2
Dynamic risk and protective factors for violence as assessed by the VRS, HCR-20 V3, and the SAPROF.

<table>
<thead>
<tr>
<th>VRS, HCR-20 V3 and SAPROF dynamic items</th>
<th>Impulsivity and self-regulation deficits</th>
<th>Affective dyscontrol</th>
<th>Lifestyle needs associated with criminality</th>
<th>Items that don’t fit into a domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCR-20 C1. Recent problems with insight C2. Recent problems with violent ideation or intent (e.g. hostile attribution bias) C3. Recent problems with major mental disorder (e.g. hallucinations, disorganisation) C4. Recent problems with instability (e.g., cognitive distortions)</td>
<td>C4. Recent problems with instability (e.g. impulsive) R5. Future problems with stress/coping</td>
<td>C3. Recent problems with major mental disorder (e.g. mania, irritability, labile mood) C4. Recent problems with instability (e.g. distress, irritability, anger, volatility)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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whether a risk or protective factor has greater predictive validity. It will become possible to test these ideas empirically as more data is collected using these instruments.

Finally, Klepfer et al. (2016) have suggested that one possible way to bridge the gap in evidence between the influence of single dynamic risk factors and aggregated scores is to conceptualize dynamic risk factors in terms of broad levels, or domains, that subsume a number of more specific items. Polashek (2006) identifies four risk factor domains commonly targeted in violent offender rehabilitation: (i) attitudinal factors (e.g. procriminal attitudes and cognitive or information-processing biases); (ii) impulsivity and self-regulation deficits; (iii) affective dyscontrol (e.g. anger, hostility, and poor coping skills); and (iv) lifestyle related needs that also predict general criminality (e.g. substance abuse, criminal peers, poor interpersonal skills, and family relationships). Protective factors might also be considered within these domains. Table 2 illustrates how the SAPROF items correspond with style related needs that also predict general criminality (e.g. substance risk factors and aggregated scores is to conceptualize dynamic risk factors.


Andrews, D. A., Bonta, J., & Wormith, S. J. (2005). Identifying dynamic risk factors. That is, a protective factor should only be regarded as meaningful to treatment and risk assessment if it can be shown to be empirically related to reduced violent reoffending, if it is changeable, and if proximal changes in the protective factor are associated with changes in violent behavior. Clinicians and researchers should also consider not only whether a protective factor is present, but the impact or relevance of that factor.

First, however, there is a need for theoretical development and work to determine the mechanisms under which protective influences operate and how they interact with risk.

5. Conclusion

Overall, this review shows that there is a lack of empirical evidence to support the identification of specific protective factors, with definitional inconsistency and discrepancies in assessment and measurement approaches hampering progress in this area. Nevertheless, our conclusion is that any comprehensive violent offender assessment should allow for the evaluation of each domain from both a risk and protection lens. We would argue that there is a need to subject putative protective factors to scrutiny using equivalent criteria to those advocated by Douglas and Skeem (2005) for identifying dynamic risk factors. That is, a protective factor should only be regarded as meaningful to treatment and risk assessment if it can be shown to be empirically related to reduced violent reoffending, if it is changeable, and if proximal changes in the protective factor are associated with changes in violent behavior. Clinicians and researchers should also consider not only whether a protective factor is present, but the impact or relevance of that factor. First, however, there is a need for theoretical development and work to determine the mechanisms under which protective influences operate and how they interact with risk.

References


CHAPTER FOUR: OVERVIEW OF THE EMPIRICAL STUDIES

4.1 Research Objective and Rationale

As outlined in Chapter One, the overarching purpose of this thesis is to facilitate a better understanding of how forensic practitioners who work within a correctional environment can assess violence risk and violence protective factors and incorporate treatment-related changes on these variables into violence risk assessment. Against the background of the two review papers presented in Chapters Two and Three, this thesis addresses several limitations and gaps in the existing literature.

First, within the forensic literature, detailed evaluations of an individual’s change in treatment are limited, and research tends to focus on the efficacy of treatment at the group-level (i.e. what works for this type of problem in this specific population) (Davies, Jones, & Howells, 2011). In evaluating the efficacy of treatment using a nomothetic approach, long-term recidivism studies that compare the recidivism rates of treatment completers and non-completers or comparison subjects are generally conducted (Hammond & O'Rourke, 2007; O'Neill, 2010). Although some studies have shown no significant effect of treatment completion on rates of violence among persistently violent offenders (e.g., Serin, Gobeil, & Preston, 2009), various studies have produced positive effects, suggesting that completion of violent offender treatment does lead to a reduction in violent reoffending (McGuire, 2008; Polaschek, Wilson, Townsend, & Daly, 2005; Wong, Gordon, & Gu, 2007). As Klepfisz et al. (2014) highlight, however, this type of research design presents a number of methodological limitations. Importantly, treatment completion does not always translate into treatment gains; that is, even though an individual may complete a treatment program, this does not guarantee that he or she has achieved the changes necessary to lead to a reduction in reoffending (Olver & Wong, 2013). Indeed, offenders may remain in treatment in the absence of behavioural or attitudinal change (Olver, Wong, & Nicholaichuk, 2009) and furthermore, treatment completion may be mandated as a condition of parole, which may be an individual’s only motivation for completion (i.e., to “tick the box”) (Beggs, 2010). Accordingly, although individuals may attend and even complete treatment, this does not necessarily mean that they will engage in and derive benefit from the treatment program. Consistent with this, Polaschek (2011) found that treatment outcomes vary among treatment completers.
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and recidivism rates often remain relatively high despite treatment (Klepfisz et al., 2014).

Furthermore, although evaluating changes at the group-level is valuable in determining the effectiveness of a treatment program as a whole (Daffern, Simpson, Ainslie, & Chu, 2018), the reality is that outside of research settings, program evaluation is not routinely undertaken and individual change tends to be the focus of attention. For example, parole boards and mental health tribunals often ask specific questions with regard to whether an offender has changed, by how much, and in what areas or ways (Davies et al., 2011). Group-based approaches are not designed to answer such questions, and evaluating treatment completers as a group may obscure treatment success at the individual level (Beggs, 2010). Moreover, group-level analyses disregard the variables that explain how violent offender treatment works (i.e. whether changes in dynamic risk or protective factors predict reduced recidivism) and which offenders have benefited from the program (Beggs, 2010; Serin, Lloyd, Helmus, Derkzen, & Luong, 2013).

The use of recidivism to evaluate treatment effectiveness also poses some challenges. Although officially documented recidivism rates tend to accurately identify those individuals who have offended violently (with a small number of false positives), many violent acts are never reported and thus official estimates tend to underrepresent the true occurrence of violence (Hanson, 1997). Furthermore, since recidivism represents future behaviour, which is not measured immediately following treatment, numerous extraneous factors can impact recidivism rates and an offender’s successful reintegration into the community (e.g., employment, social support, and housing) (Jung & Gulayets, 2011; Serin et al., 2013). For example, in their study examining patterns of treatment response among violent offenders, Yesberg and Polaschek (2014) found that following treatment completion, some of the offenders in their sample showed a regression on important treatment-related variables.

To address the problems described above, some authors have argued that an individual’s performance during treatment (not just post-treatment) and the level of change achieved, deserves attention (Nunes, Babchishin, & Cortoni, 2011). Importantly, however, there are still a number of gaps in knowledge that exist in this area:
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(a) First, there is a lack of substantive evidence linking in-program change with recidivism. Of note, previous research has predominantly investigated associations between violent recidivism and scores on dynamic risk factors at a single point in time (Coupland, 2015). However, to establish dynamism over treatment, a minimum of two temporal ratings are required, at least prior to (pre-treatment) and following treatment (post-treatment) (Hanson, 2000).

(b) Relatedly, although recent years have witnessed a growing interest in protective factors for violence, there is limited empirical evidence to suggest that treatment-related changes in these positive variables predict violent reoffending. Protective factors suffer from similar criticisms as dynamic risk factors in that most studies have commonly rated protective items at a single point in time, making it impossible to know whether changes in protective factors represent a possible mechanism underlying positive treatment effects (Coupland, 2015). Furthermore, most of the research conducted thus far has been conducted among European forensic psychiatric inpatients, and it is difficult to know whether these results would generalise to a sample of Australian incarcerated, non-mentally disordered offenders.

(c) It remains unclear how protective factors relate to risk factors for violence and whether protective factor assessment offers benefit over risk assessment in terms of violence prediction and treatment planning.

(d) Finally, the most appropriate method for assessing treatment change remains unclear. Treatment change has been measured in various ways in the literature, and each method possesses unique strengths and limitations (see Chapter Five for an overview of various change methodologies). Although comparisons of scores on multi-item structured risk and protective instruments has gained attention, it is also possible to measure whether an individual’s change can be considered ‘reliable’, and not simply caused by chance or measurement error. Yet another method
utilises specific scales to evaluate whether the individual has achieved particular milestones or thresholds deemed to be important in treatment related success (Polaschek, 2017). The Gain scale of the Treatment Readiness, Responsivity, and Gain Scale: Short version (TRRG:SV; Serin, Kennedy, & Mallioux, 2005) is one such scale designed to capture the overall amount of gain, or change, achieved in treatment.

4.2 Empirical Study One

Designed to partly address Research Aims 2 and 3, the primary aim of this study is to determine whether a group of moderate- and high-risk violent offenders change (with regard to dynamic risk and protective factors) as a consequence of violence-specific treatment, and whether, as theorised, dynamic assessment of change (in risk and protective factors) is linked to changes in violent recidivism. This study also aims to test the relative predictive and incremental value of specialised risk and protective factor instruments in an Australian sample. The following specific research questions are addressed:

1. Are treatment-related changes on the Violence Risk Scale (VRS), Historical-Clinical-Risk Management-20 version 3 (HCR-20\(^{v3}\)), and the Structured Assessment of Protective Factors for Violence Risk (SAPROF) from pre- to post-treatment significantly associated with violent reoffending at follow-up?
2. Do intra-individual reliable change scores on the VRS, HCR-20\(^{v3}\), and SAPROF significantly predict violent recidivism at follow-up?
3. Do SAPROF pre- and post-treatment total scores and summary protection judgments significantly predict violent reoffending in a sample of incarcerated violent offenders?
4. Do SAPROF summary protection judgments add incrementally to the prediction of violent reoffending over HCR-20\(^{v3}\) summary risk judgments?

Important supplementary questions are also addressed including:

5. Does the use of multiple violence risk instruments add incrementally to the prediction of violent reoffending?
6. When is best to administer risk assessments (e.g., before or after treatment)?
7. What is the best method of assessing treatment change (i.e. raw pre-post
change scores, reliable change indices, or utilising a scale designed to measure treatment gains in a correctional program)?

4.2.1 Hypotheses.

With regard to the primary aim of this study, it is hypothesised that:

1. Offenders’ total scores on dynamic risk factors for violence, as measured using the VRS and HCR-20v3, will significantly decrease from pre- to post-treatment.
2. Offenders’ total scores on dynamic protective factors, as measured using the SAPROF, will significantly increase from pre- to post-treatment.
3. Change scores on the VRS, HCR-20v3, and SAPROF will be significantly associated with violent recidivism following treatment, after controlling for static risk.

With regard to the supplementary questions addressed in this study:

4. It is hypothesised that scores on the risk and protective instruments will demonstrate greater predictive accuracy at post-treatment assessment.
5. Given evidence that various risk assessment instruments can be used interchangeably, it is predicted that the simultaneous use of the VRS and HCR-20v3 will not add incrementally to violence risk.
6. It is predicted that SAPROF final protection judgments will add incrementally to the prediction of violent recidivism over HCR-20v3 risk judgments, after controlling for static risk.
7. It is hypothesised that TRRG:SV Gain scale scores will be significantly positively correlated with change scores on the VRS, HCR-20v3, and SAPROF.
8. Furthermore, it is hypothesised that TRRG:SV Gain scale scores will be significantly negatively related to violent recidivism.

4.3 Empirical Study Two

Designed to partly address Research Aims 1 and 3, the aim of this second study is to explore the relationship between risk and protective factors for violence. Specifically, the aim of this study is to explore whether specific risk and protective items drawn from the HCR-20v3 and SAPROF are conceptually similar and thus,
whether they appear to be assessing aspects of the same constructs. Furthermore, this study aims to investigate whether the SAPROF items capture important treatment-related activities among violent offenders, and thus whether the SAPROF poses benefit for use among violent offenders. Using a factor analytic approach, the following specific research questions are addressed:

1. Do conceptually similar risk and protective factors drawn from the HCR-20v3 and SAPROF load onto the same factor?
2. Do the SAPROF items load onto the factors in a manner that aligns with common domains of violent offender treatment?

4.3.1 Hypotheses.

1. It is hypothesised that conceptually similar risk and protective items on the HCR-20v3 and SAPROF, respectively, will load onto the same factor.
2. Furthermore, based on the premise that the SAPROF is to be used in treatment planning, and that treatment focuses on changing dynamic risk factors and improving protective factors, it is expected that factor analysis of a subset of conceptually similar items on the HCR-20v3 and the SAPROF will produce four factors in a manner which aligns with common domains of violent offender treatment.
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CHAPTER FIVE: RESEARCH METHODOLOGY

5.1 Introduction

The first section of this chapter provides a brief description of the research design and sample used in this research. An overview of Corrections Victoria’s Violence Intervention Programs (VIPs) is provided, followed by a description of the sources of data used for this research. Offending variables are defined and a description of each of the psychometric measures is presented. The data analytic approach is explained, followed by a description of the sample characteristics and ethical considerations for the current research.

5.2 Research Design

A retrospective cohort study was conducted to examine the relationship between within-treatment change scores on dynamic risk and protective factors and their relationship with violent recidivism. The empirical studies that comprise this thesis involve quantitative analyses of information contained in offenders’ prison files and databases held by Victoria Police and the Department of Justice and Regulation.

5.3 Sample Selection

The sample comprised 201 adult male offenders who had been convicted of at least one violent offence and had attended a Violence Intervention Program (VIP) offered by Corrections Victoria between 2005 and 2016 at one of the State government-operated prisons in Victoria, Australia. One hundred and thirty one of the offenders had completed a moderate-intensity VIP, 68 had completed a high-intensity VIP, and two had completed a VIP described as “other” (see below for a description of these VIPs). All participants were rated on the VRS before and after treatment by Corrections Victoria clinicians. All offenders in the sample had served a term of imprisonment for violent index offence/s or had a history of convictions for violent offences.

5.4 Corrections Victoria Violence Intervention Programs (VIPs)

A description of Corrections Victoria’s Violence Intervention Programs is provided below. Offenders who are considered appropriate treatment candidates based on the results of their violence risk assessment are provided a place in one of the VIPs, so long as they have sufficient time to complete treatment before their sentence end.
date. Offenders who present with symptoms of acute mental illness are ineligible to attend the VIPs and are thus referred for specialised mental health treatment.

The moderate and high intensity VIPs are manualised programs, which provide specialised treatment for violent offenders. VIPs offered by Corrections Victoria are intended to reduce the likelihood of violent prisoners reoffending upon release into the community. They are generally delivered by Corrections clinicians (trained mental health professionals) in a closed-group therapy format and comprise up to 12 group participants. The VIPs are based on a cognitive-behavioural therapy (CBT) approach, and use techniques including cognitive restructuring, role playing, modeling, and activity-based learning. Opportunities to reinforce learning are provided through homework tasks and practicing skill development in session. Support may also be provided through individual case management. The programs are consistent with international evidence-based practice and adhere to the Risk-Need-Responsivity (RNR; Andrews, Bonta, & Hoge, 1990) principles of effective rehabilitation; for example, the VIPs address multiple dynamic risk factors (criminogenic needs) underlying violence and aggression (the need principle) and an offender is allocated to treatment based on their level of risk and need (the risk principle). Offenders have a choice with regard to whether or not they participate in a VIP; however, they are typically cognizant of the fact that treatment completion is viewed favourably when applying for parole.

5.4.1 Moderate intensity violence intervention program (MIVIP).

The MIVIP is targeted at moderate-risk offenders and typically involves 33 three-hour sessions, twice weekly, for approximately five months (approximately 100 hours total). The MIVIP aims to enhance an offender’s insight and ability to manage their aggressive and violent behaviour, to increase their conflict resolution skills, and to improve their emotion regulation. Another main goal of the program is to help offenders to be accountable for their behaviour. The MIVIP modules cover the following topics: developing insight; understanding violence, violent scripts, and the offence process; challenging thinking errors and belief systems; emotion/anger regulation; and empathy training (Klepfisz et al., 2014).
PART II: METHODOLOGY

5.4.2 High intensity violence intervention program (HIVIP).

The HIVIP is targeted toward high-risk offenders and typically involves 67 three-hour sessions, three times weekly, over approximately six months. In total, the core program offers at least 200 hours of intervention; however, up to 300 hours are available if offenders are assessed as needing additional modules to meet their treatment needs. The program aims to reduce an offender’s risk by increasing their capacity to manage high-risk situations. It focuses on helping individuals understand the function of their violent behaviour and the cycle of violence, and emphasises the need to take responsibility for one’s behaviour. The HIVIP teaches offenders new skills for coping with provocation, regulating emotional responses, and improving self-control. The HIVIP modules cover the following topics: life pathways and self-identity, understanding the offence process, prosocial thinking, managing emotions, victim awareness, and self-management (Klepfisz et al., 2014). Supplementary group-session modules that are available to offenders include: interpersonal relationships (8 sessions), substance abuse and violence (9 sessions), masculinity and violence (8 sessions), and anger and violence (11 sessions).

5.5 Sources of Data

5.5.1 Corrections Victoria.

5.5.1.1 Corrections Victoria Intervention Management System (CVIMS).

The Corrections Victoria Intervention Management System (CVIMS) records information about participants in Offending Behaviour Programs (OBPs). This database was used to identify the sample source for the current research and to create an initial master list of offenders who would potentially meet the research inclusion criteria (i.e. had been convicted of at least one violent offence and had participated in a VIP during the specified dates). The initial sample pool comprised male prisoners who had been initially assigned to the Serious Violent Offender (SVO) pathway.

5.5.1.2 Clinical service file.

The Clinical Service File (also known as the Offender Rehabilitation Program File) for each offender contains information from Corrections Victoria assessments, including reports about risk (i.e. VRS assessments), criminogenic needs to target in treatment, and eligibility for VIPs. Copies of the pre- and post-treatment VRS score sheets were available for all offenders in the sample. The Clinical Service File also
includes information pertaining to treatment, including treatment commencement and end dates, treatment progress notes relating to an offender’s participation in group or individual treatment, treatment completion reports, and copies of pre- and post-treatment psychometric data.

5.5.1.3 Individual management plan.

The Individual Management Plan contains sentencing and offending information for each offender, including details about their index and past offence/s, sentence length (i.e. sentence commencement and end dates), and parole eligibility dates. Information relevant to an offender’s general management throughout their sentence is also available, including information about attendance at employment or educational programs, documentation related to disciplinary incidents, prison transfers, and general behaviour during incarceration.

5.5.2 Department of Justice and Regulation Prisoner Information Management System (PIMS).

The Prisoner Information Management System (PIMS) was introduced in 1985 and is used to facilitate the management of offenders serving custodial orders within the Victorian prison system. The PIMS is used to manage prisoner information, including prisoner movements (both within and between custodial sites and/or the community), sentence management, offender finances, and prisoner incidents. Dates of release from, and entry into, custody were obtained from the PIMS. This information was used to determine the study follow-up period and offenders’ time to re-offence (for recidivists).

5.5.3 Victoria Police Law Enforcement Assistance Protocol (LEAP) database.

The Law Enforcement Assistance Protocol (LEAP) is an operational policing database that was implemented state-wide in Victoria, Australia in March 1993 (Victoria Police, 2015). It contains information about all official notifications received by Victoria Police, including crimes, family incidents, and missing persons, and is updated as new information pertaining to these incidents becomes available. Information from the LEAP database is downloaded and compiled on a daily basis to generate offence statistics, which constituted the source of reoffending data for the
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current research.

Although the information obtained from the LEAP provides data on formal contacts that led to an offender being charged, the legal outcome and sentence associated with those contacts over the longer-term (e.g., prosecution, guilty verdict, or conviction) cannot be determined from the offence statistics provided by the LEAP. Of note, offending rates derived from policing data are often considered more inclusive than those derived from later stages of the criminal justice process, such as court outcomes or correctional information (Henshaw, 2017). This is primarily due to the increased potential for the recording of false positives at this point (i.e. being charged for a crime that was subsequently not proved/did not lead to a conviction) relative to any other stage of the criminal justice system (Payne, 2007). As such, police data are likely to overestimate the true incidence of offending among a given population of offenders. However, it is important to recognise that not all violent offences are detected by, or reported to, the police and generally speaking, offending data derived from official records are likely to underestimate the true incidence of offending. As such, police data potentially provide figures closest to actual rates of violent offending (Henshaw, 2017).

5.6 Procedure

The current research is based on a retrospective archival analysis of the prison files (Clinical Service Files and Individual Management Plans) of 201 adult male violent offenders. To be included in the sample, offenders were required to have completed a VIP and to have undergone a violence risk assessment, using the VRS, at both pre- and post-treatment. VRS scores were extracted from prison files (having previously been completed by Corrections Victoria clinicians), and the HCR-20v3, SAPROF, and the Gain scale of the TRRG:SV were scored retrospectively based on file review, with assessors blind to VRS scores (see below for elaboration). Files containing insufficient information to permit retrospective scoring were excluded from the sample.

5.6.1 Data collection procedure.

All information collected from the Clinical Service Files and Individual Management Plans was coded on a data collection protocol that contained a unique identifier allocated by the researchers (i.e. the information on the protocol was de-
identified and each subject was given a unique number). This data collection protocol was developed specifically to aid the systematic review of case file information and to facilitate the retrospective scoring of the HCR-20\textsuperscript{v3}, SAPROF, and TRRG:SV (a copy of the data collection protocol is provided in Appendix III). The data collection protocol included a set of validated measures (described later in this chapter) and a series of variables developed specifically to capture the information of interest in this research. The following groups of information were coded on the research protocol: sentencing information/procedural dates, demographic and substance use information, criminal history and index offence information, risk assessment data, pre- and post-treatment psychometric scores, and data related to treatment completion.

In order to complete the data collection protocol, the Clinical Service Files and Individual Management Plans were systematically audited and reviewed by 10 research assistants (including the author of this thesis) who were either doctoral-trained psychologists or doctoral-level graduate students in psychology. The file review commenced on the 3\textsuperscript{rd} November 2016 and was completed on the 14\textsuperscript{th} March 2017. Data collection proceeded under the supervision of two experienced Clinical and Forensic Psychologists (Professor Michael Daffern and Dr. Dan Shea). During this process, all VRS scores were extracted (having previously been completed by Corrections Victoria clinicians) and the HCR-20\textsuperscript{v3}, SAPROF, and TRRG:SV were scored retrospectively based on file review. The author and all research assistants rating these instruments had completed formal, standardised training in each of the relevant instruments, and were supervised by Professor Daffern and Dr. Shea.

Pre- and post-treatment ratings for any given measure were carried out by the same rater. One person was allocated to score the HCR-20\textsuperscript{v3} for each file, while a second person was allocated to score the SAPROF and TRRG:SV Gain scale for that same file. This was done to ensure that protection scoring and ratings were not biased by the rater’s knowledge of an offender’s risk and vice versa. Similar to the methodology employed by de Vries Robbé (2014), pre-treatment ratings were made while raters were blind to any subsequent treatment notes, and scores were based on a hypothetical scenario of release-planning without further treatment. Post-treatment ratings were made based on all available file information at treatment completion, including group treatment notes and treatment completion reports. All raters were blind to VRS scores and recidivism data.
5.7 Data Linkage Procedure

The current research utilised a data linkage framework to identify, extract, and link demographic and offending information for each individual within the sample. As detailed previously, the sample utilised in this research was selected from an overall pool of violent offenders who had initially been assigned to the SVO pathway. Once the final sample source was selected, records were matched to individual offenders according to name, date of birth, criminal record number (CRN), and Justice Accused Identifier (JAID). For example, this information was provided to the Department of Justice and Regulation and Victoria Police in a secure password-protected document. The Department of Justice and Regulation provided the PIMS data in the form of a password-protected Excel document. These documents were accompanied with a list of numerical identifiers, which were used to match the data to the original set of identifiers provided by the research team (i.e., two phases of identifier matching were required). Victoria Police provided the recidivism data in the form of a password-protected Excel document. Once again, two phases of identifier matching were required. Once all the data were coded into a de-identified dataset, the data were analysed using IBM’s Statistical Package for the Social Sciences (SPSS), versions 24 and 25.

5.8 Coding of Offending Variables

5.8.1 Historic offending.

Offenders’ Individual Management Plans contained copies of official criminal history transcripts obtained from the LEAP database. These records were used to code an individual’s historic offending (i.e. nature of previous convictions, excluding the index offence/s). Five categories of offences were rated, as described in Table 5.1 below. Of note, weapons offences were not considered to constitute ‘violent’ offences, given that weapons offences may include possession of regulated/unregistered weapons or unsafe carrying of a weapon (i.e., ‘carry dangerous article’), which are not considered to meet the definition of violence, as specified in the ‘Terminology’ section of this thesis (see page xvi). In cases where a weapon was used in the commission of a violent offence (e.g., ‘assault with weapon’), this offence was considered to constitute an assault offence as was thus rated as ‘violent’.
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Table 5.1 *Offence categorisation scheme used to classify historic offences*

<table>
<thead>
<tr>
<th>Offence category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violent offences</td>
<td>Murder, manslaughter, assault (including recklessly and/or intentionally causing serious injury), affray, robbery and aggravated burglary offences, sexually violent offences, and other violent offences (including kidnapping, unlawful imprisonment, stalking, and threats to kill).</td>
</tr>
<tr>
<td>Non-violent offences</td>
<td>Drug-related offences (including trafficking, possession, and cultivation of substances), property-related offences (including burglary, theft, and criminal damage), and other non-violent offences (including handling and/or receiving stolen goods or obtaining financial advantage by deception). Weapons offences which did not involve contact with another person (e.g., possession) were categorised as non-violent.</td>
</tr>
<tr>
<td>Sexual offences</td>
<td>Includes violent and non-violent sexual acts including sexual assault, rape, indecent act, exhibitionism, child pornography, and online solicitation of a child.</td>
</tr>
<tr>
<td>Breach offences</td>
<td>Breach of community-based orders, suspended sentences, intensive correction orders, and parole orders, as well as fail to answer bail, fail to appear, and escape from custody.</td>
</tr>
<tr>
<td>Non-sexual violent offences</td>
<td>Includes violent offences which do not have any sexual element and/or motivation.</td>
</tr>
</tbody>
</table>

5.8.2 Index offence/s.

The *index conviction* is the conviction resulting in the custodial sentence being imposed and during which the individual completed VIP treatment. Information about an offender’s index offence/s was obtained from official criminal history transcripts (produced by the LEAP) and judicial sentencing comments (where available). Index offence/s were rated similarly to prior offences based on whether they were: (i) violent, (ii) non-violent, (iii) sexual, (iv) breach, and/or (v) non-sexual violent offences.

5.8.3 Recidivism and time to re-offence.

Within the current research, *recidivism* was defined as any charge occurring on a date subsequent to the index offence date and was determined using formal
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criminal charges data obtained from the LEAP database, Victoria Police. These data were reviewed only after the file review phase had been completed. Information that was available to the researchers included the date of charge/s and the nature of the offence/s. New offences were categorised according to the scheme presented in Table 5.2 below.

Within the current research, two sources of information were used to capture reoffending; namely, whether the individual reoffended (recorded as a binary construct, where offenders were either classified as ‘recidivists’ or ‘non-recidivists’) and time to first re-offence. Follow-up time was defined as the time between release from prison (no later than December 2016) and the study end date (4th April 2017) and thus was not fixed across offenders. In line with Quinsey and colleagues’ (2006) recommendations, time at risk was defined as the number of days between index and recidivistic charge dates (or study end date for non-recidivists), less the number of days incarcerated between the index and recidivism or study end dates. The average follow-up time was 6.86 years ($SD = 2.28$, range .42 to 11.50 years) and the average time at risk 91.93 weeks ($SD = 133.26$, range 0 to 546 weeks).

Table 5.2 Recidivism categorisation scheme used to classify new charges (based on Australian Institute of Criminology, 2012; Wong, Gordon, Gu, Lewis, & Olver, 2012)

<table>
<thead>
<tr>
<th>Offence category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any recidivism</td>
<td>Operationalised as charges for any offence, including breach offences</td>
</tr>
<tr>
<td>Sexual recidivism</td>
<td>Operationalised as charges for any sexual offence, both violent and non-violent in nature</td>
</tr>
<tr>
<td>Non-sexual violence</td>
<td>Operationalised as charges for any assault or homicide offences excluding all sexual offences</td>
</tr>
<tr>
<td>Intermediate violence</td>
<td>Operationalised as offences which indicated the threat of serious physical or psychological harm against the person without actual physical harm or contact, including robbery, aggravated burglary, stalking, kidnapping, arson, and making threats</td>
</tr>
</tbody>
</table>
5.9 Coding of Other Variables

5.9.1 Demographic Information

Demographic information was coded from the information that was available in PIMS and offenders’ Clinical Service Files and Individual Management Plans. Information relating to subjects’ date of birth, ethnicity, relationship status, child dependents, highest level of education, employment history, and substance abuse history were coded.

5.9.2 Sentencing information.

Relevant sentencing and procedural dates were also recorded including: sentence date, aggregate commencement date, non-parole period end date (EED), sentence expiry date (EDD), prison entry date (if different to sentence commencement date), prison release date, and number of presentencing days (PSD). These dates were used to calculate each offender’s age at the time of their VRS assessment, sentence length (including and excluding parole period), and the mean number of days between treatment completion and release from prison.

5.10 Psychometric Measures

5.10.1 Violence Risk Scale (VRS; Wong & Gordon, 2003).

In Victoria, the VRS forms a key component of violence risk assessment within many correctional settings. It is a fourth-generation clinician-rated, actuarial risk assessment instrument, designed to assess risk for violent recidivism and changes in risk levels as a consequence of treatment (Wong & Gordon, 2003). It is intended to aid treatment providers who work with high-risk/high-need non-sexual violent offenders and can guide them in determining who to treat (i.e. can identify suitable treatment candidates), what to treat (i.e. can identify criminogenic needs to target in treatment), and how to treat (i.e. can identify suitable therapeutic techniques based on the individual’s stage of change) (Wong & Gordon, 2006).

The VRS consists of six static and 20 dynamic predictors of violence, rated on a four-point scale from 0 to 3 (see Table 5.3 below for a list of the VRS items). Dynamic items rated as either a 2 or a 3 are considered important or key treatment targets. Using a modified version of Prochaska and DiClemente's (1986) stages of change model, each dynamic variable identified as a treatment target is rated at both pre- and post-treatment to assess the individual’s stage of change on that item.
Progression from one stage of change to the next indicates improvement and a reduction in risk for violence for that target (see Wong & Gordon, 2003, for a more detailed description of VRS scoring). Total pre- and post-treatment scores represent the offender’s overall level of risk for violent recidivism at two time points. The higher the total score, the higher the individual’s risk of violent recidivism. To ascribe a final risk rating, cut-offs from the VRS administration manual are applied to the total score (Coupland, 2015); that is, total scores of 35 and under reflect Low violence risk; scores of 35-50 indicate Moderate risk; and scores exceeding 50 indicate High violence risk. The VRS has demonstrated good inter-rater reliability ($r = .87$ to $r = .97$) and has demonstrated predictive validity for violent and non-violent recidivism over short- and longer term followup (Lewis, Olver, & Wong, 2013; Wong & Gordon, 2006).

Table 5.3 Static and Dynamic Items from the VRS

<table>
<thead>
<tr>
<th>Static items</th>
<th>Dynamic items</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1. Current age</td>
<td>D1. Violent lifestyle</td>
</tr>
<tr>
<td>S2. Age at first violent conviction</td>
<td>D2. Criminal personality</td>
</tr>
<tr>
<td>S3. No. of juvenile convictions</td>
<td>D3. Criminal attitudes</td>
</tr>
<tr>
<td>S4. Violence throughout lifespan</td>
<td>D4. Work ethic</td>
</tr>
<tr>
<td>S5. Prior release failures/escapes</td>
<td>D5. Criminal peers</td>
</tr>
<tr>
<td></td>
<td>D7. Emotional control</td>
</tr>
<tr>
<td></td>
<td>D8. Violence during institutionalisation</td>
</tr>
<tr>
<td></td>
<td>D9. Weapon use</td>
</tr>
<tr>
<td></td>
<td>D10. Insight into cause of violence</td>
</tr>
<tr>
<td></td>
<td>D11. Mental disorder</td>
</tr>
<tr>
<td></td>
<td>D12. Substance abuse</td>
</tr>
<tr>
<td></td>
<td>D13. Stability of relationships with others</td>
</tr>
<tr>
<td></td>
<td>D14. Community support</td>
</tr>
<tr>
<td></td>
<td>D15. Released to high risk situations</td>
</tr>
<tr>
<td></td>
<td>D16. Violence cycle</td>
</tr>
<tr>
<td></td>
<td>D17. Impulsivity</td>
</tr>
<tr>
<td></td>
<td>D18. Cognitive distortions</td>
</tr>
<tr>
<td></td>
<td>D19. Compliance with community supervision</td>
</tr>
<tr>
<td></td>
<td>D20. Security level of release institution</td>
</tr>
</tbody>
</table>
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As mentioned, the VRS was rated prospectively by Corrections clinicians prior to and following treatment. Where individual VRS items were not scored or not properly recorded, pro rata subscale and total VRS scores were produced for the current research using the following formula, adapted from the VRS manual (Wong & Gordon, 2003, p. 18):

\[
Pro \text{ rata score} = \frac{raw \text{ score} \times total \text{ number of factors}}{(total \text{ number of items} - number \text{ of omitted factors})}
\]

In accordance with the VRS manual (Wong & Gordon, 2003), no pro rata scores were produced for those offenders who had more than three omitted factors on the VRS.

5.10.2 Historical-Clinical-Risk Management-20 version 3 (HCR-20\textsuperscript{v3}; Douglas et al., 2013)

The HCR-20\textsuperscript{v3} is a widely used clinician-rated, structured professional judgement violence risk assessment instrument, which comprises 20 risk factors for violence, including 10 historical factors, five dynamic clinical factors (which reflect current correlates of violence), and five dynamic risk management factors (which focus on situational and post-assessment factors that may increase or mitigate risk) (see Table 5.4 below for a list of the HCR-20\textsuperscript{v3} items) (Douglas et al., 2013). Evaluators code the presence of risk factors using a 3-level response format that reflects the certainty of the evaluator’s opinion; (Y) = Yes present, (P) = Partially present, and (N) = Not present. Some risk factors have two or more sub-items, which are rated using the same general rating instructions as the overarching risk factors. For research purposes, these descriptors were transposed to numerical scores where 0 = No; 1 = Partial/Possible; and 2 = Yes/Definite. Using this scoring procedure, a total HCR-20\textsuperscript{v3} score can be calculated for research purposes. Evaluators can also judge the relevance of risk factors to each particular person’s risk for violence to help inform future risk management strategies. Assignment of nominal risk ratings (i.e., low, moderate, and high) is generally undertaken using professional judgment. However, as a general rule of thumb, total scores of 15 and under reflect Low violence risk; scores of 16-25 indicate Moderate violence risk; and scores exceeding 26 indicate High violence risk.
With regard to the retrospective scoring of the HCR-20\textsuperscript{v3}, and in particular, scoring of the Clinical items at post-treatment, functioning at the end of treatment was emphasised; however, stability across the treatment period was also considered. HCR-20\textsuperscript{v3} Risk Management items at post-treatment were evaluated as “Out” (Community). The HCR-20 has demonstrated strong inter-rater reliability among correctional samples, with ICCs ranging from .67 to .96 (Douglas et al., 2014). The HCR-20\textsuperscript{v3} has demonstrated good interrater reliability for total scores (ICC\textsubscript{1} = .94). Furthermore, the HCR-20\textsuperscript{v3} has demonstrated predictive validity for violence among forensic (de Vogel, van den Broek, & de Vries Robbé, 2014; Douglas, Strand, & Belfrage, 2011; Doyle et al., 2014) and civil psychiatric patients with AUCs ranging from 0.67-0.81 (Strub, Douglas, & Nicholls, 2014).

Table 5.4 *Historical, Clinical, and Risk-Management Items on the HCR-20\textsuperscript{v3}*

<table>
<thead>
<tr>
<th>Historical items</th>
<th>Clinical items</th>
<th>Risk-management items</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of problems with:</td>
<td>Recent problems with:</td>
<td>Future problems with:</td>
</tr>
<tr>
<td>H1. Violence</td>
<td>C1. Insight</td>
<td>R1. Professional services or plans</td>
</tr>
<tr>
<td>H2. Other antisocial behaviour</td>
<td>C2. Violent ideation or intent</td>
<td>R2. Living situation</td>
</tr>
<tr>
<td>H4. Employment</td>
<td>C4. Instability</td>
<td>R4. Treatment or supervision response</td>
</tr>
<tr>
<td>H5. Substance use</td>
<td>C5. Treatment or supervision response</td>
<td>R5. Stress or coping</td>
</tr>
</tbody>
</table>

In clinical practice, clinicians can score both the presence and the relevance of items on the HCR-20\textsuperscript{v3}. This focuses attention on the importance of specific risk factors for an individual (with regard to their formulation) and can be useful for the development of risk management and treatment intervention strategies (de Vries Robbé, 2014). As the present file study was retrospective in nature, HCR-20\textsuperscript{v3} relevance ratings were not subject to any quantitative analyses, since their value lies...
especially in their prospective use (de Vries Robbé, 2014).

5.10.3 Structured Assessment of Protective Factors for Violence Risk (SAPROF; de Vogel et al., 2012).

The SAPROF is a clinician-rated, structured professional judgment instrument, which is intended to identify protective factors for violence risk. The SAPROF should be used in conjunction with, and to complement, a risk-focussed assessment instrument such as the HCR-20\textsuperscript{v3}, and includes individual internal factors (e.g., empathy, coping), individual motivational factors (e.g., work, leisure activities, motivation for treatment) as well as environmental (external) support factors (e.g., social network, professional care, living circumstances) (see Table 5.5. below for a list of the SAPROF items). The authors argue that this provides a more comprehensive and balanced approach to predicting and managing violence risk (de Vogel et al., 2012). Most of the SAPROF protective items are amenable to change and thus aim to provide opportunities for positive treatment intervention and risk management (de Vries Robbé, 2014). This thesis represents the first research in which the SAPROF is used with an Australian sample. The SAPROF has demonstrated strong inter-rater reliability with ICCs of .85-.88 for total scores. Individual items’ ICCs range from .42-.94 (Coupland, 2015). Furthermore, in an forensic psychiatric inpatient sample, SAPROF total scores and SAPROF change scores have demonstrated predictive validity for violent reoffending, with AUCs ranging from .74-.85 at one through three years followup (de Vries Robbé et al., 2011; de Vries Robbé et al., 2015).

Similar to HCR-20\textsuperscript{v3} relevance ratings, clinicians can indicate whether specific items on the SAPROF represent key and/or goal factors for the individual being assessed. This focuses on the importance of specific protective factors, which can be valuable when considering treatment intervention strategies (de Vries Robbé, 2014). However, as the present research utilised a retrospective design, ratings of key and goal factors were not subject to statistical analysis (de Vries Robbé, 2014).
## Table 5.5 *Static and Dynamic Protective Factors on the SPROF*

<table>
<thead>
<tr>
<th>Static items</th>
<th>Dynamic items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intelligence</td>
<td>Internal factors</td>
</tr>
<tr>
<td>2. Secure attachment in childhood</td>
<td>1. Empathy</td>
</tr>
<tr>
<td></td>
<td>2. Coping</td>
</tr>
<tr>
<td></td>
<td>3. Self-control</td>
</tr>
<tr>
<td>Motivational factors</td>
<td></td>
</tr>
<tr>
<td>4. Work</td>
<td></td>
</tr>
<tr>
<td>5. Leisure activities</td>
<td></td>
</tr>
<tr>
<td>6. Financial management</td>
<td></td>
</tr>
<tr>
<td>7. Motivation for treatment</td>
<td></td>
</tr>
<tr>
<td>8. Attitudes toward authority</td>
<td></td>
</tr>
<tr>
<td>9. Life goals</td>
<td></td>
</tr>
<tr>
<td>10. Medication</td>
<td></td>
</tr>
<tr>
<td>External factors</td>
<td></td>
</tr>
<tr>
<td>11. Social network</td>
<td></td>
</tr>
<tr>
<td>12. Intimate relationship</td>
<td></td>
</tr>
<tr>
<td>13. Professional care</td>
<td></td>
</tr>
<tr>
<td>14. Living circumstances</td>
<td></td>
</tr>
<tr>
<td>15. External control</td>
<td></td>
</tr>
</tbody>
</table>

### 5.10.4 Treatment Readiness, Responsivity, and Gain Scale: Short Version (TRRG:SV; Serin et al., 2005).

The TRRG:SV to is intended to evaluate an offender’s readiness and responsiveness to treatment and the degree to which the offender made important treatment gains. This thesis is particularly interested in the Treatment Gain Scale, which evaluates whether offenders achieve particular milestones or thresholds deemed to be important in treatment-related success (Polaschek, 2017). As shown in Table 5.6 below, the Gain scale comprises eight items representing a combination of knowledge, participation, and competencies in treatment. The purpose of this domain is to provide an overall evaluation of an offender's performance in a correctional program (for descriptions of the Treatment Readiness and Responsivity Scales, please refer to the TRRG:SV manual). Items on the Gain scale are rated on a 4-point scale from 0-3, with higher scores reflecting greater gains in treatment. Sowden (2013) reports that the TRRG:SV Gain scale has good interrater reliability (ICC₁ = .96) with a Cronbach
alpha coefficient of .95. The TRRG:SV Gain scale has also demonstrated predictive validity for sexual (AUC = 0.61) and violent recidivism (AUC = .66) among a sample of sex offenders (Sowden, 2013).

Table 5.6 *Items from the Treatment Gain Scale of the TRRG:SV*

<table>
<thead>
<tr>
<th>Treatment Gain Scale items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Evidence of increased skills from program</td>
</tr>
<tr>
<td>2. Disclosure in program</td>
</tr>
<tr>
<td>3. Application of knowledge</td>
</tr>
<tr>
<td>4. Application of skills</td>
</tr>
<tr>
<td>5. Depth of emotional understanding of program content</td>
</tr>
<tr>
<td>6. Appropriateness of behaviour in group</td>
</tr>
<tr>
<td>7. Participation</td>
</tr>
<tr>
<td>8. Therapeutic alliance</td>
</tr>
</tbody>
</table>

5.11 Data Cleaning and Missing Data

Few instances of missing data were found with respect to the demographic, offending, or sentencing variables. With regard to the risk and protection assessment data, all variables were checked for out-of-range values. If an out-of-range value was identified, authoritative records (PIMS or LEAP data) and/or hand-scored data collection protocols were checked to determine the true value. Out-of-range values that could not be resolved were coded as “missing/unknown”. Total scores on the VRS were only calculated when there were no more than three missing items. Only a few items were missing on the HCR-20v3, SAPROF, and TRRG:SV Gain Scale (for example, when scoring Item 1 on the SAPROF, raters often found limited information about an individual’s intelligence, and thus this item was commonly omitted); however, the number of items that were omitted on each measure did not exceed the guidelines provided in their respective manuals.

5.12 Data Analytic Approach

5.12.1 Interrater reliability.

*Reliability* refers to whether an instrument can be interpreted consistently across different situations or raters (Field, 2009). To assess interrater reliability, the intraclass correlation coefficient (ICC) was used. ICC is defined as “the correlation
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between one measurement (either a single rating or a mean of several ratings) on a
target and another measurement obtained on that target” (Shrout & Fleiss, 1979, p.
422). This is typically the preferred technique for assessing interrater reliability, as it
captures the strength of association between scores as well as the level of agreement
between raters (Howell, 2002). There are various types of ICC, each applicable to
specific situations and research questions (Shrout & Fleiss, 1979). Nevertheless, there
are three that are more relevant to evaluations of interrater reliability: (1) one-way
random effects models, (2) two-way, random effects models, and (3) two-way mixed
effects models. For the current research, the interrater reliabilities of the HCR-20\(^{v3}\),
SAPROF, and TRRG:SV Gain scale were assessed on 21 randomly selected cases and
analysed using one-way random effects, absolute agreement, single-measure ICC
coefficients. As each case was scored by a different pair of raters, two-way models
were inappropriate (Shrout & Fleiss, 1979). According to Fleiss (1986), the critical
values for single measure ICCs are as follows: ICC ≥ 0.75, excellent; 0.60-0.74, good;
0.40- 0.59, moderate; and ≤ 0.40, poor.

5.12.2 Convergent validity.

In general, validity refers to whether an instrument measures what it
was
designed to measure (Field, 2009). *Convergent validity*, which is a subtype of
construct validity, reflects the extent to which two measures (which theoretically
should be related) capture a common construct (Carlson & Herdman, 2012). Kendall’s
tau-b correlations (symbolised by \(\tau\)) were used to investigate the convergent validity
of the measures, as well as convergent correlations between change scores on the VRS,
HCR-20\(^{v3}\) and SAPROF and scores on the TRRG:SV Gain scale. Kendall’s tau-b is a
non-parametric correlation technique and was chosen over Spearman’s rho (\(\rho\)), since
the data were ordinal in nature and tied ranks may be frequent. For instance, although
the VRS is rated on a 4-level response format (0, 1, 2, 3) the difference between a
score of 0 and 1 is not necessarily the same as the difference between a score of 2 and
3. Ostensibly, the same can be said for scores on the HCR-20\(^{v3}\) and SAPROF.
Furthermore, when evaluating ordinal data with few levels (such as risk ratings of
‘low’, ‘moderate’, and ‘high’) ties will be frequent.
5.12.3 Predictive validity.

*Predictive validity* refers to whether an instrument predicts a criterion measure, which in the case of the current thesis is violent reoffending (Cohen & Swerdlik, 2010). To assess the predictive validity of an instrument, test scores can be obtained at one point in time and criterion measures obtained at a future point in time. Alternatively, retrospective designs (such as in the current research method) allow for criterion measures to exist prior to test score calculation, so long as the researchers remain blind to these outcomes (Brookstein, 2016).

5.12.3.1 Receiver-operating characteristic curves (ROC) / Area under the curve (AUC).

Receiver-operating characteristic (ROC) analyses were used to assess the predictive validity of the VRS, HCR-20\textsuperscript{3}, SAPROF, and TRRG:SV Gain scale. This analysis yields an area under the curve (AUC) statistic, which is independent of sample size, base rates, and selection ratios (Olver, Stockdale, & Wong, 2012). The AUC in a ROC analysis refers to the probability that a randomly selected recidivist received a higher score on the instrument than a randomly selected non-recidivist. The AUC can be interpreted as the overall discriminant power of the predictive model, with a value of .5 indicating that the test does not discriminate between recidivists and non-recidivists. In correctional research, AUC values are generally interpreted as low (AUC = .56-.64), medium (AUC = .64-.71), and high (AUC = .71 and above) (Rice & Harris, 2005). Of note, AUC values for scores/judgments derived from the SAPROF were calculated by subtracting the AUC value from 1.00. Although imperfect, the use of ROC/AUC analyses has been endorsed as the means of evaluating and reporting on violence and offending risk assessment efficacy, particularly given that base rates of violence are generally low (Douglas, Ogloff, & Hart, 2003; Singh, Yang, & Mulvey, 2014).

5.12.3.2 Other relevant discriminatory indices.

Although the AUC statistic is often used to summarise the predictive validity of risk assessment instruments in a single number, it does not capture more detailed information about an instrument’s performance. Based upon recent recommendations for evaluating the predictive validity of risk assessment instruments (Cooke & Michie 2014; McEwan et al., 2018), the following statistics were also calculated for each
risk/protection threshold (i.e. low, moderate, high): *positive predictive value (PPV)*, the proportion of individuals at or above the threshold who reoffended (i.e. the proportion of individuals deemed high risk who actually reoffended); *negative predictive value (NPV)*, the proportion of individuals below the threshold who did not reoffend; *sensitivity*, the proportion of violent people who were correctly predicted to be violent, and *specificity*, the proportion of non-violent people who were correctly predicted to be non-violent. To calculate PPV and NPV, the risk and protection instruments must be treated as though they produce a dichotomous outcome (i.e., a positive or negative test result) (Brookstein, 2016). Since the VRS, HCR-20\(^3\) and SAPROF produce ratings/judgments that are not dichotomous, dichotomous outcomes were created by grouping ratings as follows: Low vs. (Moderate and High) and (Low and Moderate) vs. High (for the VRS and HCR-20\(^3\)); and Low vs. (Moderate and above) and (Low and Low-mod) vs. (Moderate and above).

5.12.3.3 Cox regression survival analysis

Cox regression analyses were also used to assess the predictive validity of pre- and post-treatment psychometric scores, risk ratings on the VRS, and risk and protection judgments on the HCR-20\(^3\) and SAPROF. Cox regression analyses using a regression algorithm to assign a particular hazard ratio (e\(^{\beta}\)) to each variable across the population studied to best explain the overall outcome in question. In this research, the hazard ratio represents the probability that an individual will reoffend within a specified time interval and can be interpreted as the risk of violent reoffending. Hazard ratios greater than 1.0 indicate that the predictor variable is associated with an increased likelihood of violent recidivism, whereas values below 1.0 indicate that the predictor was associated with reduced recidivism rates. For example, in Table 4 (see page 91), a hazard ratio of 2.14 suggests that with each 1 point increase in HCR-20\(^3\) risk judgments (where ‘0’ represents low risk, ‘1’ represents moderate risk, and ‘2’ represents high risk), offenders were 2.14 times more likely to reoffend. Conversely, a hazard ratio of .75 suggests that with each 1 point increase in SAPROF protection judgments (where ‘0’ represents low protection, ‘1’ represents low-moderate protection, ‘2’ represents moderate protection, and so on), offenders’ risk of reoffending is reduced by .25.
Helmus, Thornton, Hanson, and Babchishin (2012) note that cox regression is less influenced by range restrictions compared to AUC, and therefore tends to provide a more stable estimate of predictive accuracy. Furthermore, cox regression is a more stringent method of assessing predictive validity than ROC/AUC analyses, since it incorporates (statistically controls for) an offenders’ time at risk in the community, and thus varying opportunities to reoffend. Data is censored when an offender does not reoffend during the specified follow-up period. By definition then, offenders who do not reoffend during the follow-up are considered to have ‘survived’, whereas those who do reoffend are considered to have ‘failed’ (Brookstein, 2016).

5.12.4 Incremental predictive validity.

In deciding whether to use more than one instrument to predict a specific outcome (such as violent reoffending), consideration is usually afforded to whether the addition of another instrument increases the predictive validity for the outcome, beyond what is provided by the existing measure. This is known as incremental predictive validity. Of note, cox regression analyses allow multiple predictors to be measured simultaneously to elucidate their independent and unique contributions to the outcome variable (i.e. violent recidivism). As such, cox regressions were conducted to investigate the incremental predictive validity for violent recidivism of (i) the VRS over an assessment using the HCR-20v3, (ii) the HCR-20v3 over an assessment using the VRS, (iii) SAPROF protection judgments over HCR-20v3 risk judgments, and (iii) treatment change scores over static risk scores.

5.12.5 Analysis of within-treatment change.

In the general clinical literature, the most common indices of treatment effectiveness (e.g., non-clinical post-treatment scores, large treatment-related changes, and no longer meeting criteria for a psychiatric diagnosis) do not typically include future behaviour as an outcome measure (Jung & Gulayets, 2011). In terms of psychological and health interventions, Des Jarlais and colleagues (2004) recommend that within-treatment changes should be considered when evaluating whether an intervention has been effective. As discussed, a reduction in (or elimination of) recidivism is considered the ultimate, or long-term, goal of violent offender treatment. Yet reductions in recidivism occur by changing more proximal variables (Yesberg, 2015). That is, violent offender treatment is theorised to reduce recidivism via a
reduction in dynamic risk factors (and an increase in dynamic protective factors). As such, when examining the efficacy of violent offender treatment, investigations of whether an individual has demonstrated changes in these dynamic factors may be a useful alternative to comparing the recidivism rates of treatment completers versus non-completers; offenders who demonstrate more change in these factors during treatment should theoretically reoffend are lower rates than offenders who demonstrate less change (Yesberg, 2015) (For a more complete review of violent offender treatment efficacy and the intermediate effects of offence-focussed intervention on offenders, please refer to Appendix IV).

Notably, an individual’s change in treatment can be measured in numerous ways, and each method possesses unique strengths and limitations. These methods are described below, in the hope that such information might inform future research methodologies. For the purposes of the current research, however, only three types of change information were used: (i) raw pre-post change scores, (2) reliable change scores, and (3) scales designed to measure treatment gain.

5.12.5.1 Clinical review.

Clinical approaches to assessing treatment change are often based upon a review of an individual’s case material (including treatment notes, past reports, and other relevant documentation) in order to determine whether change has occurred (Davies et al., 2011). It may be possible, for example, to identify change by looking at information collected in a basic form such as behavioural frequency count data (Davies et al., 2011). For example, if an individual was noted to be aggressive at least three times per day before treatment, and following treatment the frequency of the individual’s aggressive behaviour had reduced, then improvement may be evident simply from these observations. Although such data may inevitably be useful, they should be used cautiously, as they may be susceptible to bias and changes may be difficult to assess confidently when the data are more complex (Davies et al., 2011).

5.12.5.2 Scales designed to measure treatment gain.

Another method of capturing within-treatment change is to utilise formal scales that have been designed to evaluate whether the individual has achieved particular milestones or thresholds deemed to be important in treatment-related success (Polaschek, 2017). The Gain Scale of the TRRG:SV (described above) is one
such scale; it is a post-treatment measure designed to capture the overall amount of gain, or change, achieved in correctional treatment. However, this measure has only been tested in one unpublished dissertation, which demonstrated that the TRRG:SV Gain scale has predictive validity for long-term sexual and violent recidivism (convictions) among a sample of 186 federally incarcerated adult male sexual offenders (Sowden, 2013). Similar to the present research, the TRRG:SV Gain scale was coded from archival offender file information.

5.12.5.3 Pre-post change scores.

One common method to evaluate within-treatment change is to assess whether there is evidence of changes on intermediary treatment targets, or proximal offence-related dynamic variables (Friendship, Falshaw, & Beech, 2003). These variables, or criminogenic needs, are functionally related to violent behaviour and thus, when used as clinical targets, are considered to be immediate indicators of treatment efficacy (Klepfisz et al., 2014). Individuals may complete self-report psychological tests pre- and post-treatment and raw pre-post difference scores can be discerned to provide an estimate of treatment change that is easy to calculate. Importantly, a number of multi-item structured violence risk assessment instruments are now available that are sensitive to treatment change (Yang, Guo, Olver, Polaschek, & Wong, 2017). Thus, clinicians may also score measures such as the VRS, HCR-20v3, and SAPROF at both pre- and post-treatment in order to determine whether there has been change on multiple dynamic risk or protective factors.

Notably, since raw pre-post change scores on psychological tests and structured risk assessment instruments are unstandardised and scale-specific, the magnitude of change on any one measure cannot be compared to another measure. However, comparisons between scores on a single measure from pre- and post-treatment can be made to assess for statistical significance (Friendship et al., 2003). De Vries Robbé et al. (2011), for example, demonstrated that SAPROF total scores significantly changed over the course of treatment; however, they did not examine whether such changes were associated with reduced rates of subsequent violence. To measure treatment change within the current thesis, pre- and post-treatment total scores on the VRS, HCR-20v3 and SAPROF were compared by means of Wilcoxon signed-ranks tests. This technique represents the non-parametric equivalent of the
dependent $t$-test and was used in the current research since the data are ordinal in nature.

Importantly, raw pre-post change scores do not make any adjustment for measurement error (Olver et al., 2015); every psychological instrument encompasses a degree of error, and when estimating change, a further limitation is posed by the presence of ceiling and/or floor effects (Hammond & O'Rourke, 2007). For example, those individuals deemed most “deviant” or high-risk at pre-treatment arguably have greater opportunities for improvement or change.

### 5.12.5.4 Residual change scores (RCZ).

While pre-post change scores reflect the actual amount of change between pre- and post-treatment, without controlling for pre-treatment differences, standardised residual change (RCZ) allow researchers to determine “what the observed change would have been if everyone had started out equal” (Rogosa, Brandt, & Zimowski, 1982, p. 741; Woessner & Schwedler, 2014). RCZs can be calculated by regressing raw change scores onto the pre-treatment scores for each psychometric variable (Beggs, 2008). This would show the unique variance accounted for by pre-treatment scores. To remove this variance, the residuals can be calculated from the regressions (i.e. obtained change score – predicted change score) and then standardised for each variable (Beggs, 2008).

### 5.12.5.5 The Reliable Change Index (RCI).

Researchers examining the efficacy of offender rehabilitation have recently been interested in using the Reliable Change Index (RCI) to measure individual change in treatment (see Klepfisz et al., 2014; Olver, Beggs Christofferson, & Wong, 2015). The RCI is a standardised measure of within-treatment change, which provides an adjustment for test reliability and calculates whether change is statistically reliable ($p < .05$) and not simply caused by chance or measurement error (Barnett, Wakeling, Mandeville-Norden, & Rakestraw, 2013; Zahra & Hedge, 2010). The RCI is calculated using an offender’s scores on a predetermined measure and the formula proposed by Christensen and Mendoza (1986, p. 305):

$$RCI = \frac{X_2 - X_1}{S_{diff}}$$
This formula takes into account inherent measurement error, where $X_2$ represents an individual’s post-test score, $X_1$ represents that same individual’s pre-test score, and $S_{diff}$ represents the standard error of the difference between $X_2$ and $X_1$:

$$S_{diff} = \sqrt{2(SE)^2}$$

The standard error of measurement ($SE$) is computed with the formula:

$$SE = SD\sqrt{(1 - r_{xx})}$$

where $SD$ refers to the pre-treatment standard deviation for the offender group for each measure and $r_{xx}$ refers to the test-retest reliability of that measure. Jacobson and Truax (1991) suggest that an RCI of 1.96 or above reflects ‘real’ (reliable) change for a two-tailed test with a 95% confidence interval.

Although the RCI does not account for processes such as regression toward the mean, the RCI excels with limited sample sizes, which is a common drawback in forensic research (Zahra & Hedge, 2010). Furthermore, the RCI is capable of providing useful information, unattainable through group-level analyses. For example, the RCI can be used to systematically classify and compare individuals based on whether or not they have reliably changed in treatment (Zahra & Hedge, 2010). Thus, although the RCI cannot replace statistics based on group means, when research examining treatment response is more idiographic, the RCI permits examination of individual progress over time. Knowing whether someone has changed during treatment (and the direction and magnitude of that change) is central to decisions regarding an offender’s conditional release, custodial placement, and further supervision and/or treatment need. Within the current research, offenders’ scores on the VRS, HCR-20$^3$ and SAPROF were used to calculate whether they achieved reliable change on these measures, and to determine whether reliable changes significantly predicted violent reoffending at follow-up.

5.12.5.6 Clinically Significant Change (CSC).

Some authors argue that it is not merely the degree or magnitude of change that is important, but whether an offender can be classified as functioning at a ‘normal’ level following treatment (Jacobson, Follette, & Revenstorf, 1986). By calculating clinically significant change (CSC), researchers can determine not only whether offenders have reliably changed, but also whether they have achieved a ‘treated’
profile, and are thus psychometrically indistinguishable from a sample of non-offenders (Barnett et al., 2013).

To ascertain whether an individual has achieved CSC, the cut-off point for CSC needs to be calculated; that is, the point that the individual must cross at the time of post-treatment assessment in order to be regarded as having changed to a clinically significant degree or to within a functional range (Jacobson & Truax, 1991, p. 13):

$$c = \frac{s_0M_1 + s_1M_0}{s_0 + s_1}$$

Here, $s_0$ and $M_0$ represent the standard deviation and mean for the normative population, respectively, whereas $s_1$ and $M_1$ represent the standard deviation and mean for the offender population, respectively. By combining post-treatment scores and the amount of change achieved (reliable versus no reliable change), researchers have created descriptive subgroups to differentiate and communicate an individual’s response to treatment (described in Table 5.7 below).

Using the CSC method, significant differences between ‘treated’ and ‘untreated’ offenders can be elucidated and more reliably attributed to treatment without the influence of confounding variables (e.g., environmental or motivational factors) (Friendship et al., 2003). Importantly, however, the CSC approach requires valid and contemporary normative data, and these may be unavailable for many forensic-specific measures in common usage, thus necessitating the use of raw change data or the RCI. Furthermore, the CSC approach depends on the quality (e.g., test-retest reliability) of the psychometric measures used, and the relevance of change also requires consideration (i.e. in relation to the individual’s formulation and whether the individual has changed in areas that could reasonably be expected to impact on the problem behaviour, directly or indirectly) (Davies et al., 2011). Of note, the CSC approach was not used in the current research, as normative data were not available for the risk and protection measures employed.
Table 5.7. Categorisation of Clinically Significant Change

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovered</td>
<td>An individual who demonstrated reliable change and who moved from the dysfunctional to the functional range post-treatment</td>
</tr>
<tr>
<td>Improved</td>
<td>An individual who demonstrated reliable change but who was not within the functional range post-treatment</td>
</tr>
<tr>
<td>Already okay</td>
<td>An individual in the functional range both pre- and post-treatment, irrespective of the amount of change made in treatment</td>
</tr>
<tr>
<td>Unchanged</td>
<td>An individual who did not demonstrate reliable change. The individual’s score may still move from dysfunctional to functional (or vice versa), yet this change is not reliable.</td>
</tr>
<tr>
<td>Deteriorated</td>
<td>An individual who demonstrated reliable change in the undesired direction, and who was in the dysfunctional range post-treatment</td>
</tr>
</tbody>
</table>

5.12.6 Exploratory factor analysis.

To investigate the structure of the SAPROF and the relationship between conceptually similar risk and protective factors (drawn from the HCR-20v3 and SAPROF), an exploratory principal axis factoring analysis (PAF) with direct oblimin rotation was performed. This technique examines the covariation among a set of observed variables in order to gather information about the underlying (latent) factors (Yesberg, 2015). Latent variable models are often used in psychological research as they assume that observed patterns of behaviour, thoughts, and emotions are caused by latent variables (i.e. variables that are not directly observed but are inferred from other variables that are observed or directly measured). Because dynamic risk and protective factors are presumed to be indicators of observed behaviours related to risk and violence, it should be possible to use measures of risk and protective factors to infer the existence of latent psychological constructs (Brouillette-Alarie, Babchishin, Hanson, & Helmus, 2016).

Direct oblimin rotation was chosen over other rotation methods, as this approach does not assume that the factors are orthogonal. Although we had some a priori notions about the potential factors that could emerge, exploratory factor analysis was chosen over confirmatory factor analysis since Polaschek’s (2006) domains of
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violent offender treatment have not been previously tested empirically. Furthermore, the items on the HCR-20\textsuperscript{v3} and SAPROF were not designed with Polaschek’s domains in mind. PAF is performed when the relationships between the observed variables are unclear or uncertain (Yesberg, 2015). Of note, SAPROF protective items were reverse-scored so that the factor analysis did not artificially identify protective factors as separate from risk factors due to the direction of their scoring.

5.13 Sample Characteristics

The mean age of offenders at the time of assessment was 32 years ($SD = 8.54$; range 18 to 67 years). Table 5.8 below summarises the demographic characteristics of the sample including ethnic background, relationship status, employment and educational history, child dependents, and substance abuse history.

Average sentence length was 3.57 years ($SD = 2.98$, range 0.42 to 17.92 years), and mean treatment attendance was 5.08 months ($SD = 3.10$, range 1.53 to 29.2 months). Most offenders (76.6%, n = 154) had served at least one term of imprisonment prior to their current incarceration. Table 5.9 below summarises the offending characteristics of the sample including historic offences, index offences, and recidivistic offences.
Table 5.8 *Demographic Characteristics of the Sample*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian Australian</td>
<td>145</td>
<td>72.1</td>
</tr>
<tr>
<td>Aboriginal and Torres Strait Islander</td>
<td>17</td>
<td>8.5</td>
</tr>
<tr>
<td>Other Ethnicity</td>
<td>31</td>
<td>15.4</td>
</tr>
<tr>
<td>Relationship Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>124</td>
<td>61.7</td>
</tr>
<tr>
<td>Partner/Casual Relationship</td>
<td>35</td>
<td>17.4</td>
</tr>
<tr>
<td>Married/De Facto Relationship</td>
<td>36</td>
<td>17.9</td>
</tr>
<tr>
<td>Employment History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>43</td>
<td>21.4</td>
</tr>
<tr>
<td>Never employed for a full year</td>
<td>46</td>
<td>22.9</td>
</tr>
<tr>
<td>Steady employment for one year or more</td>
<td>101</td>
<td>50.2</td>
</tr>
<tr>
<td>Highest Educational Achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed year 9 or less</td>
<td>96</td>
<td>47.8</td>
</tr>
<tr>
<td>Completed year 10-11</td>
<td>56</td>
<td>27.9</td>
</tr>
<tr>
<td>Completed year 12</td>
<td>11</td>
<td>5.5</td>
</tr>
<tr>
<td>Trade Certificate (and/or TAFE)</td>
<td>32</td>
<td>15.9</td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No children</td>
<td>83</td>
<td>41.3</td>
</tr>
<tr>
<td>At least one child</td>
<td>116</td>
<td>57.7</td>
</tr>
<tr>
<td>Substance Abuse History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of alcohol abuse</td>
<td>159</td>
<td>79.1</td>
</tr>
<tr>
<td>History of drug abuse</td>
<td>185</td>
<td>92.0</td>
</tr>
</tbody>
</table>
Table 5.9 Offending characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical offence/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violent</td>
<td>178</td>
<td>88.6</td>
</tr>
<tr>
<td>Non-violent</td>
<td>182</td>
<td>90.5</td>
</tr>
<tr>
<td>Sexual violence</td>
<td>16</td>
<td>8.0</td>
</tr>
<tr>
<td>Breach offence/s</td>
<td>153</td>
<td>76.1</td>
</tr>
<tr>
<td>Non-sexual violence</td>
<td>176</td>
<td>87.6</td>
</tr>
<tr>
<td>Index offence/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violent</td>
<td>196</td>
<td>97.5</td>
</tr>
<tr>
<td>Non-violent</td>
<td>93</td>
<td>46.3</td>
</tr>
<tr>
<td>Sexual violence</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>Breach offence/s</td>
<td>42</td>
<td>20.9</td>
</tr>
<tr>
<td>Non-sexual violence</td>
<td>196</td>
<td>97.5</td>
</tr>
<tr>
<td>Recidivistic offence/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>141</td>
<td>70.1</td>
</tr>
<tr>
<td>Sexual violence</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Nonsexual violence</td>
<td>87</td>
<td>43.3</td>
</tr>
<tr>
<td>Intermediate violence</td>
<td>77</td>
<td>38.3</td>
</tr>
<tr>
<td>Combined non-sexual and</td>
<td>107</td>
<td>53.2</td>
</tr>
<tr>
<td>intermediate violence</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.14 Ethical Considerations

Approval to conduct this research was granted by the Swinburne University Human Research Ethics Committee (SHR Project 271/2016) and the Victorian Department of Justice Human Research Ethics Committee (JHREC Ref CF/16/14164) (for ethics approval letters, please refer to Appendix V). Reports were provided to each ethics committee to ensure ongoing appraisal of the progress of the research.

Several ethical considerations specific to a retrospective file review methodology were considered, and mechanisms to safeguard the privacy of offenders were developed and implemented throughout the project. Importantly, it was not feasible to contact all offenders included in this research in order to obtain informed consent; as such, the current research was reliant on the release of sensitive information without each offender’s consent. The aforementioned ethics committees
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provided permission to access sensitive information for the purposes of this research, by granting an exemption under the *Health Records Act 2001* (Vic) Statutory Guidelines on Research. In accordance with the Guidelines under section 95 of the *Privacy Act 1988* (Cth), throughout this research the researchers maintained the highest practice of standards to protect the dignity and privacy of subjects. All data gathered for the purposes of this research were handled and stored according to guidelines on secure storage, rights of access, and ultimate destruction of personal information under the Information Privacy Principles (IPPs) in the *Privacy and Data Protection Act 2014* (Vic). The research also adhered to the Australian Code for the Responsible Conduct of Research (National Health and Medical Research Council [NHMRC], 2007), the National Statement on Ethical Conduct in Human Research (NHMRC, 2007), and guidelines set out by the Australian Psychological Society’s (2007) Code of Ethics.

Information about offenders in this research was kept confidential and managed according to the requirements of the ethics committees and relevant legislation. Careful consideration was given to accessing and storing sensitive information. The following mechanisms and safeguards were employed throughout the duration of the research to protect the privacy of offenders: during the file review phase, no files were removed from Corrections Victoria premises; all information was coded onsite using a data collection protocol, and the data gathered by researchers were de-identified (i.e. each offender was allocated a unique numerical identifier and this was used on data protocols rather than using personally identifiable information). Data collection protocols were transported to the Centre for Forensic Behavioural Science (CFBS) in locked storage bags. At the completion of the file review phase, the de-identified data were entered into a secure, password-protected electronic database. All hard-copy data were stored in a secure, locked room. Only researchers involved with this project had access to the data and passwords. The procedural risks to privacy associated with the research were minimal due to the strict process of de-identifying the data and security measures that were undertaken to ensure the anonymity of the data collected.

As mentioned earlier and highlighted by Klepfisz et al. (2014), although participation in violent offender treatment is voluntary, offenders are typically aware that treatment completion is viewed favourably when an individual is being considered
for early release. The author therefore recognises that consideration for parole may have enticed offenders to participate in treatment, complete pre- and post-psychometric testing, and therefore participate in the current research. This might be construed as coercive, and the extent of coercion and its effect on offenders and their psychological test performance is unknown (Klepfisz et al., 2014). However, given the low risk nature of this research, and the potential benefits of treatment, it seems unlikely that parole eligibility would have unduly influenced offenders’ perceptions of the risk of participating in such research (Klepfisz et al., 2014).
CHAPTER SIX: EMPIRICAL PAPER ONE

6.1 Preamble

The presumed mechanism underlying effective violent offender treatment is a reduction in dynamic risk factors that purportedly cause violent behaviour (e.g., criminal attitudes, criminal peers, substance use). Yet limited empirical research has demonstrated the link between dynamic risk factor change (as a consequence of treatment) and changes in violent recidivism, and extant research has produced inconsistent outcomes. Furthermore, to the author’s knowledge, there have only been two previous studies examining treatment-related changes in protective factors, and their association with violent recidivism, and once again, the results of these studies have been contrasting.

This chapter presents the first empirical paper, an investigation of within-treatment change among a sample of treated violent offenders, and whether changes in dynamic risk and protective factors are associated with violent recidivism (Research Aim Two). This paper examines within-treatment change in terms of raw pre- to post-treatment change scores, the Reliable Change Index (RCI), and a scale designed specifically to measure treatment gains in a correctional program. Furthermore, this paper explores whether, as theorised, augmenting violence risk assessment with an assessment of protective factors adds incrementally to the prediction of violent reoffending in a correctional sample (Research Aim Three).

This empirical study, titled ‘Making Sense of Risk Assessment: An Examination of the Use of Risk and Protective Instruments and Treatment Change Scores in Predicting Violent Recidivism’ is currently under review with the International Journal of Forensic Mental Health. The Author Indication Form detailing the nature and extent of the candidate and co-authors’ contributions to this paper is included in Appendix I. The manuscript, presented below, is formatted to be consistent with the requirements of the International Journal of Forensic Mental Health. For ease of reading, manuscript pagination has been replaced with thesis pagination. The complete citation is as follows:

Making sense of risk assessment: An examination of the use of risk and protective instruments and treatment change scores in predicting violent recidivism

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Abstract

This paper focuses on the assessment of risk for violent recidivism in a sample of 201 incarcerated violent offenders. It aims to determine how to assess risk in this population, whether this group of offenders changed following treatment, and whether the magnitude of change is associated with violent recidivism. Important supplementary questions are addressed including: (a) whether multiple violence risk instruments add incrementally to the prediction of violent reoffending, (b) when is best to administer risk assessments (e.g., before or after treatment), (c) whether assessing protective factors adds incrementally to the assessment of risk factors, and (d) how best to assess treatment change. Results showed that pre- and post-treatment Violence Risk Scale (VRS) and Historical-Clinical-Risk Management-20 (HCR-20v3) scores predicted violence with moderate discrimination, with pre- and post-treatment assessments demonstrating comparable predictive accuracy. The Structured Assessment of Protective Factors for Violence Risk (SAPROF) predicted reoffending at post-treatment, however, SAPROF protection judgments did not add incrementally to the prediction of violence after controlling for HCR-20v3 risk. VRS, HCR-20v3 and SAPROF scores changed during treatment, however, improvements on these instruments and on the Treatment Readiness, Responsivity, and Gain Scale: Short Version (TRRG:SV) did not predict decreased violence.

Keywords: risk assessment, protective factors, treatment change, violence, recidivism
Authors’ Statement

This statement is to verify that this manuscript has not been published elsewhere and is currently not under review for publication elsewhere.

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Introduction

Forensic practitioners who work in criminal justice and forensic mental health settings have both a legal and an ethical duty to practice in a manner that protects the public and prevents violence (Hart & Logan, 2011). To assist them with this task, a range of violence risk assessment instruments has been developed, each designed for use in specific settings, with specific populations, and to predict specific types of violence (Hart & Logan, 2011). The results of these assessments can have a profound impact on those being assessed (Hunsley & Mash, 2007), influencing decisions regarding sentencing, release, post-release monitoring or preventative detention, and treatment prioritization (Melton et al., 2014; Monahan & Skeem, 2016; Yang, Wong, & Coid, 2010). This study is concerned with how to best assess violence risk in adult prisoner populations with a history of violence, including how to assess the extent to which risk changes after participation in treatment.

Although the results of various studies investigating the predictive accuracy of different risk assessment instruments do provide some guidance about which instruments to use, uncertainty remains regarding: (a) which risk assessment instrument should be used in circumstances where multiple measures are available; (b) whether the timing of the assessment (e.g., pre- versus post-treatment) influences the predictive accuracy of the assessment; (c) whether it is beneficial to assess similar risk factors using multiple instruments; (d) whether it is worth incorporating data on protective factors beyond information on risk factors; and (e) the best method for assessing change and determining whether change in risk and protective factors over the course of treatment is associated with recidivism, and can therefore justifiably inform release-decision making. These are all questions that face practitioners who work with violent offenders. Against this background, this study aims to investigate the reliability and validity of two widely used violence risk assessment instruments and one protective factors assessment instrument in order to address these questions when used with a sample of incarcerated violent offenders.

(a) Considerations when Selecting a Risk Assessment Instrument

Various instruments have been designed to assess violent offenders’ risk for future violence. Williams and colleagues (2017) recommend that in choosing an appropriate risk assessment instrument, clinicians should consider the purpose of the assessment (e.g., risk prediction versus risk reduction), the nature of the person’s
offending (e.g., violent, sexually violent, or general), the correctional setting, target population, administration and scoring methods, and assessor qualifications. Regarding the purpose of the assessment, Monahan and Skeem (2016) suggest that if the purpose is to evaluate an individual’s likelihood of recidivism relative to other people, then the assessor should choose the most efficient instrument available. For example, assessors may utilise actuarial instruments, such as the Violence Risk Appraisal Guide (VRAG; Quinsey, Harris, Rice, & Cormier, 2006), which are based on static factors known to be robust predictors of reoffending. Conversely, if the objective is to develop a plan to manage or reduce an individual’s level of risk, then value may be added by choosing an instrument that includes variable or dynamic risk factors that may serve as treatment targets in rehabilitation programs. Two of the most widely used instruments are the Violence Risk Scale (VRS; Wong & Gordon, 2003) and the Historical-Clinical-Risk Management-20 (HCR-20v3; Douglas, Hart, Webster, & Belfrage, 2013), both of which incorporate dynamic variables that have the potential to change over time through appropriate intervention (Douglas & Skeem, 2005). These instruments represent both the actuarial (VRS) and structured professional judgment approaches (HCR-20v3).

Of note, the predictive validity of various risk assessment instruments has been examined in a number of previous studies; however, there is no compelling evidence to date that any one instrument forecasts recidivism better than any other (Monahan & Skeem, 2016). For example, in a meta-analysis of 28 studies that controlled for methodological variation, Yang and colleagues (2010) found that nine different risk assessment instruments had similar levels of predictive validity. Accordingly, practitioners are now increasingly interested in identifying violence risk assessment instruments that offer benefits beyond prediction, such as the ability to identify imminent risk, elucidate treatment needs, and measure change over time.

(b) Considerations relating to the Timing of Assessment Administration

It is common practice for forensic practitioners to administer risk assessment instruments to inform decisions about treatment. For example, the results of pre-treatment risk assessments can be used to determine the intensity and dosage of services provided, as well as relevant treatment targets (or criminogenic needs) (Wong &

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1 The area under the curve (AUC) across instruments ranged from 0.65 to 0.71, suggesting a 65% to 71% chance that a randomly selected recidivist obtained a higher score on the instrument than a randomly selected non-recidivist. AUCs in this range may be regarded as medium effects (see Rice & Harris 2005).
Gordon, 2003). There is evidence that risk assessment scores before treatment commences are valid for predicting longer-term recidivism risk (de Vries Robbé, de Vogel, Douglas, & Nijman. 2015; Lewis, Olver, & Wong, 2013), although there is also an argument for re-administering risk assessments post-treatment. Presumably, if a second risk assessment is undertaken following intervention, this would take into account any improvement or worsening throughout treatment, as well as considering new information about the client that emerges over the course of intervention.

(c) Using Multiple Instruments and Incremental Validity

An important question concerns whether clinicians should use multiple instruments and whether (or not) this would improve the overall accuracy of their assessments (i.e., if this offers incremental validity) (Hunsley & Mash, 2007). Seto (2005) contends that if using more than one risk instrument does not appreciably improve predictive accuracy, then evaluators should simply select the single best instrument for the assessment purpose rather than gathering the additional information necessary for scoring and interpreting multiple instruments, considering the resources and burden involved. It is nonetheless possible that the use of multiple instruments will identify useful information concerning treatment need or perhaps protective qualities that are not captured by any one assessment.

(d) Assessing risk and protective factors.

Recently, researchers have been concerned with whether instruments that purportedly assess protective factors add benefit to violence risk assessments. Several authors have argued that any comprehensive appraisal of risk should also consider the influence of protective factors (e.g., de Ruiter & Nicholls, 2011), with emerging evidence that this improves the validity of any judgment. For example, in one study of 188 male patients admitted to a Dutch forensic psychiatric hospital, de Vries Robbé, de Vogel, and Douglas (2013) found that the Structured Assessment of Protective Factors for Violence Risk (SAPROF; de Vogel, de Ruiter, Bouman, & de Vries Robbé, 2012) demonstrated incremental predictive validity for any new violent conviction at 3-year and long-term follow-up when added to risk assessments using the HCR-20, but not at 1-year follow-up. Conversely, in a sample of 178 federally incarcerated adult male violent offenders, Coupland (2015) found that pre- and post-treatment SAPROF protection scores did not add incrementally to the prediction of community recidivism (any new violent charge or conviction) over their respective risk scores.
Although several studies have calculated a ‘risk minus protection index’ to integrate risk and protective factors, and have shown this index to be related to recidivism (de Vries Robbé et al., 2015), in practice an HCR-20$^{v3}$ total score is not supposed to be calculated and little guidance is available regarding how to integrate risk and protective scores to inform professional decision-making. Furthermore, as Klepfisz, Daffern, and Day (2017) argue, there is conceptual overlap with several items on the HCR-20$^{v3}$ and SAPROF, meaning that points in a total ‘risk minus protection index’ are gained for having a risk factor present but then subtracted for having protection in the same factor. This seems convoluted and may be conceptually misleading.

(e) The Assessment of Treatment Change

Regarding the assessment of change, Polaschek (2017) argues that expectations about offender change are fundamental in criminal sentencing, with many sentences handed down with the expectation that offenders will change. Change assessments within a custodial setting are usually conducted for two purposes: (a) to evaluate a specific intervention; and (b) to establish whether an offender’s current level of risk has reduced or remains above a specific legal threshold (Polaschek, 2017). This relies, of course, on the assessment of dynamic risk, although Lloyd (2015) and Klepfisz, Daffern, and Day (2016) have argued that in rehabilitation and re-entry contexts, the status of dynamic factors as conceptually dynamic has been taken for granted. Indeed, there have been very few empirical studies exploring whether dynamic factors change, or can enhance, prediction when re-assessed.

Studies with adult offenders have examined associations between treatment and changes in risk/protective scores, such as by comparing pre- and post-treatment scores (de Vries Robbé, et al., 2015; Hogan & Olver, 2016; Michel et al., 2013). There is also an emerging literature now showing that change in total scores on multi-item structured violence risk assessment instruments comprising dynamic risk factors (such as the VRS and HCR-20) is associated with criminal recidivism (e.g., Lewis et al., 2013). On this basis, assessing change using these instruments appears to reflect current best practice. However, there have only been a few studies to date that have examined the association between change scores on adult violence risk assessment instruments and subsequent offending (e.g., de Vries Robbé et al., 2015; Lewis et al., 2013; Klepfisz, O’Brien, & Daffern, 2014; Vose, Smith, & Cullen, 2013), and mixed evidence has accumulated
regarding whether change in risk and protective factors during treatment is associated with lower recidivism. Furthermore, most of this research has been conducted in forensic mental health settings rather than inmate populations.

Two further challenges exist with regard to measuring treatment change. One critical challenge is disentangling real change from measurement error (Jacobson & Truax, 1991). For instance, if an offender changes a few points on a risk assessment instrument, this may not reflect true change, but rather, might be attributed to imperfect interrater reliability (Viljoen, Shaffer, Gray, & Douglas, 2017). As such, in evaluating the ability of an instrument to measure changes in risk, it is important to consider measurement error and the extent to which change is reliable (Riddle & Stratford, 2013). Finally, the most appropriate method for assessing change is unclear. Although comparisons of scores on multi-item structured violence risk assessment instruments has gained attention, another method utilises specific scales to evaluate whether the individual has achieved particular milestones or thresholds deemed to be important in treatment-related success (Polaschek, 2017). The Gain Scale of the Treatment Readiness, Responsivity, and Gain Scale: Short Version (TRRG:SV; Serin, Kennedy, & Mailloux, 2005) is one such scale. The TRRG:SV Gain scale is a post-treatment measure designed to capture the overall amount of gain, or change, achieved in treatment. This measure has, however, only been validated in one unpublished dissertation, with results suggesting that the TRRG:SV Gain scale has predictive validity for both sexual and violent recidivism (Sowden, 2013).

The Current Research

The present study investigates the reliability and validity of the VRS, HCR-20v3, SAPROF, and TRRG:SV Gain scale in a sample of male incarcerated violent offenders. The aim is to evaluate the predictive validity of the risk and protection measures pre- and post- treatment, as well as the change scores produced by these measures (i.e., reductions in risk factors and improvements in protective factors). This research also aims to investigate the incremental predictive validity of a combined assessment using the HCR-20v3 and VRS, and of information about protective factors over the use of risk factors alone. Finally, the convergent and predictive validity of the TRRG:SV Gain scale is examined as another index of treatment progress.

It is hypothesised that scores on the risk and protective instruments will demonstrate greater predictive accuracy at post-treatment assessment. It is
hypothesised that offenders’ scores on dynamic risk factors for violence, as measured using the VRS and HCR-20\textsuperscript{v3}, will significantly decrease from pre- to post-treatment, and that offenders’ scores on dynamic protective factors, as measured using the SAPROF, will significantly increase over treatment. It is further hypothesised that offenders’ improvements on risk and protective factors will be negatively related to violent recidivism following treatment, after controlling for static risk. Given evidence that various risk assessment instruments can be used interchangeably, it is predicted that the simultaneous use of the VRS and HCR-20\textsuperscript{v3} will not add incrementally to violence risk. However, it is predicted that SAPROF final protection judgments will add incrementally to the prediction of violent recidivism over HCR-20\textsuperscript{v3} risk judgments, after controlling for static risk. Finally, it is hypothesised that TRRG:SV Gain scale scores will be significantly positively correlated with change scores on the VRS, HCR-20\textsuperscript{v3}, and SAPROF, and that TRRG:SV Gain scale scores will be negatively related to violent recidivism.

Method

Sample

Data were collected from the files of 201 adult male violent offenders who completed a violence intervention program (VIP) between 2005 and 2016 at one of the state government-operated prisons in Victoria, Australia. One hundred and thirty one of the offenders had completed a moderate-intensity VIP (MIVIP; 33 three-hour sessions, twice weekly, for approximately five months - approximately 100 hours total), 68 had completed a high-intensity VIP (HIVIP; 67 three-hour sessions, three times weekly, over approximately six months – 200-300 hours of intervention), and two had completed a VIP described as “other” (see below for a description of the VIPs). All participants were rated on the VRS before and after treatment by corrections clinicians.

The mean age of offenders at the time of assessment was 32 years (SD = 8.54; range 18 to 67 years). Most of the sample self-identified as Caucasian Australian (72.1%, n = 145), 8.5% (n = 17) self-identified as Aboriginal or Torres Strait Islander, and 15.4% (n = 31) self-identified from a range of other ethnic backgrounds. Most offenders had not completed high school (75.7%, n = 152) and most had a self-reported history of drug (92%, n = 185) and/or alcohol abuse (79.1%, n = 159). Their average sentence length was 3.57 years (SD = 2.98, range 0.42 to 17.92 years), and mean treatment attendance was 5.08 months (SD = 3.10, range 1.53 to 29.2 months).
Sentencing comments and official criminal records indicated that most offenders had a violent index conviction (97.5%, \( n = 196 \)); 46.3% \( (n = 93) \) were also sentenced for a nonviolent index offense and 2% \( (n = 4) \) were also sentenced for a sexual violence index offense. Individuals with a nonviolent index conviction were included in the study if they had a history of violence and had completed VIP treatment during their sentence. Most offenders had at least one prior conviction for nonsexual violence (87.6%, \( n = 176 \)) and nonviolent offenses (90.5%, \( n = 182 \)). Nonsexual violent crimes included murder, manslaughter, assault, intentionally and/or recklessly causing injury, robbery, aggravated burglary, threats to kill, false imprisonment, stalking, and arson. Nonviolent crimes neither directly involved another person nor involved aggression (e.g., fraud, criminal damage, drug offenses, burglary, theft, driving offenses, and breach offenses). Most offenders (76.6%, \( n = 154 \)) had served at least one term of imprisonment prior to their current incarceration.

**Corrections Victoria’s Violence Intervention Programs (VIP)**

The MIVIP and the HIVIP are manualized programs, which provide specialized treatment for violent offenders and are designed to reduce the likelihood of violent prisoners reoffending upon release into the community. VIPs are typically delivered by corrections clinicians (trained mental health professionals) in a closed-group therapy format (typically comprising up to 12 participants), and apply cognitive-behavioral methods including cognitive restructuring, modelling, and activity-based learning. Opportunities to reinforce learning are provided through homework tasks and practicing skill development in session. Individual support is provided through case management offered by custodial staff. The programs are broadly consistent with international evidence-based practice and adhere to the RNR principles of effective rehabilitation (see Andrews, Bonta, & Hoge, 1990); for example, the VIPs are targeted at multiple criminogenic needs believed to contribute to violence and aggression and an offender is allocated to treatment based on his level of risk and assessed need.
PART III: EMPIRICAL PAPERS

Measures

**Violence Risk Scale (VRS; Wong & Gordon, 2003).**

The VRS is a clinician-rated instrument, designed to assess risk for violent recidivism and changes in risk level due to treatment. The VRS consists of six static and 20 dynamic predictors of violence, each rated on a four-point scale from 0 to 3. Dynamic items rated pre-treatment as either a 2 or a 3 are considered appropriate treatment targets. Using a modified version of Prochaska and DiClemente’s (1986) stages of change model, each dynamic variable identified as a treatment target is rated pre- and post-treatment to assess the relevant stage of change. Progression indicates improvement and a reduction in risk for violence for that treatment target (see Wong & Gordon, 2003, for a more detailed description of VRS scoring). Total pre- and post-treatment scores represent the offender’s overall level of risk for violent recidivism at two time points. The higher the total score, the higher the individual’s risk of violent recidivism. Cut off from the VRS manual are applied to the total score to assign a final risk rating, with scores of 35 and under reflecting *Low* violence risk; scores of 35-50 indicating *Moderate* risk; and scores exceeding 50 indicating *High* violence risk. Wong and Gordon (2006) report that the VRS has good inter-rater reliability (ICC = .92 to ICC = .97). Additionally, the authors demonstrated that the VRS could predict violent and nonviolent recidivism over short- and longer term follow-up.

**Historical-Clinical-Risk Management-20 version 3 (HCR-20v3; Douglas et al., 2013).**

The HCR-20v3 is a clinician-rated violence risk assessment instrument comprising 20 risk factors for violence: 10 historical factors, five dynamic clinical factors which reflect current correlates of violence, and five dynamic risk management factors which focus on situational and post-assessment factors that may increase or mitigate risk. The HCR-20v3 is typically coded following an interview with the examinee and review of available case files, although it can be reliably coded from file review alone (Douglas et al., 2013). Evaluators code the presence of risk factors using a 3-level response format that reflects the certainty of the evaluator’s opinion; Present, Partially present, and Not present. For research purposes, these descriptors were transposed to numerical scores where 0 = No; 1 = Partial/Possible; and 2 = Yes/Definite. Using this scoring procedure, a total HCR-20v3 score can be calculated for research purposes. The HCR-20v3 has demonstrated good interrater reliability for
total scores (ICC$_1$ = .94) and summary risk judgments (ICC$_1$ = .75) (Douglas & Belfrage, 2014) and has demonstrated predictive validity for violence among forensic and civil psychiatric patients with AUCs ranging from 0.67-0.81 (de Vogel, van den Broek, & De Vries Robbé, 2014; Doyle et al., 2014; Strub, Douglas, & Nicholls, 2014).

**Structured Assessment of Protective Factors for Violence Risk (SAPROF; de Vogel et al., 2012).**

The SAPROF is a clinician-rated instrument, comprising 17 protective factors organized within three scales: internal, motivational, and external factors. Besides the first two items (intelligence and secure attachment in childhood), all items are dynamic and thus potentially changeable during treatment. Items are rated on a three-point scale from 0 to 2, with higher scores indicating a protective factor is present for the person in the assessed situation. The SAPROF has shown good interrater reliability for total scores (ICC$_1$ = .85) and the final protection judgment (ICC$_1$ = .73) (de Vries Robbé, 2014). In forensic mental health settings, the SAPROF has demonstrated predictive validity for violent reoffending with AUCs ranging from .74-.85 at one to three years follow-up (de Vries Robbé, de Vogel, & de Spa, 2011; de Vries Robbé et al., 2015).

**Treatment Readiness, Responsivity, and Gain Scale: Short Version (TRRG:SV; Serin et al., 2005).**

The TRRG:SV is designed to systematically assess an offender’s readiness and responsivity to treatment and to subsequently measure the degree to which gains have been made. This study utilized the Treatment Gain Scale, which comprises eight items representing a combination of knowledge, participation, and competencies. The purpose of this domain is to provide an overall estimate of an offender's performance in a correctional program. Items are rated on a four-point scale from 0 to 3, with higher scores reflecting greater gains in treatment. Sowden (2013) reports that the TRRG:SV Gain scale has good interrater reliability (ICC$_1$ = .96) with a Cronbach alpha coefficient of .95. The TRRG:SV Gain scale has also demonstrated predictive validity for sexual (AUC = 0.61) and violent recidivism (AUC = .66) among a sample of sex offenders (Sowden, 2013).

**Procedure**

This study involved a retrospective archival analysis of Clinical Service Files and Individual Management Plans from Victoria’s correctional services; these files are
maintained by clinicians responsible for offender rehabilitation. Pre- and post-treatment VRSs were rated before and after treatment by corrections clinicians, and the Clinical Service File for each offender contained information from these assessments, including reports about risk (i.e., VRS assessments), criminogenic needs to target in treatment, and eligibility for violence treatment. Copies of pre- and post-treatment VRS score sheets were available for all offenders in the sample. The Clinical Service Files also included information pertaining to treatment (i.e. commencement/end dates, progress notes relating to an offender’s participation, and treatment completion report). Individual Management Plans contained sentencing information, including details about the offender’s index offense/conviction that resulted in the current custodial sentence being imposed and during which the individual completed violence treatment. Individual Management Plans also contained official police records detailing offenders’ criminal histories and personal and demographic information. Information relevant to an offender’s general management throughout their sentence was also available, including information about attendance at employment/educational programs, disciplinary incidents, prison transfers, and general behavior during incarceration.

Ten research assistants who were either doctoral-trained psychologists or doctoral-level graduate students in psychology coded the HCR-203, SAPROF, and the TRRG:SV Gain scale based on the available file information. All research assistants had completed formal, standardized training in each of the relevant measures. Ratings of the HCR-203 and SAPROF were performed at two time points: at the start of treatment (pre-treatment ratings) and at the end of treatment (post-treatment ratings). Pre- and post-treatment ratings were carried out by different raters and all raters were blind to recidivism outcome data. Pre-treatment ratings were conducted based on available file information prior to the VRS pre-treatment assessment date. Pre-treatment raters were blind to any subsequent treatment notes and ratings were carried out for a hypothetical situation of release from prison without further treatment. Post-treatment ratings were performed based on all available file information at discharge from treatment, including treatment progress reports. In rating the HCR-203 Clinical items at post-treatment, functioning at the end of treatment was emphasised, however, stability across the treatment period was also considered. HCR-203 Risk Management items at post-treatment were evaluated as “Out” (Community). Files containing
insufficient information to permit soring were excluded from the sample. To be included in the sample, the offender had to have completed violence treatment so that post-treatment VRS scores were available. Where individual VRS items were not scored or not properly recorded, pro rata subscale and total scores were produced using the formula and guidelines outlined by Wong and Gordon (2003).

In clinical practice, relevance ratings on the HCR-20\textsuperscript{v3} and key and goal factors on the SAPROF may be scored to focus attention on specific dynamic factors for an individual, which can facilitate the development of risk management and treatment intervention strategies (d{e Vries Robb{e, 2014}). As the present file study was retrospective, no quantitative analyses were carried out on relevance ratings and key and goal factors, since their value lies especially in their prospective use (d{e Vries Robb{e, 2014).

**Outcome**

Violent recidivism after treatment was defined as any new charge for a violent offense after release from prison; that is, any new charge laid by the police for actual, attempted, or threatened infliction of bodily harm of another person (Douglas et al., 2013). Nonsexual violence was operationalized as any new charge for any assault or homicide offenses excluding all sexual offenses. Intermediate violence was operationalized as any new charge for offenses, which involved the threat of serious physical or psychological harm against the person without actual physical harm or contact (e.g., burglary, stalking, kidnapping, arson, and making threats).

Outcome data were retrieved from Victoria Police’s Law Enforcement Assistance Protocol (LEAP) database. This data was reviewed only after the file review phase had been completed. Information that was available to the researchers included the date of any new charge/s and the nature of the offense/s. The study follow-up period commenced when each offender was released from prison (no later than December 2016) and ended on 4\textsuperscript{th} April 2017. Survival time was defined as the days between release from prison and the date of a new charge, minus any time in custody (for recidivists) whereas time at risk was defined as the days between release from prison and study end date, minus any time in custody (for non-recidivists). The average follow-up time was 6.86 years ($SD = 2.28$, range .42 to 11.5 years) and the average time at risk 5.60 years ($SD = 2.56$, range 0 to 10.47 years).
PART III: EMPIRICAL PAPERS

Statistical Analyses

Statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS), version 24. The interrater reliabilities (IRR) of the HCR-20\textsuperscript{v3}, SAPROF, and TRRG:SV Gain Scale were assessed on 21 randomly selected cases and analysed using one-way random effects, absolute agreement, single-measure intra-class correlation coefficients (denoted by ICC\textsubscript{1} as per McGraw and Wong, 1996). Internal consistency reliability was assessed using Cronbach’s alpha. The convergent validity (or correspondence) between the measures was evaluated using Kendall’s Tau (\(\tau\)).

The ability of the instruments to correctly classify individuals into those who reoffended and those who did not was evaluated using the Receiver Operating Characteristic Curves (ROC). The Area Under the Curve (AUC) in a ROC analysis refers to the probability that a randomly selected recidivist received a higher score on the instrument than a randomly selected non-recidivist. The AUC can be interpreted as the overall discriminant power of the predictive model, with a value of 0.5 indicating that the test does not discriminate between individuals who do and do not reoffend. In correctional research, AUC values are generally interpreted as low (AUC = .56–.64), medium (AUC = .64–.71), and high (AUC = .71 and above) (Rice & Harris, 2005).

Although imperfect, the use of ROC/AUC analyses has been endorsed as the means of evaluating and reporting on violence and offending risk assessment efficacy (Douglas, Ogloff, & Hart, 2003; Singh, Yang, & Mulvey, 2014). Cox regression analyses were performed to determine the predictive validity of the measures whilst incorporating time at risk\textsuperscript{2}. Based upon recent recommendations for evaluating the predictive validity

\footnote{An important question concerns which statistics researchers should report when evaluating the predictive accuracy of a risk assessment measure. The AUC is a robust, rank order measure designed for an ordinal predictor and a dichotomous outcome (Hanson, 2009). It describes how well the predictor measure classifies individuals into recidivist and non-recidivist groups. An important feature of the AUC is that it is expected to be invariant across changes in the outcome’s base rate (Hanson, 2009). AUC values would be expected to change, however, given restrictions in the range of the predictor variable (Hanson, 2008). Cox regression coefficients describe the degree to which increasing values of the predictor are associated with different failure (recidivism) rates. The primary advantage of regression coefficients is that because they are explicitly linked to differences of one unit in the predictor, they are generally less affected by a restriction of range compared with AUCs (Hanson, 2008). There are, however, drawbacks to these statistics as well. For example, they assume the predictor is a continuous variable, whereas most risk scales are technically ordinal in nature. In addition, the interpretation of the magnitude of the regression coefficient is dependent on the scale of the predictor, as they describe the increase in the likelihood of the outcome for a one-point difference (Helmus & Babchishin, 2017). In some ways the AUC is much more a tool for discrimination, whereas cox regression coefficients are more useful for “prediction”. The implications of these differences is that researchers should ideally report both the AUC and cox regression statistics when reporting on predictive accuracy, as they provide different information that, together, contribute to a more comprehensive picture of predictive validity.}
of risk assessment instruments (Cooke & Michie, 2014; McEwan et al., 2016; Mossman, 2013), the following statistics are also presented for each risk/protection threshold (i.e. “low”, “moderate”, or “high”): positive predictive value, the proportion of individuals at or above the threshold who reoffended; negative predictive value, the proportion of individuals below the threshold who did not reoffend; sensitivity, the proportion of individuals who reoffended who scored at or above the threshold; and specificity, the proportion of individuals who did not reoffend who scored below the threshold.

Cox regression was used to evaluate the incremental predictive validity of an assessment using both the VRS and HCR-20\textsuperscript{v3}. Cox regression was also used to examine the incremental predictive validity for recidivism of Saprof protection judgments over HCR-20\textsuperscript{v3} risk judgments. To measure treatment change, pre- and post-treatment total scores on the VRS, HCR-20\textsuperscript{v3}, and Saprof were compared by means of Wilcoxon signed-ranks tests. To disentangle real change from measurement error, reliable change indices (RCIs) were calculated\textsuperscript{3}. The RCI value is a z-value, which represents the probability that, for a given individual, change would be observed based on chance alone (Riddle & Stratford, 2013). If an individual’s RCI value is greater than 1.96, this indicates that the probability of obtaining that change score by chance would be less than 5% and we would be able to conclude, with 95% confidence, that this individual showed reliable change. The standard error of measurement (SE) was calculated as \( SE = SD \sqrt{(1 - r_{xx})} \) where \( SD \) was the standard deviation of baseline scores for the full sample and \( r \) was the reliability at baseline (Jacobson & Truax, 1991). Consistent with other studies (Viljoen et al., 2015, Viljoen et al., 2017), \( SE \) was calculated using interrater reliability, as this is an important form of reliability for risk assessment measures. RCIs were calculated using Jacobson and Truax’s (1991) formula:

\[
RCI = \frac{X_2 - X_1}{S_{diff}}
\]

\textsuperscript{3} For the purposes of this manuscript, raw change scores were reported over residualised change scores (RCZs) since they are easier to present and interpret and previous studies examining within-treatment change have tended to report raw change scores (for example, see de Vries Robbé et al., 2015).
where $X_1$ represents the score at baseline and $X_2$ represents the score at follow-up. $S_{diff}$ is the standard error of measure of $X_1$ and $X_2$ and was calculated as $S_{diff} = \sqrt{2(SE)^2}$.

Cox regression analyses were then performed to examine the incremental predictive validity of change scores for recidivism whilst controlling for static risk.

Results

Descriptive Statistics

Table 1 reports the means and standard deviations for the pre- and post-treatment psychometric measures. Pre-treatment, 118 offenders (58.7%) were classified as ‘high’ risk on the VRS (total score > 50), and 132 offenders (65.7%) were rated as high-risk on the HCR-20\(^3\); 49.8% of offenders ($n = 100$) were rated as having low protection on the SAPROF, with a further 43.8% ($n = 88$) rated as having low-moderate protection.

Table 1. Scores on the VRS, HCR-20\(^3\), SAPROF, and TRRG:SV

<table>
<thead>
<tr>
<th>Risk assessment scale</th>
<th>Possible score range</th>
<th>Pre-treatment</th>
<th>Post-treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0 – X)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>VRS total score</td>
<td>0 – 78</td>
<td>47.37 (8.91)</td>
<td>44.13 (8.53)</td>
</tr>
<tr>
<td>Static score</td>
<td>0 – 18</td>
<td>11.82 (3.47)</td>
<td>11.87 (3.41)</td>
</tr>
<tr>
<td>Dynamic score</td>
<td>0 – 60</td>
<td>35.36 (7.16)</td>
<td>32.13 (7.20)</td>
</tr>
<tr>
<td>HCR-20(^3) total score</td>
<td>0 – 40</td>
<td>26.15 (4.55)</td>
<td>25.56 (4.72)</td>
</tr>
<tr>
<td>Historical scale</td>
<td>0 – 20</td>
<td>16.02 (2.41)</td>
<td>16.06 (2.36)</td>
</tr>
<tr>
<td>Clinical scale</td>
<td>0 – 10</td>
<td>3.26 (1.72)</td>
<td>3.09 (1.90)</td>
</tr>
<tr>
<td>Risk Management scale</td>
<td>0 – 10</td>
<td>6.87 (1.74)</td>
<td>6.41 (1.91)</td>
</tr>
<tr>
<td>SAPROF total score</td>
<td>0 – 34</td>
<td>8.23 (3.03)</td>
<td>9.97 (3.49)</td>
</tr>
<tr>
<td>Internal scale</td>
<td>0 – 10</td>
<td>1.51 (1.28)</td>
<td>2.45 (1.56)</td>
</tr>
<tr>
<td>Motivational scale</td>
<td>0 – 14</td>
<td>3.24 (1.71)</td>
<td>4.04 (1.81)</td>
</tr>
<tr>
<td>External scale</td>
<td>0 – 10</td>
<td>3.48 (1.08)</td>
<td>3.48 (1.11)</td>
</tr>
<tr>
<td>TRRG:SV Gain Scale total score</td>
<td>0 – 24</td>
<td>-</td>
<td>13.40 (3.87)</td>
</tr>
</tbody>
</table>
Reliability Analyses

HCR-20\textsuperscript{v3} Presence ratings demonstrated fair interrater reliability for pre-treatment total scores (ICC\textsubscript{1} = 0.57) and risk judgments (ICC\textsubscript{1} = 0.44), with Cronbach alpha coefficients for the historical, clinical, and risk management scores being .55, .63, and 0.59, respectively. The SAPROF demonstrated fair interrater reliability for pre-treatment total scores (ICC\textsubscript{pre} = 0.56) and summary protection judgments (ICC\textsubscript{pre} = 0.50), with Cronbach alpha coefficients for the internal, motivational, and external scores being 0.55, .61, and 0.34, respectively. The TRRG:SV Gain scale demonstrated fair interrater reliability (ICC\textsubscript{1} = .60) with a Cronbach alpha coefficient of .75.

Convergent Validity of the Measures

Kendall’s tau-b correlations were used to investigate the convergent validity of the risk and protective measures (see Table 2 below).

Table 2. Correlation matrix depicting relationships between scores on the psychometric scales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>VRS Pre</th>
<th>VRS Post</th>
<th>HCR-20\textsuperscript{v3} Pre</th>
<th>HCR-20\textsuperscript{v3} Post</th>
<th>SAPROF Pre</th>
<th>SAPROF Post</th>
<th>TRRG:SV Gain scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRS Pre</td>
<td>-</td>
<td>0.70**</td>
<td>0.44**</td>
<td>0.36**</td>
<td>-0.26**</td>
<td>-0.17**</td>
<td>-0.09</td>
</tr>
<tr>
<td>VRS Post</td>
<td>-</td>
<td>-</td>
<td>0.43**</td>
<td>0.42**</td>
<td>-0.21**</td>
<td>-0.18**</td>
<td>-0.20**</td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} Pre</td>
<td>-</td>
<td>-</td>
<td>0.67**</td>
<td>-0.24**</td>
<td>-0.18**</td>
<td>-0.15**</td>
<td>-0.15**</td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} Post</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.21**</td>
<td>-0.24**</td>
<td>-0.29**</td>
<td>-0.29**</td>
</tr>
<tr>
<td>SAPROF Pre</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.60**</td>
<td>0.22**</td>
<td>-0.22**</td>
</tr>
<tr>
<td>SAPROF Post</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.46**</td>
<td>-0.46**</td>
</tr>
<tr>
<td>TRRG:SV Gain scale</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Bold** denotes statistical significance; *p ≤ .05; **p ≤ .01; ***p ≤ .001

All correlations were in the expected direction and almost all correlations were significant, excluding the correlation between VRS pre-treatment scores and scores on the TRRG:SV Gain scale at post-treatment.

Base Rates of Recidivism

Recidivism data was not obtained for two (1.0\%) offenders in the sample, due to either an inability to match the offender in the LEAP database or due to a missing commencement date, meaning that reoffending could not be distinguished from historical and index offending. A further four offenders (2.0\%) were excluded from
reoffending analyses because they had no time at risk (i.e. they were incarcerated for the entire follow-up period). This left a final recidivism sample of 195 offenders. Of these, Table 3 below reports the number of individuals who reoffended in each outcome category (i.e. any recidivism, sexual recidivism, violent (nonsexual) recidivism, and intermediate violent recidivism). Of note, any reoffending includes charges for breach and bail offenses.

Table 3. Number and percentage of recidivists and non-recidivists by reoffending category at 6-month, 1-year, and long-term follow-up

<table>
<thead>
<tr>
<th>Recidivism category</th>
<th>6-month follow-up</th>
<th>1-year follow up</th>
<th>Long-term follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recidivists N (%)</td>
<td>Non-Recidivists N (%)</td>
<td>Recidivists N (%)</td>
</tr>
<tr>
<td>Any</td>
<td>50 (24.9%)</td>
<td>149 (74.1%)</td>
<td>81 (40.3%)</td>
</tr>
<tr>
<td>Sexual</td>
<td>2 (1%)</td>
<td>193 (97%)</td>
<td>2 (1%)</td>
</tr>
<tr>
<td>Violent (nonsexual)</td>
<td>21 (10.4%)</td>
<td>178 (88.6%)</td>
<td>37 (18.4%)</td>
</tr>
<tr>
<td>Intermediate violence</td>
<td>19 (9.5%)</td>
<td>180 (89.6%)</td>
<td>31 (15.4%)</td>
</tr>
</tbody>
</table>

Note. Percentages do not add up to 100, as recidivism data was not obtained for six individuals in the sample.

**Predictive Validity of the Measures**

ROC analyses and cox regression were used to assess the predictive validity of pre- and post-treatment psychometric scores, risk ratings on the VRS, and risk and protection judgments on the HCR-20v3 and SAPROF, respectively (see Table 4 below).
### Table 4. Univariate Predictive accuracy of psychometric scores and risk/protective judgments for reoffending outcomes: AUC and Cox regression

<table>
<thead>
<tr>
<th>Risk assessment scale</th>
<th>Nonsexual violence</th>
<th>Nonsexual violence and intermediate violence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AUC</td>
<td>95% CI</td>
</tr>
<tr>
<td>VRS pre-tx static score</td>
<td>0.72***</td>
<td>0.65-0.79</td>
</tr>
<tr>
<td>VRS pre-tx total score</td>
<td>0.66***</td>
<td>0.52-0.74</td>
</tr>
<tr>
<td>VRS pre-tx risk rating</td>
<td>0.59*</td>
<td>0.46-0.67</td>
</tr>
<tr>
<td>VRS post-tx static score</td>
<td>0.73***</td>
<td>0.66-0.80</td>
</tr>
<tr>
<td>VRS post-tx total score</td>
<td>0.65***</td>
<td>0.52-0.72</td>
</tr>
<tr>
<td>VRS post-tx risk rating</td>
<td>0.63**</td>
<td>0.50-0.71</td>
</tr>
<tr>
<td>HCR-20v3 pre-tx static score</td>
<td>0.62**</td>
<td>0.54-0.69</td>
</tr>
<tr>
<td>HCR-20v3 pre-tx total score</td>
<td>0.64***</td>
<td>0.53-0.72</td>
</tr>
<tr>
<td>HCR-20v3 pre-tx risk judgment</td>
<td>0.63**</td>
<td>0.49-0.71</td>
</tr>
<tr>
<td>HCR-20v3 post-tx static score</td>
<td>0.61**</td>
<td>0.54-0.69</td>
</tr>
<tr>
<td>HCR-20v3 post-tx total score</td>
<td>0.62**</td>
<td>0.52-0.70</td>
</tr>
<tr>
<td>HCR-20v3 post-tx risk judgment</td>
<td>0.61**</td>
<td>0.50-0.69</td>
</tr>
<tr>
<td>SAPROF pre-tx total scorea</td>
<td>0.58</td>
<td>0.45-0.66</td>
</tr>
<tr>
<td>SAPROF pre-tx protective judgmenta</td>
<td>0.58</td>
<td>0.46-0.66</td>
</tr>
<tr>
<td>SAPROF post-tx total scorea</td>
<td>0.52</td>
<td>0.48-0.60</td>
</tr>
<tr>
<td>SAPROF post-tx protective judgmenta</td>
<td>0.55</td>
<td>0.45-0.63</td>
</tr>
<tr>
<td>TRRG:SV Gain scale scorea</td>
<td>0.50</td>
<td>0.47-0.58</td>
</tr>
</tbody>
</table>

CI = 95% confidence interval, **Bold** denotes statistical significance; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$;

* scores multiplied by -1 to facilitate interpretation of AUC values.
Tables 5 and 6 present the positive predictive value, negative predictive value, sensitivity, and specificity statistics for the VRS risk ratings and the HCR-20\textsuperscript{v3} and SAPROF judgments at each threshold (i.e. “low”, “moderate”, “high”).

Table 5. Diagnostic characteristics of VRS and HCR-20\textsuperscript{v3} ratings for violent reoffending

<table>
<thead>
<tr>
<th>Cut-off</th>
<th>n</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Reoffending prevalence\textsuperscript{a}</th>
<th>PPV</th>
<th>NPV</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VRS ratings pre-treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>11</td>
<td>1.00</td>
<td>0.00</td>
<td>53.9%</td>
<td>0.54</td>
<td>d</td>
<td>-</td>
</tr>
<tr>
<td>Mod</td>
<td>115</td>
<td>0.99</td>
<td>0.11</td>
<td></td>
<td>0.57</td>
<td>0.91</td>
<td>5.83\textsuperscript{b}</td>
</tr>
<tr>
<td>High</td>
<td>65</td>
<td>0.40</td>
<td>0.73</td>
<td></td>
<td>0.63</td>
<td>0.51</td>
<td>6.94\textsuperscript{b}</td>
</tr>
<tr>
<td><strong>VRS ratings post-treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>27</td>
<td>1.00</td>
<td>0.00</td>
<td>54.9%</td>
<td>0.55</td>
<td>d</td>
<td>-</td>
</tr>
<tr>
<td>Mod</td>
<td>112</td>
<td>0.93</td>
<td>0.24</td>
<td></td>
<td>0.60</td>
<td>0.74</td>
<td>2.14\textsuperscript{b}</td>
</tr>
<tr>
<td>High</td>
<td>43</td>
<td>0.31</td>
<td>0.85</td>
<td></td>
<td>0.72</td>
<td>0.50</td>
<td>2.78\textsuperscript{b}</td>
</tr>
<tr>
<td><strong>HCR-20\textsuperscript{v3} judgments pre-treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mod</td>
<td>65</td>
<td>1.00</td>
<td>0.00</td>
<td>54.4%</td>
<td>0.54</td>
<td>d</td>
<td>-</td>
</tr>
<tr>
<td>High</td>
<td>130</td>
<td>0.78</td>
<td>0.47</td>
<td></td>
<td>0.64</td>
<td>0.65</td>
<td>1.80\textsuperscript{c}</td>
</tr>
<tr>
<td><strong>HCR-20\textsuperscript{v3} judgments post-treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>5</td>
<td>1.00</td>
<td>0.00</td>
<td>54.4%</td>
<td>0.54</td>
<td>d</td>
<td>-</td>
</tr>
<tr>
<td>Mod</td>
<td>82</td>
<td>0.99</td>
<td>0.04</td>
<td></td>
<td>0.55</td>
<td>0.80</td>
<td>2.07\textsuperscript{b}</td>
</tr>
<tr>
<td>High</td>
<td>108</td>
<td>0.67</td>
<td>0.58</td>
<td></td>
<td>0.66</td>
<td>0.60</td>
<td>3.29\textsuperscript{b}</td>
</tr>
</tbody>
</table>

\(PPV = \text{positive predictive value}; \ NPV = \text{negative predictive value.}\) \(\text{Prevalence of any reoffending over the total follow up period in the subset of the sample with the relevant risk judgment.}\) \(\text{Relative risk of reoffending associated with a high-risk rating versus a low-risk rating.}\) \(\text{Relative risk of reoffending associated with a high-risk judgment versus a moderate-risk judgment.}\) \(\text{Cannot be calculated, as no cases are rejected.}\)
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Table 6. Diagnostic characteristics of SAPROF judgments for violent reoffending

<table>
<thead>
<tr>
<th>Cut-off</th>
<th>n</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Reoffending prevalence</th>
<th>PPV</th>
<th>NPV</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SAPROF judgments pre-treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>98</td>
<td>1.00</td>
<td>0.00</td>
<td>54.4%</td>
<td>0.54</td>
<td></td>
<td>1.30**</td>
</tr>
<tr>
<td>Low-Mod</td>
<td>84</td>
<td>0.44</td>
<td>0.44</td>
<td>0.48</td>
<td>0.40</td>
<td>0.40</td>
<td>1.06**</td>
</tr>
<tr>
<td>Moderate</td>
<td>12</td>
<td>0.06</td>
<td>0.92</td>
<td>0.46</td>
<td>0.45</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Mod-High</td>
<td>1</td>
<td>0.00</td>
<td>0.99</td>
<td>0.00</td>
<td>0.45</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><strong>SAPROF judgments post-treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>58</td>
<td>1.00</td>
<td>0.00</td>
<td>54.4%</td>
<td>0.54</td>
<td></td>
<td>1.61**</td>
</tr>
<tr>
<td>Low-Mod</td>
<td>104</td>
<td>0.68</td>
<td>0.27</td>
<td>0.53</td>
<td>0.41</td>
<td>0.41</td>
<td>1.59**</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>0.11</td>
<td>0.76</td>
<td>0.36</td>
<td>0.42</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Mod-High</td>
<td>1</td>
<td>0.01</td>
<td>0.99</td>
<td>0.50</td>
<td>0.46</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>High</td>
<td>1</td>
<td>0.00</td>
<td>0.99</td>
<td>0.00</td>
<td>0.45</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

PPV = positive predictive value; NPV = negative predictive value. a Prevalence of violent reoffending (nonsexual and intermediate) over the total follow up period in the subset of the sample with the relevant risk judgment. b Relative risk of reoffending associated with a low protection judgment versus a moderate or higher protection judgment. c Relative risk of reoffending associated with a low-moderate protection judgment versus a moderate or higher protection judgment d Cannot be calculated, as no cases are rejected.

Incremental Predictive Validity

Cox regression analyses showed that SAPROF protection judgments did not add incremental predictive validity over HCR-20\textsuperscript{v3} risk judgments. Furthermore, HCR-20\textsuperscript{v3} total scores did not add incrementally to the prediction of violent reoffending after controlling for VRS scores. In contrast, however, VRS total scores did add incrementally to the prediction of violent reoffending after controlling for HCR-20\textsuperscript{v3} scores (see Table 7 below).
Table 7. Cox regression analyses examining the incremental predictive validity for violent reoffending when using the HCR-20\textsuperscript{v3} in conjunction with the VRS or SAPROF

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>SE of B</th>
<th>Wald</th>
<th>p</th>
<th>Exp(B)</th>
<th>CI For Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Block 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} risk judgment (pre)</td>
<td>0.91</td>
<td>0.24</td>
<td>14.77</td>
<td><strong>.000</strong>*</td>
<td>2.48</td>
<td>1.56 3.95</td>
</tr>
<tr>
<td><strong>Block 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} risk judgment (pre)</td>
<td>0.87</td>
<td>0.25</td>
<td>12.55</td>
<td><strong>.000</strong>*</td>
<td>2.40</td>
<td>1.48 3.88</td>
</tr>
<tr>
<td>SAPROF protection judgment (pre)</td>
<td>-0.08</td>
<td>0.17</td>
<td>0.26</td>
<td>.609</td>
<td>0.92</td>
<td>0.66 1.28</td>
</tr>
<tr>
<td>2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Block 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} risk judgment (post)</td>
<td>0.76</td>
<td>0.20</td>
<td>15.08</td>
<td><strong>.000</strong>*</td>
<td>2.14</td>
<td>1.46 3.15</td>
</tr>
<tr>
<td><strong>Block 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} risk judgment (post)</td>
<td>0.72</td>
<td>0.21</td>
<td>11.62</td>
<td><strong>.001</strong>*</td>
<td>2.05</td>
<td>1.36 3.09</td>
</tr>
<tr>
<td>SAPROF protection judgment (post)</td>
<td>-0.10</td>
<td>0.15</td>
<td>0.42</td>
<td>.518</td>
<td>0.91</td>
<td>0.68 1.22</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Block 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VRS static</td>
<td>0.16</td>
<td>0.03</td>
<td>23.38</td>
<td><strong>.000</strong>*</td>
<td>1.17</td>
<td>1.10 1.25</td>
</tr>
<tr>
<td>VRS dynamic</td>
<td>0.03</td>
<td>0.01</td>
<td>3.83</td>
<td>*<em>.050</em></td>
<td>1.03</td>
<td>1.00 1.06</td>
</tr>
<tr>
<td><strong>Block 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VRS static</td>
<td>0.15</td>
<td>0.03</td>
<td>19.81</td>
<td><strong>.000</strong>*</td>
<td>1.16</td>
<td>1.09 1.24</td>
</tr>
<tr>
<td>VRS dynamic</td>
<td>0.02</td>
<td>0.02</td>
<td>1.12</td>
<td>.289</td>
<td>1.02</td>
<td>0.99 1.05</td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} total</td>
<td>0.03</td>
<td>0.03</td>
<td>1.49</td>
<td>.223</td>
<td>1.03</td>
<td>0.98 1.09</td>
</tr>
<tr>
<td>4</td>
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<tr>
<td><strong>Block 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} historical (C + R)</td>
<td>0.12</td>
<td>0.05</td>
<td>5.11</td>
<td>*<em>.024</em></td>
<td>1.13</td>
<td>1.02 1.25</td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} dynamic (C + R)</td>
<td>0.06</td>
<td>0.04</td>
<td>2.02</td>
<td>.155</td>
<td>1.06</td>
<td>0.98 1.15</td>
</tr>
<tr>
<td><strong>Block 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} historical (C + R)</td>
<td>0.06</td>
<td>0.06</td>
<td>0.87</td>
<td>.352</td>
<td>1.06</td>
<td>0.94 1.19</td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} dynamic (C + R)</td>
<td>0.02</td>
<td>0.04</td>
<td>0.24</td>
<td>.624</td>
<td>1.02</td>
<td>0.94 1.11</td>
</tr>
<tr>
<td>VRS total</td>
<td>0.04</td>
<td>0.01</td>
<td>9.93</td>
<td><strong>.002</strong></td>
<td>1.04</td>
<td>1.02 1.07</td>
</tr>
</tbody>
</table>

**Bold** denotes statistical significance; *p ≤ .05; **p ≤ .01; ***p ≤ .001

**Change Analyses**

Correlations between change scores on the VRS, HCR-20\textsuperscript{v3}, SAPROF, and the TRRG:SV Gain scale were examined to assess the convergence of these measures in capturing change (see Table 8 below). All of the correlations were positive and significant at the p < .01 level.
Table 8. Correlation matrix depicting relationships between TRRG:SV Gain scale scores and change scores on the VRS, HCR-20\textsuperscript{v3}, and the SAPROF

<table>
<thead>
<tr>
<th>TRRG:SV GAIN score</th>
<th>VRS change score</th>
<th>HCR-20\textsuperscript{v3} change score</th>
<th>SAPROF change score</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRRG:SV Gain scale (post)</td>
<td>-</td>
<td><strong>0.24</strong></td>
<td><strong>0.42</strong></td>
</tr>
<tr>
<td>VRS change score</td>
<td>-</td>
<td>-</td>
<td><strong>0.19</strong></td>
</tr>
<tr>
<td>HCR-20\textsuperscript{v3} change score</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SAPROF change score</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Bold** denotes statistical significance; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

As expected, a Wilcoxon signed-rank test showed that median post-treatment VRS ($Z = -8.48, p < .001$) and HCR-20\textsuperscript{v3} ($Z = -3.48, p < .001$) were significantly lower than those at pre-treatment, and mean post-treatment SAPROF dynamic scores, were significantly higher than those at pre-treatment ($Z = -8.83, p < .001$). Cox regression showed, however, that when controlling for pre-treatment VRS static risk, VRS change scores did not significantly predict violent reoffending (nonsexual and intermediate) (Exp(B) = 0.99, 95% CI: 0.96-1.02, $p = .545$). Similarly, when controlling for pre-treatment HCR-20\textsuperscript{v3} historical scores, neither HCR-20\textsuperscript{v3} change scores (Exp(B) = 0.96, 95% CI: 0.89-1.04, $p = .317$) nor SAPROF change scores (Exp(B) = 0.93, 95% CI: 0.85-1.02, $p = .116$) significantly predicted violent reoffending (nonsexual and intermediate). Cox regression further showed that when controlling for pre-treatment VRS static scores, TRRG:SV Gain scores significantly predicted violent reoffending (nonsexual and intermediate) (Exp(B) = 0.56, 95% CI: 0.90-1.00, $p = .031$). Furthermore, although TRRG:SV Gain scores univariately predicted violent reoffending, after controlling for HCR-20\textsuperscript{v3} historical scores, TRRG:SV Gain scores did not provide incremental validity in the prediction of violent reoffending (Exp(B) = 0.96, 95% CI: 0.92-1.01, $p = .093$).

**Reliable change.**

None of the offenders in the sample achieved reliable change on the HCR-20\textsuperscript{v3} from pre- to post-treatment ($M = 0.14$; range -2.04 to 1.59). Fourteen individuals demonstrated scores that were indicative of reliable improvement on the VRS and of these individuals, eight reoffended violently ($M = 0.57$; range -4.86 to 3.18). Furthermore, nine
offenders demonstrated scores indicative of reliable improvement on the SAPROF and of these individuals, six reoffended violently ($M = 0.61$; range -1.76 to 3.17). Of note, only two offenders achieved reliable change on both the VRS and the SAPROF. Logistic regression showed that after controlling for pre-treatment VRS static scores, neither VRS reliable change scores (OR = 1.00, 95% CI: 0.72-1.38, $p = 0.977$) nor VRS reliable change status (yes/no) (OR = 1.13, 95% CI: 0.48-2.66, $p = .775$) predicted violent reoffending. Similarly, after controlling for pre-treatment HCR-20\textsuperscript{v3} historical scores, neither SAPROF reliable change scores (OR = 0.84, 95% CI: 0.58-1.21, $p = .346$) nor SAPROF reliable change status predicted violent reoffending (OR = 1.42, 95% CI: 0.32-6.21, $p = .643$).

**Discussion**

**Which Instruments Should Practitioners Use and When Should They Administer Them?**

For this sample, these results demonstrate that both the VRS and HCR-20\textsuperscript{v3} are able to predict violent reoffending in male incarcerated violent offenders. Both the VRS and HCR-20\textsuperscript{v3} pre- and post-treatment total scores and risk ratings/judgments predicted whether an individual reoffended violently (combined nonsexual and intermediate violence), with a moderate level of discrimination (Rice & Harris, 2005). The results suggest that the timing of risk assessment administration (at pre-versus post-treatment) does not significantly affect the predictive accuracy of the assessment. Furthermore, the static (historical/unchanging) risk factors were the most powerful for predicting violent reoffending, supporting the idea that if the aim of an assessment is to determine an individual’s likelihood of recidivism relative to other people, then assessors should consider using an actuarial instrument which has demonstrated strong predictive accuracy with the population it is being used on.

**Does Using Multiple Instruments Increase Predictive Accuracy?**

Scores on all of the measures examined were significantly associated, which provides support for the construct validity of the VRS and HCR-20\textsuperscript{v3} (i.e., that they measure a common underlying construct). However, the correlations were not so large as to indicate redundancy, which may suggest that the use of multiple instruments will provide a more comprehensive assessment (Sowden, 2013). Statistically, VRS total scores did add incremental predictive validity when controlling for HCR-20\textsuperscript{v3} scores;
however, the coefficient was quite low. Furthermore, given that VRS and HCR-$20^{v3}$ scores demonstrated similar AUC values for violent recidivism, this raises the question of whether it is worthwhile, in terms of both time and money, to administer both instruments for the purpose of prediction, when one instrument may be sufficient.

**Should practitioners assess both risk and protective factors?**

Of interest, SAPROF scores were significantly inversely related to VRS and HCR-$20^{v3}$ scores. This perhaps indicates that risk and protective factors are, as theorised, versions of similar constructs and thus conceptually related. One of the aims of this study was to investigate the incremental predictive validity of protective factors over the use of risk factors alone. The results showed that SAPROF protection judgments did not add incrementally to the prediction of violent reoffending over HCR-$20^{v3}$ risk judgments. Although there is evidence to suggest that the SAPROF is predictive of reduced violence in samples of forensic psychiatric patients within a mental-health context (de Vries Robbé et al., 2013; de Vries Robbé et al., 2015), the current finding suggests that the SAPROF maybe have limited application for predicting violence among incarcerated non-mentally disordered violent men. Of note, however, the majority of offenders in the sample were rated as having low or low-moderate protection on the SAPROF, and thus, restricted range may be a limitation. It may be beneficial for future research to examine the predictive validity of the SAPROF when rated prospectively by clinicians who will inevitably have more information about the individual being assessed, compared to assessors rating pre-existing files.

**Does Change in Treatment Predict Reoffending?**

As expected, the TRRG:SV Gain scale was positively correlated with change scores on the VRS, HCR-$20^{v3}$, and SAPROF. Although the TRRG:SV Gain scale did not effectively discriminate between recidivists and non-recidivists, when incorporating time at risk, the ability of the Gain scale to predict violent reoffending reached significance at the $p = 0.5$ level. Furthermore, despite change scores being significant and in the correct direction (i.e., dynamic risk scale scores reduced, dynamic protective scores increased), VRS, HCR-$20^{v3}$ and SAPROF change scores did not predict violent reoffending. This is consistent with an earlier Victoria, Australia based study (Klepfisz et al., 2014) and suggests that the magnitude of the effect of change on recidivism is small.

We offer a few explanations for why change in treatment as measured by comparison of total scores on multi-item structured violence risk assessment instruments
may not be related to recidivism. First, in regard to the VRS, the current findings are consistent with Yesberg’s (2015) results but are at odds with other research using the VRS (e.g., Lewis et al., 2013). Treatment completers in the current study achieved less change on average ($M = 3.04$) compared with previous studies exploring VRS treatment change (e.g., mean change of 4.75 in Lewis et al., 2013) and change scores were more scattered around the mean, with a standard deviation almost twice that ($SD = 5.14$) reported by Lewis and colleagues (2013) ($SD = 2.97$). One possible explanation for these findings may be differences in the consistency of administration. In the current study, clinicians administered the VRS prospectively, and the same clinician did not necessarily complete both pre- and post-treatment assessments for a given offender. By contrast, in Lewis and colleagues’ study, a single individual retrospectively scored the majority of VRSs (86%) via file review. Accordingly, Lewis et al.’s ratings may be more consistent, and the authors noted that VRS scores were quite closely grouped (i.e., small SD). Furthermore, in Lewis et al.’s sample, more than 90% offenders were rated as high-risk and thus may have had greater capacity to change in treatment compared to the lower-risk nature of our sample (Bowen, 2012).

Putting aside these methodological differences, there may also be conceptual explanations for these results. As Monahan and Skeem (2016) suggest, the null finding might be attributed to the delivery of “blunderbuss interventions” aimed at a “variety of influences, some of which… dilute or divert from intervention effects that derive from changing causing risk factors” (p. 56). Ostensibly, the theoretical legitimacy of targeting dynamic risk factors (DRFs) in treatment depends on their causal status (Ward & Fortune, 2016). However, as Polaschek and Kilgour (2013) highlight, one issue raised by the VRS relates to whether the numerous DRFs are all functional variables related to change that are equally important in the change process. Moreover, perhaps there are elements of the change process that are not captured by these risk assessment instruments. Indeed, as Yesberg (2015) contends, there is a lack of recognition of the process by which offenders desist from crime and little attention is given to the offender’s ability to manage a number factors following release from prison (e.g., employment, housing, criminal associates) (Göbbels, Ward, & Willis, 2012; Kroner, Gray, & Goodrich, 2013). Thus, although some researchers make a conceptual distinction between re-entry context and DRFs, it is argued that environmental variables behave similarly to, and might be another form of, DRFs (Lloyd, 2015).
Second, in this study, and many others measuring change in DRFs, change is considered to cease at the conclusion of treatment (Yesberg, 2015). However, theories of behavior change (e.g., the Transtheoretical Model of Change; Prochaska & DiClemente, 1986) suggest that change is a process comprising multiple stages through which people progress, and sometimes this involves regression to previous stages of change (Yesberg, 2015). For many offenders in this study, a considerable amount of time elapsed between the cessation of treatment and release into the community and arguably, spending time in the prison neighbourhood surrounded by antisocial peers may precipitate a relapse to earlier stages of change after treatment completion.

What happens to change following treatment has rarely been investigated, and little is known about offenders’ risk state immediately prior to release from prison. One study using the VRS showed that when offenders were assessed pre- and post-treatment and again 6 to 12 months later while still in custody, the pattern of change in treatment was not reflective of the pattern of change in the follow-up period (Yesberg & Polaschek, 2014). For example, medium-high risk offenders either maintained their treatment change or continued to make gains, while the highest risk offenders showed some “backsliding” after treatment completion. The current study did not assess change at more than two time points, and thus little is known about this issue. However, as Polaschek (2017) argues, one of the biggest challenges for assessors of change is in considering how enduring change will be. Indeed, the accuracy of change assessments is evaluated against distal and indirect outcomes (e.g., new charges) which, according to Polaschek, is problematic. It assumes that whatever change transpired: (a) will be adequate to support the non-occurrence of an offense over a long period; and (b) will be maintained at the same level, or continue to develop steadily over time (Polaschek, 2017). Polaschek argues that very few of us even achieve these standards in our own attempts at personal change.

Finally, perhaps it is not the amount of change that is important in reducing recidivism; rather, it might be the duration of change or what the person is left with at the end of treatment in terms of their remaining needs (see Serin, Lloyd, & Hanby, 2010). Indeed, a composite change score does not tell us much about the profile of change in DRFs that occurs. For example, an individual may change a few points on multiple DRFs (such as criminal attitudes, insight, and social network) resulting in a significant amount of overall change, but if their offending is most closely related to substance use, which does not change as a consequence of treatment, then they may still go on to reoffend. Accordingly, risk assessors should be careful when interpreting composite change scores,
and instead, should focus on an individual’s pattern or profile of change and whether change in functionally relevant risk factors has occurred.

Strengths, Limitations, and Future Directions

A principal strength of this study is that it provided a revalidation of some commonly used risk assessment measures in a sample of treated violent reoffenders. Notably, limited research focuses on violent offenders in a rehabilitation context and, in particular, there is limited research examining within-treatment change among violent offenders. The current study also examined the utility of the TRRG:SV Gain scale in a sample of nonsexual violent offenders, which to our knowledge, has not previously been investigated. It is recommended that future research measures change using multiple time points including assessments of an offender’s risk state immediately prior to release from prison. This is also important in terms of determining the stability of changes achieved during treatment. Measuring DRFs using equivalent measures in the community following release from custody may also assist in understanding change in DRFs through prison, during periods of treatment, and then during follow-up post-release. Such analyses are important in understanding change processes and also identification of imminent risk, as indicated by elevations in DRFs.

A few caveats are worthy of mention. It is possible that opportunities to reoffend might have been curtailed by death, interstate relocation, or hospitalization. As mortality, residence, and medical records were not able to be obtained, these situations and events could not be statistically controlled. Furthermore, although using formal charges to represent recidivism provided a level of certainty, charges are a less sensitive measure of violence than observed inpatient aggression (like that used by Dolan & Fullam, 2007), and a less stringent measure than criminal convictions.

Of note, the HCR-20\textsuperscript{v3} and SAPROF did not demonstrate strong interrater reliability in the current study, and thus, the results should be interpreted with some degree of caution. One explanation for this is that the current study involved a retrospective archival analysis of offender files. Variables on the HCR-20\textsuperscript{v3} and SAPROF were rated based on a hypothetical scenario of release planning (given the use of prison files which pertain to an individual’s time in custody) and this inevitably involves a substantial amount of speculation. As such, the accurate appraisal of dynamic factors on the HCR-20\textsuperscript{v3} and SAPROF was challenging. Importantly, the Clinical Service Files used in this study largely contain information related to offense-specific treatment; offenders
are not evaluated as mental health clients, and thus these files do not contain much information related to an offender’s mental state. As such, the Clinical scale of the HCR-20\(^3\) was particularly difficult to score, as it includes items such as ‘Symptoms of major mental illness’ and ‘Violent ideation or intent’ which are conceptualized as mental health symptoms. Similarly, clinicians in a criminal justice setting may not be accustomed to writing or talking about an individual’s strengths and protective factors (see Livingston, Nijdam-Jones, & Brink, 2012). The ability to score the HCR-20\(^3\) and SAPROF was also limited by the quality of the records reviewed. Of note, there was significant variability in the amount of information contained in files and when important information was not located, items were subsequently omitted. We suggest, however, that this is typical of prisoner files and therefore reflects a clinical reality for assessors.

Finally, during file review, the researchers observed that post-treatment VRS items were often adjusted due to the availability of additional information following pre-treatment assessment. Although data were not formally recorded on this phenomenon, this suggests that post-treatment scores occasionally reflected increased knowledge about a risk factor (e.g., a recognition that the offender did have problems with substance use or weapons) rather than changes due to treatment (i.e., worsening in these risk factors, e.g., acquiring problems with substance use or an interest in weapons). This had the subsequent effect of inflating post-treatment scores (and thus decreased change scores), despite reports suggesting substantial gains in treatment. This issue ultimately compromised the assessment of change.

**Concluding Remarks**

This study aimed to provide evidence that could assist practitioners who are faced with decisions about how best to assess future risk of violence in prisoners, to determine whether (or not) they have changed, and whether (or not) changes might be expected to be associated with reduced violent offending. The results suggest that the VRS and HCR-20\(^3\) have predictive accuracy in terms of violent recidivism, and are essentially interchangeable; however, using these instruments in combination does not appear to appreciably add to the prediction of violent reoffending. Furthermore, whether practitioners administer these instruments at the beginning or end of treatment does not appear to appreciably affect the predictive validity of the assessment. While the SAPROF may possess utility as a clinical tool, its utility as a psychometric instrument that adds to an assessment using risk factors alone is not supported by the current study. Thus, the
SAPROF does not appear to have incremental predictive value in a criminal justice setting. Furthermore, although ratings of the dynamic factors on the VRS, HCR-20$^3$ and SAPROF changed during treatment, improvements on these instruments did not predict desistance from future violence and the TRRG:SV Gain scale did not effectively discriminate between recidivists and non-recidivists. The next challenge will be to identify the best method for assessing change and ways of incorporating this information into risk assessment and subsequent decision-making. Until this is achieved, practitioners should not rely on composite change scores or allow the assessment of change determined through comparison of post- and pre-treatment scores to overwhelm the ultimate risk assessment.
References


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Michel, S. F., Riaz, M., Webster, C., Hart, S. D., Levander, S., Müller-Isberner, R., & ... Hodgins, S. (2013). Using the HCR-20 to predict aggressive behavior among men with schizophrenia living in the community: Accuracy of prediction,


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CHAPTER SEVEN: EMPIRICAL PAPER TWO

7.1 Preamble

As discussed in Chapter Three, there is definitional and conceptual uncertainty surrounding the term ‘protective factors’ and it remains unclear whether protective factors are conceptually similar to risk factors (e.g., impulsivity versus self-control, substance use versus abstinence) (Harris & Rice, 2015), or whether protective factors are distinct entities within their own right (Farrington & Loeber, 2000). In the first empirical study (Chapter Six), SAPROF scores were found to be significantly inversely related to VRS and HCR-20v3 scores, perhaps indicating that risk and protective factors are, as theorised, conceptually related. However, protective factors have been theorised much more than they have been investigated (Serin, Chadwick, & Lloyd, 2016), and the relationship between conceptually similar risk and protective factors has not been previously explored.

This chapter presents the second empirical paper, an investigation into the relationship between conceptually similar risk and protective factors (Research Aim One). These risk and protective factors were drawn from the HCR-20v3 and SAPROF, given the SAPROF authors’ proposition that these instruments should be used in conjunction with one another. The aim of this paper is to elucidate whether these purportedly similar risk and protective factors assess a singular latent construct. Furthermore, since the SAPROF is intended to inform treatment efforts with violent offenders, this paper explores whether the SAPROF captures important treatment-related activities among this offender population and, thus, whether the SAPROF poses benefit in terms of treatment planning and capturing treatment-related changes (Research Aim Three).

This empirical study, titled ‘Latent Constructs in the Measurement of Risk and Protective Factors for Violent Reoffending Using the HCR-20v3 and SAPROF: Implications for Conceptualizing Offender Assessment and Treatment Planning’ is currently under review with the journal Criminal Justice and Behavior. The Author Indication Form detailing the nature and extent of the candidate and co-authors’ contributions to this published paper is included in Appendix I. The manuscript, presented below, is formatted to be consistent with the requirements of Criminal Justice and Behavior. For ease of reading, manuscript pagination has been replaced with thesis pagination. The complete citation is as follows:
Latent constructs in the measurement of risk and protective factors for violent reoffending using the HCR-20\(^3\) and SAPROF: Implications for conceptualizing offender assessment and treatment planning

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Abstract
This paper explores the conceptualization of protective factors comprising the Structured Assessment of Protective Factors for Violence Risk (SAPROF). Using exploratory factor analysis, this study investigates whether SAPROF protective factors and conceptually similar risk factors from the Historical-Clinical-Risk Management-20 version 3, load onto the same factor, suggesting these items assess common latent constructs. Furthermore, since the SAPROF is intended to facilitate treatment planning, this paper investigates whether the factors reflect treatment needs that are commonly targeted in violence programs. The results suggest that conceptually similar risk and protective factors are distinct and largely load onto correlated, but independent factors. SAPROF items did not load onto factors in a manner reflecting common domains of violence treatment. Accordingly, supplementing risk assessment and expanding violence-specific treatment to incorporate SAPROF constructs may add unique conceptual value. However, the SAPROF’s practical value is dependent on its conceptual and predictive validity in the sample being considered.

Key words: SAPROF, protective factors, violence, risk assessment, treatment
Authors’ Statement

This statement is to verify that this manuscript has not been published elsewhere and is currently not under review for publication elsewhere.
PART III: EMPIRICAL PAPERS

Introduction

The use of structured approaches to assess factors that protect against future violence has been considered “a new frontier” (de Ruiter & Nicholls, 2011, p. 167) in violence risk assessment (de Vries Robbé & Willis, 2017; Ward, 2017), with the Structured Assessment of Protective Factors for Violence Risk (SAPROF; de Vogel, de Ruiter, Bouman, & de Vries Robbé, 2012) developed as a companion instrument for use alongside the risk-focused Historical-Clinical-Risk Management-20 (HCR-20v3; Douglas, Hart, Webster, & Belfrage, 2013). The SAPROF is the first assessment instrument to focus solely on protective factors against future violence in adults and was developed to contribute to a more comprehensive and balanced approach to predicting and managing violence risk (de Vogel et al., 2012). It has been suggested that the inclusion of information about protective factors will not only improve the predictive validity of risk assessment, but may also broaden the scope of rehabilitation through the identification of additional treatment targets (Cording & Beggs Christofferson, 2017). However, concerns about the meaning and nature of protective factors have been raised (Klepfisz, Daffern, & Day, 2017), which influence how protective factors are operationalized in assessment instruments (Cording & Beggs Christofferson, 2017) and whether they facilitate the identification of important treatment targets. This study reports data relevant to both issues. First, using a factor analytic approach, it investigates whether conceptually similar items on the SAPROF and the HCR-20v3 load onto the same factor and thus, whether items on the two instruments may be assessing the same or different latent constructs. Second, it considers the extent to which the factors correspond with Polaschek’s (2006) assessment of treatment domains that are commonly addressed in violent offender treatment programs.

1. How Protective Factors Have Been Conceptualized and Measured

There is a lack of consensus regarding the meaning of the term ‘protective factors’ (de Vries Robbé, 2014), with a number of different definitions proposed. These include: the absence or opposite of risk factors (Harris & Rice, 2015; Zeng et al., 2015); variables that predict a low probability of offending (Loeber & Farrington, 2012); factors that interact with risk factors to reduce their negative impact on outcomes (Farrington, Ttofi, & Piquero, 2016); and factors that enable or assist
desistance from offending among those that have already offended (de Vries Robbé, Mann, Maruna, & Thornton, 2015). These varying definitions suggest a lack of construct precision, which has important implications for both measurement and how an assessment of protective factors might inform treatment (Cording & Beggs Christofferson, 2017).

The SAPROF is an instrument that aims to assess protective factors for violence in adult populations. The SAPROF authors have defined protective factors broadly; as “any characteristic of a person, his/her environment or situation which reduces the risk of future violent behavior” (de Vogel et al., 2012, p. 23), while maintaining that the “concept of protective factor is ambiguous” (de Vogel et al., 2012, p. 14). The authors created the SAPROF using a broad understanding of violence (i.e. without adhering to any one particular theory of violence) while contending with a general lack of clarity in the field regarding how protective factors should be defined and how they may interact with risk factors. The SAPROF items were chosen through literature review and interviews with forensic mental health professionals, who were asked to identify factors that may protect against relapse into violent behavior. As a result, SAPROF assessors rate a range of items, some of which are conceptually the ‘opposite’ of well-known risk factors (see Table 1 below) (de Vogel et al., 2012).

The notion that risk and protective factors are inversely related is simple and attractive, but invites questions regarding whether it is necessary to use the term ‘protective factors’; if risk and protection lie at opposite ends of a single continuum, then there is no need to distinguish between them (Heffernan & Ward, 2017). In this scenario, measures like the SAPROF might offer relatively little added value to existing risk measures, such as the HCR-20 (an instrument with established predictive validity), unless the positive framing of items is the primary goal of the measure. Indeed, if risk and protective factors are, in fact, conceptually similar constructs, one would simply be introducing redundant items that lengthen the assessment without clear added conceptual value (Cording & Beggs Christofferson, 2017). However, it is also quite possible that protective factors are conceptually distinctive from risk factors, either interacting with risk or having an independent direct influence on future violence.

As Coupland (2015) highlights, many, if not most, of the items on the SAPROF could be subsumed under the central eight risk factors. As such, the ability of the
SAPROF to add incrementally to the prediction of violent recidivism over the HCR-20\textsuperscript{v3}, or other risk measures, is unclear. Indeed, extant research exploring the incremental predictive validity of the SAPROF has produced contrasting results. For example, in a psychiatric sample of 108 violent and sexual offenders, de Vries Robbé, de Vogel, Douglas, and Nijman (2015) found that using the SAPROF in conjunction with the HCR-20 version 2 resulted in increased predictive validity for violent recidivism, suggesting that the SAPROF items explain additional variance beyond variance shared with risk factors (de Vries Robbé, de Vogel, et al., 2015). By contrast, in the only previous research to examine the incremental predictive validity of the SAPROF in a correctional (rather than a forensic or civil inpatient) setting, Coupland (2015) found that among 155 treated violent offenders, pre- and post-treatment SAPROF scores did not add incrementally to the prediction of recidivism over pre- and post-treatment HCR-20 (version 2) risk scores, respectively; however, subsequent SAPROF assessments at release added incremental prediction for recidivism over post-treatment risk scores. These results should be interpreted with caution, however, as appropriate risk ratings (i.e. at the point of release rather than at the end of treatment, which may have occurred well before release) were not available for proper comparison. Finally, Klepfisz, Daffern, Day, and Lloyd (under review) recently found that among a sample of 201 incarcerated violent offenders, the SAPROF neither predicted violent recidivism, nor did it add incrementally to the prediction of future violence using the HCR-20\textsuperscript{v3}. Ostensibly, this finding may be underscored by the fact that items on the HCR-20\textsuperscript{v3} and SAPROF are conceptually similar, and thus, little unique information is provided by augmenting the HCR-20\textsuperscript{v3} with a SAPROF assessment. However, little is known about this issue and thus more conceptual work is needed in order to better understand the relationship between risk and protective factors on the HCR-20\textsuperscript{v3} and SAPROF, whether they are conceptually similar, and thus whether it is worthwhile to conduct assessments using both the SAPROF and the HCR-20\textsuperscript{v3} for the purpose of risk prediction.
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Table 1. SPROF protective factors and their corresponding negative item on the HCR-20\textsuperscript{v3} (adapted from Klepfisz, Daffern, & Day 2017)

<table>
<thead>
<tr>
<th>Dynamic risk factor on the HCR-20\textsuperscript{v3}</th>
<th>Proposed inverse protective factor on the SPROF</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4. Recent problems with instability</td>
<td>5. Self-control</td>
</tr>
<tr>
<td>C5. Recent problems with treatment / supervision response</td>
<td>10. Attitudes toward authority</td>
</tr>
<tr>
<td>R1. Future problems with professional services / plans</td>
<td>15. Professional care</td>
</tr>
<tr>
<td>R2. Future problems with living situation</td>
<td>16. Living circumstances</td>
</tr>
<tr>
<td>R3. Future problems with personal support</td>
<td>13. Social network</td>
</tr>
<tr>
<td>R5. Future problems with stress / coping</td>
<td>17. External control</td>
</tr>
</tbody>
</table>

2. How Protective Factors Might Inform Treatment Planning

The SPROF authors have argued that the instrument was designed to inform the treatment of those who may act violently (de Vogel et al., 2012). For this goal, the SPROF items are arguably most useful if they correspond to treatment activities that are a feature of violent offender treatment programs; otherwise, SPROF domains with conceptual and predictive validity would suggest new avenues for treatment activities. Based on an understanding of violent offender treatment, and where the focus of such treatment is typically directed, Polaschek (2006) identified four domains that are common features of violent offender programs: (i) attitudinal factors (e.g. procriminal attitudes and cognitive or information-processing biases); (ii) impulsivity and self-regulation deficits; (iii) affective dyscontrol (e.g. anger, hostility, and poor coping skills); and (iv) lifestyle related needs that also predict general criminality (e.g.

\[\text{Note: although Table 1 depicts 20 items, the SPROF item ‘Medication’ was not included in the analysis due to the number of missing values.}\]
substance abuse, criminal peers, poor interpersonal skills, and family relationships). Recently, Klepfisz et al. (2017) suggested that SAPROF protective factors, could be categorized within these four domains, although this hypothesis has not previously been empirically tested.

The Current Research

Manifestly, conceptual overlap exists among the dynamic protective factors included in the SAPROF and the HCR-20v3 violence risk items. Table 1 provides a list of SAPROF protective factors and their hypothesized corresponding risk item on the HCR-20v3. This study uses data from a large sample of adult men who have received violent offender treatment while in prison to test the structure of the items on these instruments and to examine whether conceptually similar risk and protective items on the HCR-20v3 and SAPROF, respectively, will load onto the same latent factor. It also aims to establish whether HCR-20v3 and SAPROF items produce a four-factor structure that is consistent with Polaschek’s (2006) treatment domains. It is hypothesized that conceptually similar risk and protective items on the HCR-20v3 and SAPROF, respectively, will load onto the same factor. Furthermore, based on the premise that the SAPROF is to be used in treatment planning, and that treatment focuses on changing dynamic risk factors and improving protective factors, it is expected that factor analysis of a subset of conceptually similar items on the HCR-20v3 and the SAPROF will produce a four-factor structure consistent with Polaschek’s proposed treatment domains.

Method

Sample

A previous paper examining the association between within-treatment HCR-20v3 and SAPROF change scores (pre- to post-treatment) and violent recidivism was conducted with the current sample (Klepfisz et al., under review). These data were collected from the files of 201 adult male violent offenders who completed a violent offender treatment program, the Corrections’ Victoria Violence Intervention Program (VIP), between 2005 and 2016 at one of the state government-operated prisons in Victoria, Australia. One hundred and thirty one of the offenders had completed a moderate-intensity VIP (MIVIP; 33 three-hour sessions, twice weekly, for
approximately five months - approximately 100 hours total), 68 had completed a high-intensity VIP (HIVIP; 67 three-hour sessions, three times weekly, over approximately six months – 200-300 hours of intervention), and two had completed a VIP described as “other”.

The mean age of offenders at the time of assessment was 32 years \( (SD = 8.54; \) range 18 to 67 years). Most of the sample self-identified as Caucasian Australian (72.1%, \( n = 145 \)), 8.5% (\( n = 17 \)) self-identified as Aboriginal or Torres Strait Islander, and 15.4% (\( n = 31 \)) self-identified from a range of other ethnic backgrounds. Most offenders had not completed high school (75.7%, \( n = 152 \)) and most had a self-reported history of drug (92%, \( n = 185 \)) and/or alcohol abuse (79.1%, \( n = 159 \)). Their average sentence length was 3.57 years \( (SD = 2.98, \) range 0.42 to 17.92 years), and mean treatment attendance was 5.08 months \( (SD = 3.10, \) range 1.53 to 29.2 months). Sentencing comments and official criminal records indicated that most offenders had a violent index conviction (97.5%, \( n = 196 \)); 46.3% (\( n = 93 \)) were also sentenced for a nonviolent index offense, and 2% (\( n = 4 \)) were also sentenced for a sexual violence index offense. Individuals with a nonviolent index conviction were included in the study if they had a history of violence, were considered suitable for violent offender treatment, and had completed VIP treatment during their sentence. Most offenders had at least one prior conviction for nonsexual violence (87.6%, \( n = 176 \)) and nonviolent offenses (90.5%, \( n = 182 \)). Nonsexual violent crimes included murder, manslaughter, assault, intentionally and/or recklessly causing injury, robbery, aggravated burglary, threats to kill, false imprisonment, stalking, and arson. Nonviolent crimes neither directly involved another person nor involved aggression (e.g., fraud, criminal damage, drug offenses, burglary, theft, driving offenses, and breach offenses). Most offenders (76.6%, \( n = 154 \)) had served at least one term of imprisonment prior to their current incarceration.

Measures

**Structured Assessment of Protective Factors for Violence Risk (SAPROF; de Vogel et al., 2012).**

The SAPROF is a clinician-rated instrument, comprising 17 protective factors organized within three scales: internal (e.g., coping, empathy, self-control), motivational (e.g., work, medication, motivation for treatment), and external (e.g.,
social network, professional care, external control). Excepting two items (intelligence and secure attachment in childhood), all items are dynamic and thus potentially changeable during treatment. Items are rated on a three-point scale from 0 to 2, with higher scores indicating a protective factor is present for the person in the assessed situation. These scores are summed for research purposes but are used to make a final overall judgment of low, moderate, or high in clinical settings. Within the current sample, the SAPROF demonstrated moderate interrater reliability for post-treatment total scores ($ICC_1 = 0.51$). In forensic mental health settings, the SAPROF has demonstrated predictive validity for violent reoffending with AUCs ranging from .74-.85 at one to three years follow-up (de Vries Robbé, de Vogel, & de Spa, 2011; de Vries Robbé, de Vogel, et al., 2015). In the current correctional sample, however, the SAPROF did not predict violent recidivism to a statistically significant degree, with AUCs ranging from 0.52-0.58 (Klepfisz et al., under review).

**Historical-Clinical-Risk Management-20 version 3 (HCR-20 v3; Douglas et al., 2013).**

The HCR-20 v3 is a clinician-rated violence risk assessment instrument comprising 20 risk factors for violence: 10 historical factors, five dynamic clinical factors which reflect current correlates of violence, and five dynamic risk management factors which focus on situational and post-assessment factors that may increase or mitigate risk. The HCR-20 v3 is typically coded following an interview with the examinee and review of available case files, although it can be reliably coded from file review alone (Douglas et al., 2013). Evaluators code the presence of risk factors using a 3-level response format that reflects the certainty of the evaluator’s opinion; Present, Partially present, and Not present. For research purposes, these descriptors were transposed to numerical scores where 0 = No; 1 = Partial/Possible; and 2 = Yes/Definite. Using this scoring procedure, a total HCR-20 v3 score can be calculated for research purposes. Within the current sample, the HCR-20 v3 demonstrated good interrater reliability for post-treatment total scores ($ICC_1 = 0.73$). The HCR-20 v3 has demonstrated predictive validity for violence within the current sample (AUCs ranging from 0.62-0.66) (Klepfisz et al., under review) and among forensic and civil psychiatric patients (AUCs ranging from 0.67-0.81) (de Vogel, van den Broek, & de Vries Robbé, 2014; Doyle et al., 2014; Strub, Douglas, & Nicholls, 2014).
Procedure

This study involved a retrospective archival analysis of offenders’ Clinical Service Files and Individual Management Plans from Victoria’s correctional services; these files are maintained by clinicians responsible for offender rehabilitation. The Clinical Service File for each offender contained reports about risk, information regarding criminogenic needs to target in treatment, and details about an offender’s eligibility for violence treatment. The Clinical Service Files also included information pertaining to treatment (i.e. commencement/end dates, progress notes relating to an offender’s participation, and treatment completion report). Individual Management Plans contained sentencing information, including details about the offender’s index offense/conviction that resulted in the current custodial sentence being imposed and during which the individual completed violence treatment. Individual Management Plan files also contained official police records detailing offenders’ criminal histories and personal and demographic information. Information relevant to an offender’s general management throughout their sentence was also available, including information about attendance at employment/educational programs, disciplinary incidents, prison transfers, and general behavior during incarceration.

Ten research assistants who were either doctoral-trained psychologists or doctoral-level graduate students in clinical and forensic psychology coded the HCR-20v3 and SAPROF based on the available file information. All research assistants had completed formal, standardized training in these measures. Ratings of the HCR-20v3 and SAPROF were performed at two time points: at the start of treatment (pre-treatment ratings) and at the end of treatment (post-treatment ratings). Pre- and post-treatment ratings were carried out by different raters and all raters were blind to recidivism outcome data. Of note, only post-treatment rated items were selected for the current analysis given that, presumably, post-treatment scores would take into account more comprehensive and new information about the client that emerges over the course of treatment. Post-treatment ratings were performed based on all available file information at discharge from treatment, including treatment progress reports. In rating the HCR-20v3 Clinical items post-treatment, functioning at the end of treatment was emphasized, however, stability across the treatment period was also considered.
HCR-20\textsuperscript{v3} Risk Management items at post-treatment were evaluated as “Out” (Community). Files containing insufficient information to permit scoring were excluded from the sample. To be included in the sample, the offender had to have completed violence treatment.

In clinical practice, the indication of relevance ratings, and key and goal factors, on the HCR-20\textsuperscript{v3} and the SAPROF, respectively, focuses attention on the importance of specific dynamic factors for an individual, which can be useful for the development of risk management and treatment intervention strategies (de Vries Robbé, 2014). As the present file study was retrospective, no quantitative analyses were carried out on relevance ratings on the HCR-20\textsuperscript{v3} and keys and goals on the SAPROF, since their value lies especially in their prospective use (de Vries Robbé, 2014).

**Statistical Analyses**

Statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS), version 25. An exploratory principal axis factoring (PAF) analysis with direct oblimin rotation was conducted on 19 post-treatment-rated dynamic items for the entire sample. These items were purposely selected based on Klepfisz et al.’s (2017) hypothesis about the existence of conceptual overlaps between the dynamic protective factors included in the SAPROF and the risk factors that are assessed using the HCR-20\textsuperscript{v3}. As can be seen in Table 1, Klepfisz et al. suggest that most of the protective items included in the SAPROF are conceptually similar to items on the HCR-20\textsuperscript{v3}, in that they are defined as high and low ends of the same continuum; these items were chosen for the current analysis. Factor analysis was employed over correlational analyses, as this method allows the researcher to reason abductively, or in an explanatory manner, from correlational data to underlying factors (Haig, 2005, 2012). The purpose of this analysis was: (1) to elucidate whether the chosen risk and protective items, as assessed using a retrospective, file-based coding procedure, may show a pattern whereby similar constructs can be considered to have been drawn from the same latent construct, and thus load onto the same factor, and (2) to identify whether the risk and protective items can be usefully grouped into four underlying domains that have been identified as important in violent offender treatment programs. Of note, the SAPROF protective items were reverse-scored so that the factor analysis
did not artificially identify protective factors as separate from risk factors due to the direction of their scoring.

Results

Descriptives

Table 2 below reports the post-treatment means and standard deviations for the HCR-20\textsuperscript{V3} and SAPROF subscales and total scores.

Table 2. Post-treatment means and standard deviations on the HCR-20\textsuperscript{V3} and SAPROF

<table>
<thead>
<tr>
<th>Risk assessment scale</th>
<th>Possible score range</th>
<th>Post-treatment M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCR-20\textsuperscript{V3} total score</td>
<td>0 – 40</td>
<td>25.56 (4.72)</td>
</tr>
<tr>
<td>Historical scale</td>
<td>0 – 20</td>
<td>16.06 (2.36)</td>
</tr>
<tr>
<td>Clinical scale</td>
<td>0 – 10</td>
<td>3.09 (1.90)</td>
</tr>
<tr>
<td>Risk Management scale</td>
<td>0 – 10</td>
<td>6.41 (1.91)</td>
</tr>
<tr>
<td>SAPROF total score</td>
<td>0 – 34</td>
<td>9.97 (3.49)</td>
</tr>
<tr>
<td>Internal scale</td>
<td>0 – 10</td>
<td>2.45 (1.56)</td>
</tr>
<tr>
<td>Motivational scale</td>
<td>0 – 14</td>
<td>4.04 (1.81)</td>
</tr>
<tr>
<td>External scale</td>
<td>0 – 10</td>
<td>3.48 (1.11)</td>
</tr>
</tbody>
</table>

Factor Analysis

Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than 0.3. The overall Kaiser-Meyer-Olkin (KMO) measure was 0.736 with the majority of individual KMO measures greater than 0.7, classifications of 'middling' to 'meritorious' according to Kaiser (1974). Bartlett's test of sphericity was statistically significant (p < .0005), indicating that the data was likely factorizable.

Table 3 below presents the pattern matrix where the factor loadings represent the unique relationship between the different variables that comprise the factors. Of note, the sign on the loading (+/-) refers to the way the item relates to the factor; if there are some negative correlations among the variables, some of the loadings will be negative too. The SAPROF item ‘Medication’ was not included in the analysis due to
Table 3. *Pattern Matrix displaying factor loadings for items from the HCR-20*³ and *SAPROF*

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCR Future problems with treatment/supervision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR Recent problems with treatment/supervision</td>
<td>.770</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR Future problems with stress/coping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR Recent problems with instability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAPROF Motivation for treatment</td>
<td>.361</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAPROF Motivation for treatment</td>
<td></td>
<td>.448</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR Future problems with living situation</td>
<td>.796</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR Future problems with personal support</td>
<td></td>
<td></td>
<td></td>
<td>.577</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR History of problems with employment</td>
<td></td>
<td></td>
<td>.393</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR History of problems with relationships</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.317</td>
<td></td>
</tr>
<tr>
<td>SAPROF Living circumstances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.771</td>
<td></td>
</tr>
<tr>
<td>SAPROF External control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.584</td>
</tr>
<tr>
<td>SAPROF Professional care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.580</td>
</tr>
<tr>
<td>SAPROF Coping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.425</td>
</tr>
<tr>
<td>SAPROF Self-control</td>
<td></td>
<td></td>
<td></td>
<td>.732</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAPROF Work</td>
<td></td>
<td></td>
<td></td>
<td>.527</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAPROF Intimate relationship</td>
<td></td>
<td></td>
<td></td>
<td>.406</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAPROF Attitudes toward authority</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.435</td>
</tr>
<tr>
<td>HCR Future problems with professional services/plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.426</td>
</tr>
<tr>
<td>SAPROF Social network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Eigenvalues                                    | 3.811| 1.768| 1.535| 1.321| 1.164| 1.079| 1.021|
% of variance explained                        | 20.06| 9.31 | 8.08 | 6.95 | 6.13 | 5.68 | 5.37 |

The number of missing values. The scree plot and eigenvalues criteria suggested a seven-factor solution. Parallel analysis also supported a seven-factor
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solution\(^2\). A cut-off loading criterion of .30 was used since the factor analysis was exploratory in nature and this provides a more liberal criterion than a cut-off of .40. Furthermore, other papers in the field have adopted a similar cut-off (for example, see Beggs & Grace, 2010; Olver, Wong, Nicholaichuk & Gordon, 2007). As can be seen in Table 3 (above), the SAPROF ‘Social network’ item did not load above the cut-off on any of the factors, and three items (‘Future problems with stress/coping’, ‘Motivation for treatment’, and ‘Professional care’) loaded onto more than one factor. In order to resolve this issue with cross-loadings, the alpha coefficients for each factor were calculated with, and without, the cross-loading items. The resultant factors were broadly labelled (1) Personal and Interpersonal Instability (\(\alpha = .36\)), (2) Social Functioning/Capital (\(\alpha = .60\)), (3) Problems in Living Circumstances, (4) Community Supervision/Support (\(\alpha = .35\)), (5) Agency-Related Factors (\(\alpha = .58\), (6) Attitudes toward Authority, and (7) Relationships with Health Services (\(\alpha = -.23\)). Of note, the items ‘Future problems with stress/coping’ and ‘Motivation for treatment’ were both retained on Factor 1 and the item ‘Professional care’ was retained on Factor 4. Table 4 below shows the correlations between each of the factors that emerged from the analysis.

<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
<th>Factor 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>-</td>
<td>.40</td>
<td>-.01</td>
<td>-.02</td>
<td>.35</td>
<td>-.09</td>
<td>-.18</td>
</tr>
<tr>
<td>Factor 2</td>
<td>-</td>
<td>-</td>
<td>.15</td>
<td>.12</td>
<td>.22</td>
<td>-.02</td>
<td>-.03</td>
</tr>
<tr>
<td>Factor 3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.18</td>
<td>.16</td>
<td>-.02</td>
<td>.04</td>
</tr>
<tr>
<td>Factor 4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.05</td>
<td>-.10</td>
<td>.02</td>
</tr>
<tr>
<td>Factor 5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.02</td>
<td>-.21</td>
</tr>
<tr>
<td>Factor 6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.04</td>
</tr>
<tr>
<td>Factor 7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

\(^2\) It has been argued that Kaiser’s criterion for retaining factors is relatively simplistic and arbitrary (i.e. a simple cut-off says nothing about whether these factors likely arose due to chance, or can be considered statistically significant). Accordingly, a parallel analysis was also performed, which uses information about a dataset to generate random datasets that look like (or are ‘parallel’ to) the real data in terms of number of cases and number of variables. In this procedure, observed eigenvalues are compared to eigenvalues (or means) derived from the randomised data. If observed eigenvalues are larger than eigenvalues generated from random data, one can be more confident that specific factors should be retained. Using this procedure, a seven-factor solution was supported.
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Discussion

Using a factor analytic approach, this study investigated whether conceptually similar risk and protective factors (represented by items on the HCR-20\textsuperscript{v3} and the SAPROF) loaded onto the same factor and thus, whether they represent different approaches to assessing the same latent construct. Furthermore, this paper aimed to identify whether the SAPROF items, which were designed to assist in treatment planning, could be usefully grouped according to four domains that have been identified as important to violent offender treatment.

Are Risk and Protective Factors Assessing the Same Latent Constructs?

The results showed that conceptually similar risk and protective items on the HCR-20\textsuperscript{v3} and SAPROF did not load onto the same factors. For example, although the risk item ‘Future problems with stress/coping’ loaded onto Factor 1 (Personal and interpersonal instability), its hypothesized protective item equivalent ‘Coping’, loaded onto Factor 5 (Agency-related factors). Similarly, the HCR-20\textsuperscript{v3} item ‘Future problems with living situation’ loaded onto Factor 2, whereas its seemingly inverse SAPROF item ‘Living circumstances’ loaded onto Factor 3. Furthermore, whereas Factors 1-5 could represent possible latent risk factors, arguably, the resultant negative loadings on Factors 6 and 7 could represent separate, protective latent constructs. As such, although on face value, particular protective items appear to be assessing the same latent construct as HCR-20\textsuperscript{v3} risk factors (see Table 1), the results do not support this hypothesis. Indeed, some items appear to be assessing latent risk constructs, whereas others appear to be assessing latent protective constructs. Of note, although the HCR-20\textsuperscript{v3} and SAPROF items generally loaded onto separate factors, a number of these factors were correlated. For example, Factor 1 and Factor 5 were moderately negatively correlated ($r = -.35$). Less robust, but still potentially important, Factor 2 and Factor 5 were negatively correlated ($r = -.22$), and Factor 5 and Factor 7 were negatively correlated ($r = -.21$).

Ostensibly, differences in the way protective factors are defined and measured using the SAPROF may explain the finding that seemingly similar risk and protective factors appear to assess different latent constructs (see below). Although the notion that protective factors might be conceptually similar to risk factors is reasonable, the current findings suggest that the relationship between risk and protective factors is not
as direct as simply stating that they lie at the opposite ends of a single continuum. Much more work is required to both theorize and operationalize protective factors. Recently, Cording and Beggs Christofferson (2017) and Ward and Willis (2016) have argued that, like risk factors, protective factors are multidimensional and indistinct in nature; they are often higher-level categories that are able to be subdivided into more specific factors. For example, the HCR-20\(^{3}\) item ‘Recent problems with instability’ is intended to capture instability in affect, cognition, and behavior (Douglas et al., 2013). Arguably, ‘instability’ captures a much broader construct than the SAPROF item ‘Self-control’ and thus, self-control is unlikely to be directly opposite to and mutually exclusive from instability. Similarly, although an individual may possess self-control in some areas (e.g., substance use), they may simultaneously demonstrate instability, or a lack of self-control, in other areas (e.g., affective instability), suggesting that the definitions of these two items lead to the assessment of distinct constructs. The same argument can be made with regard to the SAPROF item ‘Motivation for treatment’. It is likely that this item represents an overarching construct that can be divided into various individual factors including motivation to comply with psychological treatment, in addition to responsiveness to treatment, and motivation to adhere with prescribed medications. Accordingly, the SAPROF item ‘Motivation for treatment’ is unlikely to capture exactly the same information as the HCR-20\(^{3}\) item ‘Future problems with treatment/supervision response’. In light of these assessments being composed of higher-order, multifaceted constructs, it is unsurprising that the results of the factor analysis did not generate a simple structure, with some items loading onto more than one factor, including ‘Motivation for treatment’.

Of note, whereas some protective factors appear to refer to particular situations or contexts (e.g., living circumstances), others appear to refer to internal processes or mental states (e.g., positive attitudes towards authority) (Ward & Fortune, 2016). Given the multidimensional nature of risk and protective factors, it is possible that different aspects of a client’s situation or presentation may be used differentially to score seemingly related risk and protective items from the SAPROF and HCR-20\(^{3}\). Future research should explore whether assessing an individual from a protective (rather than risk) lens leads assessors to think about a construct differently, and whether this impacts on scoring. It might be worthwhile, for example, to explore how
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Clinicians define risk and protective factors, the aspects that they focus on in scoring risk and protective items, and whether thresholds for scoring risk versus protective items as ‘present’ differs (e.g., clinicians may engage in a risk-averse scoring strategy whereby any evidence of a risk factor meets the threshold of the factor being present, whereas more substantial evidence of a protective factor is required to meet their subjective threshold).

**Use of the SAPROF to Inform Treatment**

The results revealed a seven-factor solution, with the factors broadly being labelled: (1) Personal and Interpersonal Instability, (2) Social Functioning/Capital, (3) Problems in Living Circumstances, (4) Community Supervision/Support, (5) Agency-Related Factors, (6) Attitudes toward Authority, and (7) Relationships with Health Services. Notably, the aim of this paper is not to offer an explicit interpretation for this factor structure (although we have offered one interpretation for how these factors might be labelled). Rather, this paper is concerned with developing a better understanding of the protective factors that form part of the SAPROF, how they might relate to the risk factors measured by HCR-20\(^v3\), and how together they might be used for treatment planning purposes. The results suggest that SAPROF items do not appear to capture proposed domains of treatment activities that are commonly undertaken with violent offenders. This is an important finding, in light of the SAPROF authors’ proposition that the SAPROF was designed to prospectively prevent recidivism by informing treatment (de Vogel et al., 2012). If, as appears to be the case, the SAPROF items do not assess common areas of capacity-building or need targeting, this raises an important issue with regard to the relationship between these protective factors and activities that seem to be common in violent offender treatment. Indeed, if treatment is targeted at dynamic risk factors that purportedly underlie violent behavior, then questions remain regarding how the SAPROF protective factors operate in relation to reductions in risk (i.e. the change process) and desistance from violence. Furthermore, if SAPROF constructs do not overlap with current treatment activities, yet the SAPROF is predictive of violent recidivism (for example, see de Vries Robbé, de Vogel, et al., 2015), then it is important to consider how treatment programs might be expanded to address these protective constructs.
Implications for Practice

Overall, the results suggest that the HCR-20\textsuperscript{v3} and SAPROF items largely load onto separate latent constructs, and that despite some of these constructs being correlated, there appears to be a conceptual distinction between the risk and protective factors on these measures. Since the current findings do not support the hypothesis that these risk and protective factors are simply assessing aspects of the same constructs, it would seem plausible, as Rogers (2000) suggests, to incorporate both risk and protective factors in any comprehensive appraisal of violence risk. However, any change in practice should be dependent on the SAPROF demonstrating predictive validity in the sample of interest. Furthermore, it is important to be mindful of the purpose of the assessment. Specifically, if the aim of the assessment is risk prediction, then the inclusion of the SAPROF should be dependent on its ability to predict violent recidivism in the sample that is being considered. Previous research provides inconsistent evidence regarding the predictive validity of the SAPROF’s protective factors, and it remains unclear whether these protective factors provide incremental predictive validity to risk assessment (see Coupland, 2015; de Vries Robbé, de Vogel, et al., 2015; Klepfisz et al., under review). Thus, although the current findings suggest that the SAPROF measures constructs that are distinct from the HCR-20\textsuperscript{v3}, in studies that fail to show the SAPROF adds incrementally to the prediction of violence, there is little evidence that these distinct constructs are important to the prediction of violence. This is particularly the case in populations including female offenders and incarcerated male violent offenders (Viljoen et al., 2016). Indeed, prior evidence from the sample described in this study concluded that SAPROF protective factors were not related to violent recidivism to a statistically significant degree (Klepfisz et al., under review).

Conversely, if the purpose of the assessment extends beyond simply ascertaining an individual’s likelihood of recidivism, then consideration of SAPROF protective factors might be beneficial. While the results suggest that the SAPROF does not identify key treatment targets that are common to violent offender treatment, these protective factors may nonetheless be important. For example, focusing on protective factors or strengths in addition to risks may improve collaboration, motivation for treatment, and the therapeutic alliance; although, this contention has not yet been supported (de Vries Robbé & Willis, 2017).
Limitations

The current study was exploratory in nature and represents a meaningful first step towards empirically investigating the relationship between conceptually similar risk and protective factors. Such questions have not been previously investigated, which is a critical issue for the field. Nevertheless, it should be noted that the number of factors that was retained was based on relatively liberal criteria (i.e. scree plot and eigenvalues). It is important to highlight, however, that the seven-factor solution produced is tenuous and there are indications of factor over-extraction. For example, two factors only have one item loading (Factor 3: SAPROF Living Circumstances & Factor 6: SAPROF Attitudes toward authority) and two factors only have two items loading (Factor 4, Factor 7). Accordingly, it seems that there are potentially only three meaningful factors – Factors 1 and 2, which are HCR-20\textsuperscript{v3} based, and Factor 6, which is SAPROF based.

It is entirely possible that there is no underlying factor structure based on the measures that were used. Indeed, Polaschek’s (2006) domains were originally theorized based on an understanding of violent offender treatment and where the focus of such treatment should be, and is commonly, directed. Whilst the HCR-20\textsuperscript{v3} and SAPROF are intended to both predict recidivism and identify treatment needs, the items on these measures were not purposefully designed to match Polaschek’s framework nor the components of contemporary violent offender treatment programs; the general separation of the assessment and treatment literatures and the dual goals inherent within most forensic instruments arguably limits the utility for risk assessment instruments to fully inform treatment planning. Thus, there is little empirical research that supports the existence of these domains in risk assessment and the present study was exploratory in nature. Of note, some authors have argued that violence risk is not a unitary construct and prediction is enhanced when there is little conceptual overlap among assessment items; thus, each item included in a risk assessment instrument should represent a unique construct to assist clinicians manage risk (Cording & Beggs Christofferson, 2017). Accordingly, it may not be reasonable to expect items on these instruments to possess high internal consistency or to manifest in distinct patterns that suggest a fully realized conceptual understanding of the causal propensities that drive violent behavior. As this is the first study to our knowledge to
explore the factor structure of the SAPROF, further research is required to determine whether these results can be replicated.

Importantly, the items included in the factor analysis are ordinal; thus, ideally, the factor analysis should have been based on a polychoric correlation matrix. However, since SPSS is unable to calculate polychoric correlations, these statistics were not explored. Given the limitations of SPSS and factor analysis, future research should consider the use of other statistical approaches, such as structural equation modelling, to answer similar research questions. Finally, since the current study involved a retrospective archival analysis of offender prison files, the ability to score the HCR-20\textsuperscript{v3} and SAPROF was limited by the quality of the records reviewed. Furthermore, variables on the HCR-20\textsuperscript{v3} and SAPROF were rated based on a hypothetical scenario of release planning, and this inevitably involves speculation. As such, the accurate appraisal of dynamic factors on the HCR-20\textsuperscript{v3} and SAPROF was challenging, with good (ICC\textsubscript{1} = 0.73) and moderate interrater reliability (ICC\textsubscript{1} = 0.51) for the HCR-20\textsuperscript{v3} and SAPROF, respectively (Fleiss, 1986). Importantly, the Clinical Service Files used in this study largely contain information related to offense-specific treatment; offenders are not evaluated as mental health clients, and thus these files do not contain much information related to an offender’s mental state. Consequently, the Clinical scale of the HCR-20\textsuperscript{v3} was difficult to score. Similarly, clinicians in a criminal justice setting (as opposed to a forensic mental health setting) may not be accustomed to writing about an individual’s strengths and protective factors, which may have impacted the scoring of SAPROF items (see Livingston, Nijdam-Jones, & Brink, 2012) to the degree that scorers in this study may have conceptualized protective factors as distinct from risk factors by nature of the information available for scoring, suggesting this study’s results may be specific only to the present correctional context.

Conclusion

The SAPROF arose for the purpose of providing a structured approach to the assessment of protective factors, to facilitate clinicians’ positive and productive rehabilitative work with offenders, and to produce a more complete assessment of an individual’s violence propensity. However, due to limited empirical and theoretical work on protective factors, the theoretical foundation of the SAPROF is unclear and the conceptualization of protective factors throughout the forensic mental health and
correctional areas is vague (Cording & Beggs Christofferson, 2017; Klepfisz et al., 2017). This paper represents a step forward in understanding whether risk and protective factors, as measured using the HCR-20v3 and the SAPROF, assess aspects of the same latent constructs. Ultimately, however, more theoretical and development work is needed to arrive at an agreed-upon conceptualization and definition of the term ‘protective factors’. As we begin to untangle some of these conceptual issues, we may be better able to understand how protective factors relate to risk factors, how they operate in relation to reductions in risk (i.e. the change process) and desistance from violence, how best to measure their presence, emergence, and fluctuation, and how clinicians can enhance positive risk-reducing aspects among clients.
References


PART III: EMPIRICAL PAPERS


PART III: EMPIRICAL PAPERS


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PART IV: DISCUSSION
CHAPTER EIGHT: INTEGRATED DISCUSSION

8.1 Introduction

This chapter integrates the results of the two review papers and the two empirical studies. It discusses them with respect to the three overarching research aims outlined in Chapter One, before considering the limitations of the thesis and various clinical and conceptual implications. The chapter closes with some suggested directions for further research.

8.2 Overview of the Research

The overarching purpose of this thesis was to facilitate a better understanding of how forensic practitioners who work within a correctional environment can assess violence risk and violence protective factors and incorporate treatment change-related information on these variables into violence risk assessment. To this end, the research had three primary aims. Firstly, based on the premise that change in dynamic risk and protective factors should be associated with violent reoffending, this thesis reviewed the constructs of dynamic risk and protective factors, how they are currently conceptualised and measured within contemporary assessment instruments, and how protective factors relate to risk factors for violence. In order to address this aim, the existing psychological literature on dynamic risk and protective factors was critically reviewed. Furthermore, an empirical investigation into the relationship between conceptually similar risk and protective factors was undertaken. The second aim of this thesis was to conduct an empirical test of program logic, to determine whether treatment-related changes in dynamic risk and protective factors, from pre- to post-treatment, predicted reoffending following release from custody. Finally, the thesis investigated whether, as theorised, there is anything substantive to be gained from assessing protective factors in addition to assessing risk factors for violence. In order to address this aim, an empirical study investigated whether augmenting violence risk assessment with an assessment of protective factors added incrementally to the prediction of violent reoffending in a correctional sample. Furthermore, this study explored whether a commonly used protection instrument captures important treatment-related activities that are a feature of contemporary violent offender treatment programs, and thus, whether it poses benefit in terms of treatment planning and capturing treatment-related changes.
A retrospective archival analysis was conducted on the files of 201 adult male violent offenders who had completed a Violence Intervention Program (VIP) offered by Corrections Victoria between 2005 and 2016 at one of the State government-operated prisons in Victoria, Australia. The data examined as part of this research were extracted from files and databases maintained by Corrections Victoria, Victoria Police, and the Department of Justice and Regulation. Two separate literature reviews of current knowledge about risk and protective factors were completed, with two empirical studies conducted to address the various research questions and hypotheses outlined in Chapter Four. The results of the reviews and studies are summarised, discussed, and interpreted in this chapter.

8.3 Overview of Main Findings

This section will address the key results associated with the two empirical studies and discuss these within the context of the three research aims outlined in Chapter One, as well as the existing literature in the area of violent offender treatment.

8.3.1 Research aim one: To examine the constructs of dynamic risk and protective factors.

In Chapter Three it was highlighted how attempts to operationalise protective factors have been limited by a lack of agreement regarding what the term ‘protective factors’ refers to and whether risk and protective factors are simply versions of the same constructs, or similar variables operationalised in different directions (i.e. where risk lies at the negative end of the continuum and protection lies at the positive end). Importantly, if risk and protective factors are, in fact, conceptually similar constructs, this calls into question whether there is any benefit in clinicians assessing both risk and protective factors in a single assessment. Essentially, one would be introducing duplicate items that may not contribute anything unique to the assessment of violence risk (Cording & Beggs Christofferson, 2017). Given limited resources available within prison settings, clinicians cannot afford to conduct additional assessments, which are unnecessary.

8.3.1.1 Does the SAPROF measure the same things as the HCR-20v3?

As Wanamaker, Jones, and Brown (2018) have argued, although a protective factor may appear to be the polar opposite of a risk factor, these constructs may, in
fact, be conceptually distinct. In the review paper presented in Chapter Three, important overlaps between various risk and protective factors on the HCR-20\textsuperscript{v3} and SAPROF were highlighted. Indeed, on face value, a number of the items on these measures appear to be similar in the content that they intend to capture (e.g., ‘Coping’ and ‘Future problems with stress and coping’; ‘Living circumstances’ and ‘Future problems with living situation’). In the first empirical study (Chapter Six), SAPROF total scores were found to be significantly inversely related to VRS and HCR-20\textsuperscript{v3} total scores, perhaps indicating that risk and protective factors are, as theorised, versions of similar constructs and thus conceptually related. However, the relationship between conceptually similar individual risk and protective items had not been previously explored. Accordingly, using a factor analytic approach, the second empirical study (Chapter Seven) investigated whether SAPROF protective factors and conceptually similar risk factors, drawn from the HCR-20\textsuperscript{v3}, loaded onto the same factor. The results showed that conceptually similar risk and protective items on the HCR-20\textsuperscript{v3} and SAPROF generally loaded onto separate factors; however, a number of these factors were correlated. This suggests that although particular protective items appear to be assessing the same latent construct as previously identified risk factors, the way protective factors are conceptualised and measured using the SAPROF suggests that these risk and protective items are distinctive. As such, the current results suggest that the SAPROF does measure something different to the HCR-20\textsuperscript{v3} and, in fact, despite the fact that some items appear to overlap, these items on the HCR-20\textsuperscript{v3} and SAPROF appear to capture different information. Nevertheless, as discussed in Section 8.3.3. below, it is important to consider whether these distinct constructs add benefit in terms of violence risk prediction and treatment planning among violent offenders.

8.3.2 Research aim two: To examine within-treatment change in dynamic risk and protective factors and their associations with violent recidivism.

As discussed in Chapter Two, in recent years there has been increasing acknowledgement that measuring an individual’s change on dynamic risk factors (criminogenic needs) over the course of treatment is a useful way of assessing treatment progress. Furthermore, these changes may be reasonably expected to predict violent reoffending, so long as levels of pre-treatment risk are also considered.
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Recently, it has been theorised that both reductions in risk factors and increases in protective factors from pre- to post-treatment are the presumed mechanism through which violent offender treatment ‘works’. This hypothesis was investigated in the first empirical study, the results of which were presented in Chapter Six. The primary objective of this study was to explore whether a group of moderate- and high-risk violent offenders changed as a consequence of treatment, with regard to dynamic risk and protective factors, and whether the magnitude of treatment change was associated with violent recidivism.

Overall, total scores on the VRS and HCR-20\textsuperscript{v3} were significantly lower after treatment, and total scores on the SAPROF were significantly higher after treatment. These results indicate significant reductions in risk and significant increases in protection from pre- to post-treatment and suggest that a group of violent offenders have the capacity to make changes on these instruments over the course of treatment. Given that these instruments demonstrated significant changes from pre- to post-treatment, the research subsequently examined whether these changes were significantly associated with reductions in post-treatment recidivism. Importantly, and contrary to the hypothesis, change scores were not significantly associated with violent reoffending at follow-up. It is important to note that the relationships between change scores and violent recidivism were in the expected direction (i.e., greater changes were associated with reduced recidivism); however, these results suggest that the magnitude of the effect of change on recidivism is small. This is a major finding, as it suggests that although these SPJ instruments offer benefit in terms of risk prediction, they provide limited meaningful information about change. The implications of these results will be discussed in Section 8.4 below.

8.3.2.1 Alternative methods of assessing treatment change.

One of the aims of this thesis was to examine the best method for examining within-treatment change in violent offender treatment. In Chapter Five, various methods of assessing within-treatment change were reviewed and important issues were considered, for example, with regard to whether changes can be considered ‘reliable’ or ‘clinically significant’. Given that raw pre-post change scores did not predict violent reoffending in the first empirical study (Chapter Six), it was investigated whether reliable changes on the VRS, HCR-20\textsuperscript{v3}, and SAPROF
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(measured using the Reliable Change Index, or RCI) were associated with violent reoffending. Of note, none of the offenders in the sample achieved reliable change on the HCR-20\textsuperscript{v3} from pre- to post-treatment. Furthermore, the results showed that after controlling for static risk, reliable change on the VRS and SAPROF did not predict violent reoffending.

As discussed in Chapter Five, another method of gauging an individual’s change in a correctional program is to utilise a specific scale, which was designed to evaluate whether offenders achieved particular milestones or thresholds deemed to be important in treatment-related success (Polaschek, 2017). Importantly, the results showed that when incorporating time at risk, the TRRG:SV Gain scale significantly predicted violent reoffending, providing preliminary support for the use of this scale to measure treatment-related changes among incarcerated violent offenders.

8.3.3 Research aim three: To investigate the utility of protective factor assessment among incarcerated violent offenders.

It has been suggested that the inclusion of data on protective factors may be beneficial: (a) to improve the predictive validity of risk assessment, and (b) to broaden the scope of violent offender treatment through the identification of additional treatment targets (Cording & Beggs Christofferson, 2017). The first empirical study (Chapter Six) investigated the predictive and incremental validity of the SAPROF in an Australian prison sample.

8.3.3.1 Do SAPROF scores/judgments predict violent reoffending?

Previous research suggests that protective factor instruments, such as the SAPROF, have similar predictive accuracy to risk assessment instruments (Coupland, 2015; de Vries Robbé, de Vogel, & de Spa, 2011). Contrary to previous research, however, the current results suggest that the SAPROF performs poorly in the prediction of violent reoffending when compared to the VRS and HCR-20\textsuperscript{v3}. The key question, however, is whether or not this discrepancy can be attributed to methodological issues. For example, as will be discussed in Section 8.5 below, it may be that the results were hampered by: (i) poor reliability in the current research; and (ii) the quality of the files reviewed, which did not contain comprehensive information on protective factors. As discussed in Section 8.5.2 below, this latter issue could be related to the nature of the current setting/population (i.e. the current study utilised an
Australian correctional sample, whereas the majority of previous research has been conducted with European forensic psychiatric inpatient samples).

Of note, Coupland’s (2015) research is the only previous study to provide support for the predictive validity of the SAPROF in a correctional sample, and he suggests that alternative protective factors may potentially be relevant within a correctional sample than are relevant to inpatient samples (presumably, for example, factors such as adherence with prescribed medications would be more relevant and protective within an inpatient, rather than correctional sample). However, Coupland did not explicate what these protective factors might be, and there is limited evidence on which to base this hypothesis. As such, further research with non-inpatient samples, and research comparing inpatient versus correctional samples, is certainly required.

8.3.3.2 Does the SAPROF add incremental predictive validity in the prediction of violence?

As Coupland (2015) highlights, one of the principal questions that arises from emerging understandings of protective factors is whether they provide incremental predictive validity for violent recidivism, over the assessment of risk factors. With regard to research on the SAPROF, previous research has provided inconsistent evidence for its incremental validity contributions, although this research has primarily been conducted with European forensic psychiatric inpatients. The results of this study clearly show that SAPROF protection judgments do not add incrementally to the prediction of violent reoffending (over HCR-20\textsuperscript{v3} risk judgements) in a sample of Australian violent, non-mentally disordered offenders. As indicated by Coupland (2015), it is possible that the low prevalence of protective factors in this sample may have had the effect of decreasing the magnitude of prediction due to a loss of variance in SAPROF scores. It is also possible that the amount and quality of information contained in the files may have influenced these results (see Section 8.5 below).

8.3.3.3 Do SAPROF items capture important domains of violent offender treatment?

Of note, the SAPROF authors contend that perhaps its greatest value lies in its ability to inform treatment planning (de Vogel et al., 2012). Accordingly, the SAPROF items are arguably most useful if they correspond to treatment activities that are a
feature of violent offender treatment programs; the absence of a protective factor should then indicate that intervention is required to remedy a particular ‘protective factor deficit’. Furthermore, the authors argue that repeated assessments are recommended since protective factors can fluctuate and change over time (de Vogel et al., 2012). Accordingly, if the SAPROF performs as intended, then improvement on the SAPROF items over time should be associated with reduced violence.

The results of the exploratory factor analysis presented in Chapter Seven revealed a seven-factor solution that was inconsistent with Polaschek’s (2006) violent offender treatment domains. As such, the SAPROF items do not appear to capture domains of treatment activities that are commonly undertaken with violent offenders. As discussed in Chapter Three, most of the SAPROF protective factors fall under the category of lifestyle-related needs; however, Polaschek’s domains generally reflect psychological features of the person. These appear to be under-represented by the items on the SAPROF and thus might provide one explanation for the current results.

Furthermore, treatment-related changes on the SAPROF were not significantly associated with violent recidivism. Arguably, if the SAPROF items do not capture important treatment activities among violent offenders, then we cannot reasonably expect changes in these items to be associated with future violence. It is important to note, however, that SAPROF changes have previously demonstrated predictive validity for future violence (de Vries Robbé et al., 2015). How, then, do we make sense of these discrepant results? As will be discussed below, a number of methodological limitations may have affected the significance of these results. For example, a substantial amount of time elapsed between treatment completion and release from custody, and this may have affected the stability of treatment-related changes. Furthermore, in Coupland’s (2015) research, which is the only previous study to examine the association between SAPROF change scores and recidivism in a correctional sample, only scores capturing change from pre-treatment to the point of release from custody were significantly associated with violent recidivism. Accordingly, this discrepancy may, in part, also be attributed to the fact that pre-release outcomes were not investigated, which would have represented a more proximal time point to behaviour in the community than post-treatment outcomes.
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8.4 Practical Implications

8.4.1 Risk assessment and the use of treatment change scores.

Practically, the risk assessment measures used in this research appear to adequately predict violent recidivism. These results are consistent with past research examining the predictive validity of these measures (Yang et al., 2010). Furthermore, the current research demonstrated significant changes on the dynamic factors of the VRS and HCR-20\textsuperscript{v3} during treatment, suggesting that a group of predominantly high-risk violent offenders do have the capacity to make changes over the course of intervention in domains measured by these risk assessment instruments; however, these changes do not appear to translate into actual reductions in recidivism. Ostensibly, this null finding does not seem to be due to issues with scoring the measures via file review (as discussed below), since change scores on the VRS, which was rated by clinicians at the time offenders completed treatment, also did not predict future violence. Furthermore, the absence of a relationship between change scores and recidivism is consistent with previous research (Klepfisz et al., 2014; Yesberg, 2015), yet is inconsistent with some past research in other settings (Coupland, 2015; de Vries Robbé et al., 2015).

On face value, then, the current results suggest that contrary to what is theorised in the literature, within-treatment changes, as measured using these instruments, may not represent the main mechanism by which violent offender treatment exerts a positive effect. However, given that previous research has produced inconsistent results, it is important to consider alternative interpretations. For example, it is possible that treatment-related changes were attenuated due to the amount of time offenders spent in custody following treatment completion. Furthermore, perhaps the instruments utilised in this research are not sufficiently sensitive or comprehensive to capture treatment-related changes that consistently and reliably predict violent outcomes. Indeed, the VRS, HCR-20\textsuperscript{v3}, and SAPROF do not capture important variables that are considered to be relevant from a desistance framework (e.g., positive personal identity, attachments to adult institutions) (see Laub & Sampson, 2001); thus, if such variables are critical to desistance from violence, then changes in these areas would not be captured by the measures used in this research (Walker, Bowen, & Brown, 2013). There is limited predictive evidence, however, for these other
processes, and thus further research is required before expanding or refocusing risk assessment instruments to include these variables.

Until we can elucidate the specific factors which are critical to the prediction and management of violent reoffending, practitioners should continue administering well validated risk assessment instruments, at least prior to and/or following treatment, since scores/ratings at these time points have shown to predict future violence, and the ratings before and after treatment elucidate important aspects of the person that require intervention. Caution should be heeded, however, when considering the impact and meaning of treatment change scores derived from these measures. Ultimately, practitioners, parole boards, and mental health tribunals should not rely on composite change scores as a reflection of lasting risk-related change and should not allow the assessment of change (determined through comparison of post- and pre-treatment scores) to overwhelm the ultimate risk assessment (i.e. to predict reoffending). Treatment change scores may, however, give an indication of an individual’s remaining needs at the end of treatment, which might usefully inform the delivery and identification of further treatment and risk management strategies. Furthermore, treatment changes might be informative in terms of an individual’s response to, and preparedness for, change in specific areas or domains.

8.4.2 Protection assessment.

Since the results of this thesis showed that treatment-related changes on the VRS and HCR-20\textsuperscript{v3} did not predict violent recidivism, it follows that perhaps it is protective factors that add value in terms of risk prediction. Overall, the current results suggest that the SAPROF items are different from the HCR-20\textsuperscript{v3} items, indicating that these risk and protective factors are not simply measuring the same constructs; however, these distinct factors do not appear to capture key treatment targets that are common to violent offender intervention and SAPROF changes during treatment did not predict violent reoffending. Furthermore, the SAPROF did not demonstrate predictive validity or incremental predictive validity over the HCR-20\textsuperscript{v3} for violent re offending. As Wanamaker et al. (2018) contend, the incremental or unique predictive validity of protective factors over risk/needs measures is key to determining whether the quantitative inclusion of protective factors into risk assessment protocols is justified. As such, these results call into question whether protective factor
assessment, as measured by the SAPROF, should be utilised with incarcerated male violent offenders.

Ultimately, decisions about whether and how to measure protective factors should depend on the empirical relationship of the item/s with the outcome of interest, in addition to theoretical and practical considerations. For instance, the practical value of the SAPROF will be simultaneously dependent on both its conceptual and predictive validity in the sample being considered. Even if the SAPROF constructs do not overlap with current treatment activities, if the SAPROF has demonstrated predictive validity for violence in a specific population/subgroup, then there may be added benefit in expanding current treatment programs to incorporate these protective constructs. If, however, the SAPROF has not demonstrated predictive validity in a specific offender population, then its practical value must be questioned, unless the primary goal is to frame questions from a more positive (and less risk-focused) lens or to focus on protective items as important responsivity or case management factors (Wanamaker et al., 2018).

8.5 Limitations of the Research and Methodological Issues

Some of the limitations of this research have been outlined at various points in the thesis, particularly within the discussion of the two empirical papers. However, this section provides an overview of the overarching limitations that may have influenced the current results.

8.5.1 Retrospective file review.

Although prospective designs are generally favoured over retrospective designs, the use of retrospective file review poses significant benefits. First, retrospective file review permits immediate access to long-term follow-up data. Furthermore, Walker and colleagues (2013) argue that since desistance is a dynamic process, whether or not this process has been successfully achieved can only be truly confirmed retrospectively. Nevertheless, a number of caveats should be noted in the hope that they can inform improved research in the future. Firstly, collecting data via file review is limited, as only information that is contained in offenders’ files can be captured and coded. In this research, the quality and consistency of information contained in each file was variable, and thus, if relevant factors were present for an individual but were not included in the file information (i.e. reports or treatment notes),
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then important items or variables could not be coded and were subsequently omitted. Indeed, it is unclear whether the clinicians who were involved in violent offender treatment sought collateral information about offenders from custodial staff (e.g., related to disciplinary incidents, positive or negative behaviour in the prison neighbourhood, or employment). Furthermore, given the use of prison files which pertain to an individual’s time in custody, limited or no information was available regarding the offender and his circumstances in the post-treatment (but pre-release) period. This likely affected interrater reliability, as discussed below.

8.5.2 Interrater reliability.

The HCR-20\textsuperscript{v3} and SAPROF demonstrated ‘fair’ to ‘good’ interrater reliability in the current research (0.44 ≤ ICC\textsubscript{1} ≤ 0.73) (as per Fleiss, 1986). As such, the results of this thesis should be interpreted cautiously. Notably, we would expect a professional judgement measure to have poorer reliability than an actuarial measure, precisely because it encourages professional judgement. Final risk and protection judgments are not only informed by the number of factors that are ‘present’ but also by the number of risk and protective factors that are considered ‘relevant’ or ‘key’ factors. This will inevitably result in substantial variation among raters, who are not simply counting whether specified static (or unchangeable) factors are/have been present or absent.

Nevertheless, one reason for the ‘fair’ to ‘good’ interrater reliability might be attributed to the retrospective nature of the current research. The files used in this research were prison files maintained by Corrections Victoria, and thus, pertain specifically to an offenders’ time in custody. As such, the retrospective scoring of the HCR-20\textsuperscript{v3} and SAPROF were based on a hypothetical scenario of release planning (for example, in relation to living circumstances, professional care/supports) and this inevitably involved speculation. Consequently, the accurate appraisal of dynamic factors on the HCR-20\textsuperscript{v3} and SAPROF was challenging. de Vries Robbé et al. (2011) and Coupland (2015) similarly noted the challenges posed by rating these instruments via file review.

Importantly, the Clinical Service Files used in this study largely contain information related to offence-specific treatment; offenders are not evaluated as mental health clients/patients, and thus these files do not contain much information.
related to an offender’s mental state or functioning outside of the therapeutic/treatment context. For example, information on the person’s behaviour in their unit, when they are mixing with others in recreational, occupational or other settings, is limited. As such, the Clinical scale of the HCR-20\textsuperscript{v3} was challenging to score, as it includes items such as ‘Symptoms of major mental illness’ and ‘Violent ideation or intent’ which are conceptualised as mental health symptoms. Similarly, clinicians in a criminal justice setting may not be accustomed to writing about an individual’s strengths and protective factors, which may have influenced the information that was available in offender files to rate the SAPROF protective items (see Livingston, Nijdam-Jones, & Brink, 2012).

Finally, although the author and all research assistants rating these instruments had completed formal, standardised training in each of the relevant instruments, many of these raters were new assessors, and particularly new to data collection in a research context.

8.5.3 The assessment of treatment-related change.

During the file review process, the researchers observed that post-treatment VRS items were often adjusted due to the availability of additional information following pre-treatment assessment. Although data were not formally recorded on this phenomenon, this suggests that post-treatment scores occasionally reflected increased knowledge about a risk factor (e.g., recognition that the individual did have criminal associates or problems with weapons) rather than changes due to treatment (i.e., worsening in these risk factors, e.g., developing associations with criminal peers in prison or developing an interest in weapons). This had the subsequent effect of inflating post-treatment scores (and thus decreased change scores), despite reports suggesting substantial improvements over the course of treatment. This issue may have influenced the results, which demonstrated that changes on the VRS were not significantly associated with violent recidivism.

Furthermore, in this research, and other research measuring change in dynamic risk factors, change was considered to cease at the conclusion of treatment (Yesberg, 2015). However, for many offenders in the current sample, a considerable amount of time elapsed between the cessation of treatment and release into the community; notably, the mean number of days between treatment completion and release from
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prison was 254 days ($SD = 314.48$; range 3 to 2,260 days). What happens to change following treatment has rarely been investigated, and little is known about offenders’ risk state immediately prior to release from prison. However, previous research suggests that the pattern of change in treatment is not reflective of the pattern of change in the follow-up period, and high-risk offenders often show some regression after treatment completion (Yesberg & Polaschek, 2014). The current research did not assess change at more than two time points, and thus little is known about this issue. However, it is possible that any potential gains which offenders made in treatment, might have been diluted by a worsening in risk or protective factors following treatment, which was not captured in the current research. Ultimately, this had the potential to affect the significance of results examining treatment-related change.

8.5.3.1 Calculation of SAPROF change scores.

As previously discussed, within the current research SAPROF change scores did not predict violent reoffending at follow-up. It is possible that this null finding may, in part, be attributed to the use of SAPROF total scores to calculate pre-post change, rather than considering change on individual items or the SAPROF subscales. As de Vries Robbé et al. (2011) note, although most protective items on the SAPROF (items 1 through 14) are expected to increase with treatment (i.e. indicating improvement over treatment e.g., increased stability in internal and social functioning as well as increased motivation to be a prosocial member of society), a small subset of items (items 15 through 17) should actually decrease with treatment. For example, if certain items on the SAPROF External subscale (e.g., professional care, intensive supervision in living circumstances and external control) are successfully treated, then scores on these items should theoretically decrease over the course of treatment. However, this may have had a confounding effect on the relationship between SAPROF change scores and violent recidivism (Coupland, 2015). Some studies have dealt with this issue by dividing the SAPROF factors into three categories based on the expected direction of factor change as a consequence of successful treatment (e.g., static internal factors, dynamic improving factors, and dynamic decreasing factors) (e.g., de Vries Robbé et al., 2011). In contrast, however, other studies utilising the SAPROF and HCR-20 have not made adjustments for the SAPROF External subscale (e.g., Coupland, 2015; de Vries Robbé et al., 2015). Since this thesis was interested in
examining the use of total scores on the VRS, HCR-20v3 and SAPROF (as would typically be done in clinical practice), no adjustments were made for these items.

8.5.4 Recidivism data.

The use of official police records is a widely used measure of recidivism. It should be noted, however, that formal police charges are a less sensitive measure of violence than observed inpatient aggression and a less stringent measure than criminal convictions. As highlighted in Chapter Five, at this stage of the criminal justice process, there is an increased potential for the recording of false positives (i.e. being charged for a crime that is not subsequently proved) relative to any other stage (Payne, 2007). As such, police data may overestimate the true incidence of offending among a given population of offenders. Nevertheless, it is important to recognise that not all offences are detected by, or reported to, the police and not all of these result in convictions. Thus, offending data derived from official records are likely to underestimate the true incidence of offending, with police data potentially providing figures that most closely represent actual rates of violent reoffending (Henshaw, 2017).

Within the current research, recidivism was conceptualised as a binary construct (‘yes’ versus ‘no’) and time to first violent re-offence was calculated. Although this provided a reasonable method of exploring the relationship between treatment-related changes and violent recidivism, these indices of recidivism may not be sufficiently sensitive to detect subtle changes in offending, such as the severity of reoffending (Wong et al., 2012). Research on desistance processes indicates that offenders do not simply make a choice to cease offending at a single time point (Kazemian, 2007; Walker et al., 2013); rather the process of desistance typically involves reductions in offending over time, and should therefore be viewed in harm reduction terms (Wong & Parhar, 2011). As such, indicators of crime severity (e.g. cumulative sentence length of new convictions for violence) and/or offence density (e.g. average number of new violent convictions per year) may provide more sensitive measures of the desistance process and changes in violent behaviour following treatment (O'Brien, 2014; Wong et al., 2012).

Finally, it is possible that opportunities to reoffend might have been curtailed by death, interstate relocation, or hospitalisation. However, as mortality, residence,
and medical records were not able to be obtained, these situations and events could not be statistically controlled.

8.5.5. Cultural appropriateness of the measurements.

Of note, 8.5% of the sample used in this research self-identified as being of Aboriginal or Torres Strait Islander descent, and a further 15.4% identified as being from a range of different ethnic backgrounds that were not Caucasian Australian. As ethnicity was not included as a moderator or covariate in the current research, the generalisability of these results to Aboriginal and Torres Strait Islander men is unknown. As Shepherd (2016) contends, however, violence risk instruments such as the HCR-20$^{v3}$, VRS, and SAPROF have been developed within a western scientific paradigm and little is known about whether these instruments are culturally appropriate for use among these minority populations. Indeed, Australian Aboriginal conceptualisations of mental health in particular are widely recognised to be in contrast to Western individualised models of health (Shepherd, 2016).

8.5.6. Issues relating to program integrity and limited changes among offenders.

In Chapter Six several explanations were offered for why change in treatment may not be related to violent recidivism. One observation that was made is that treatment completers in the current research achieved less change on average compared with previous studies exploring VRS treatment change. To elaborate on this point, it appears that offenders in the current sample simply did not change much; indeed, very few offenders achieved RCI scores exceeding 1.96 (and thus indicating reliable change) and, ultimately, this may have contributed to the finding that treatment changes did not significantly predict violent reoffending.

Furthermore, cannot be overlooked, however, that one possibility for this result may relate to program integrity and how violent offender treatment programs are delivered. As discussed in Section 8.6 below, the content of violent offender treatment programs generally covers a variety of dynamic factors, some of which are functionally related to future violence (e.g., procriminal attitudes), yet others which might not demonstrate a causal association. Ostensibly, this may detract from the overall treatment effect. Furthermore, although the VIPs offered by Corrections Victoria are manualised programs, routine evaluations of program integrity are not
undertaken (i.e. to ensure that the stated aims of the program are linked to the methods being used and adequate resources and trained staff are available). Finally, in the absence of a control group, is impossible to know whether changes, which occurred in treatment, were the result of program content and delivery, and not simply due to the passage of time and other maturational processes.

8.6 Conceptual Implications.

Importantly, none of the measures utilised in this research are strongly based on a particular theory of violence. Although, as Mann, Hanson, and Thornton (2010) contend, it is possible to conduct a risk assessment based on atheoretical predictors, arguably, decisions emanating from risk assessments are more defensible when the evaluation also explains the source of the risk. With regard to protective factors in particular, definitions of promotive and protective factors are still unclear and thus uncertainty remains regarding how protective factors relate to (or interact with) risk factors for violence. For example, ‘protective factors’ (as an umbrella term) have been described as possessing three distinct roles: as mediators, moderators, and as exerting a direct influence on violence (independent of risk) (de Vries Robbé, 2014). Furthermore, protective factors can purportedly act as potential treatment targets, in addition to facilitating social re-entry and integration. As Fortune and Ward (2017) emphasise, the concern is that each of these roles depends on different interpretations of the concept (i.e. as correlates, causal factors, and social facilitators, respectively). In the absence of a clear and comprehensive theoretical framework, it remains unclear whether protective factors can coherently perform each of these roles. The dilemma for clinicians, then, is that there is insufficient time to elucidate what type of construct is needed with each individual and, importantly, how best to tailor them for the various practice tasks. For example, although the task of risk assessment may simply require clinicians to combine measures of protective factors with risk instruments, a comprehensive case formulation relies on causal inferences, which inform the identification or formulation of future risk scenarios (Sturmey & McMurran, 2011). This rests, in part, on the practitioner’s ability to recognise which dynamic risk and protective factors are functionally (causally) related to an individual’s propensity for violence, and which factors are not.

As discussed in Chapter Two, a further issue is that a number of items that are
integrated within these assessment instruments would not meet Douglas and Skeem’s (2005) criteria to be considered truly ‘dynamic’. Indeed, not all variables are equally changeable or dynamic – some are considered ‘static’, some are considered ‘stable’, and others are considered ‘acute’ – and their status as causal predictors of violence has been taken for granted. The resultant effect is the delivery of treatment programs, which are directed at a variety of dynamic factors, some of which may be related to future violence, yet others which might detract from the overall treatment effect. Furthermore, there are a number of variables which have been identified as important to the commission of violence (for example, interpersonal style such as hostility and dominance), yet are excluded from these measures (see Daffern et al., 2013). The critical question is whether changes in these variables relate to a reduction in reoffending and ultimately more theoretical work is needed to understand what the most important part of the change process is, and which variables are critical to the cessation of violence. For this goal, there is a need for robust longitudinal studies that demonstrate a temporal relationship between specific dynamic factors and violence (i.e. whereby the dynamic factor precedes violence). Furthermore, changes in these factors as a consequence of treatment must be shown to be associated with future violence.

Overall, an integrated and coherent theoretical account of risk and protection is missing, and accordingly, there is a lack of coherence between how risk and protective factors are measured and uncertainty about how best to apply the notion of protective factors (Ward, 2017). What has been produced in terms of assessment measures is expedient and broadly accepted, but leads to confusion, particularly when trying to understand: (i) what protective factors are in relation to risk factors; (ii) whether changes in protective factors relate to reductions in risk and subsequent reoffending; and therefore (iii) how to integrate and make sense of results from these measures, beyond simply subtracting protective factor scores from a risk score in a mathematical fashion. Although, as discussed, combining HCR-20v3 and SAPROF scores through subtraction represents a simple way of integrating the scores generated from these instruments, the exact meaning of this index (and any subsequent results) is unclear. For example, as Coupland (2015) highlights, an HCR-SAPROF index assumes that “one unit of risk as measured on the HCR-20 is equal to and completely mitigated by one unit of protection as measured on the SAPROF” (p. 17), and thus
Part IV: Discussion

generates a score whereby an offender who presents with low risk and low protection is equivalent to an offender who presents with high risk and high protection. This seems illogical and does not make intuitive sense.

Before we uncritically embrace the inclusion of protective factor assessment within the risk assessment field, it seems prudent to search for a more coherent theoretical account of risk and protection and a better understanding of how protective factors relate to risk factors, and how they can be integrated into risk assessment. The majority of research conducted to date focuses on risk factors or protective factors separately, as opposed to considering how risk and protective factors may operate jointly. However, as Wanamaker et al. (2018) suggest, further research is required to determine how protective instruments interact with risk assessment instruments in the prediction of violent reoffending. This may involve an investigation of the mechanism through which protective factors operate, and whether they mediate, moderate, or affect risk directly to produce decreased rates of violence.

8.7 Future Research Directions

Overall, it seems necessary for researchers and clinicians to seek a better understanding of how best to assess treatment change and incorporate change-related information into risk assessments to inform decisions relating to sentencing, parole, and the allocation of resources for supervision and community management (Coupland, 2015). For example, research will need to be undertaken to establish how results from different change measures should be integrated, particularly if they produce inconsistent results. It may also be worthwhile to utilise scales, which evaluate whether offenders achieve particular milestones or thresholds that are important for treatment-related success (Polaschek, 2017). Indeed, the results showed that when incorporating time at risk, the TRRG:SV Gain scale predicted violent reoffending to a statistically significant degree. However, as this is the first study to explore the predictive validity of this measure among a sample of nonsexual violent offenders, further research is required to elucidate whether this is a reliable and appropriate method of assessing violent offenders’ treatment gains.

Much more work is needed in order to understand change processes and the mechanism through which change in treatment relates to a reduction in reoffending. As de Vries Robbé et al. (2015) highlight, it is possible to contest the utility of dynamic
PART IV: DISCUSSION

factors for predicting longer-term cessation of violence since their dynamic (i.e. changeable) nature renders them susceptible to the influence of additional factors after treatment. Furthermore, it is critical to recognise that behaviour change is a process and that understanding how treatment works is more complex than a simple “change this, see a reduction in that” (Yesberg, 2015, p. 172). Arguably, in order to link recidivism to dynamic changes, best-practice appears to demand repeated assessment to allow for the detection of changes as they occur. This arduous task may not be practicable for clinicians (particularly when improvements in predictive accuracy may not be large with frequent re-administration) (Coupland, 2015). However, future research should attempt to assess treatment-related change at more than two time points, through periods of treatment, following treatment yet prior to release from prison, and again when offenders are in the community. This is important in terms of determining the stability of treatment-related changes and identifying areas of further need.

Overall, among offenders within a prison setting, it remains unclear how protective factors operate in relation to reductions in risk and desistance from violence, and whether the SAPROF can usefully inform treatment planning among these offenders. This is not to suggest that the SAPROF – and relatedly, consideration of protective factors – are not important. Indeed, even if protective factors do not add incrementally to the prediction of violence, they may possess clinical importance. For example, Fortune and Ward (2017) argue that if an offender makes the decision to desist from future violence and develop more prosocial alternative behaviours, then it makes sense to strengthen their capacity for agency through the provision of internal resources and social opportunities. Furthermore, consideration of protective factors or strengths, in addition to risks, may encourage positive communication between clinicians and offenders, and may improve collaboration, motivation for treatment, and the therapeutic alliance (de Vries Robbé & Willis, 2017; de Vries Robbé, de Vogel, and Stam 2012). However, this contention has not been investigated and thus much more work is required to understand the clinical benefits of an approach that focuses on protective factors and where their prospective value lies. Furthermore, continued research might focus on conducting a meta-analysis, to more clearly evaluate the role of protective factors in violent offender assessment among
incarcerated males and other populations (e.g., across developmental periods, gender, and culture) (Wanamaker et al., 2018).

Finally, when investigating recidivism as an outcome, future research should also consider a more detailed analysis of reoffending, for example, by examining crime severity and/or offence density. This approach may be better able to elucidate the relationship between treatment-changes on multi-item structured risk assessment instruments and subsequent reoffending. Finally, there are lingering concerns regarding how the SAPROF and HCR-20\textsuperscript{v3} were scored in the current research, and therefore, about the validity of these results. Unfortunately, we cannot escape these methodological issues and thus further research is required in this area to determine whether the current results can be replicated.

8.8. Concluding Remarks

The studies conducted as part of this thesis advance a small evidence base examining the link between within-treatment changes in dynamic risk and protective factors and violent recidivism, particularly among incarcerated (non-mentally disordered) violent offenders. To the author’s knowledge, this thesis represents the first empirical investigation of the SAPROF in an Australian sample and the only empirical investigation of the factor structure of the SAPROF. Furthermore, this research represents a first step towards delineating the relationship between risk and protective factors for violence, and whether these terms are being applied to conceptually similar or distinctive constructs.

Overall, the current research is notable in the context of previous research which has demonstrated that within-treatment changes in dynamic risk and protective factors predict reduced violence. Taken together, the results of this thesis highlight the importance of thinking critically about the constructs and dynamic risk and protective factors and whether or not reductions or increases in these factors lead to a reduction in long-term recidivism outcomes. The assumptions that underpin violent offender treatment are that: (a) offenders demonstrate problems in specific areas or dynamic risk factors, which are functionally related to their use of violence; (b) that practitioners have the ability to accurately identify these risk factors; (c) that these dynamic risk factors will change or reduce as a consequence of treatment; and (d) finally, that offenders’ violent behaviour will reduce as a result of changing these
dynamic risk factors (Yesberg, 2015). Indeed, if offenders change in the areas that are an important feature of violent offender treatment, then these within-treatment changes should be related to reduced violence. However, this hypothesis was not supported in the current thesis. Thus, further research is required to understand whether this is an artefact of methodological issues, a focus on variables which are not functionally or causally related to violent behaviour, the time frame over which change was measured, or even problems in how programs are delivered. If change in these variables does not predict reduced violence, then what is the most important part of the change process, and which variables are critical to the cessation of violent offending? Developing a greater understanding of change processes and how violent offender treatment works is critical, not only in terms of delivering more effective interventions, but in terms of managing violence risk and promoting public safety.
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involving 24,827 people: Systematic review and meta-analysis. *British Medical Journal, 345*, e4692. doi: 10.1136/bmj.e4692


APPENDICES
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Dynamic risk factors for violence

First Author
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Percentage of contribution: 80% Date: 15/06/2018

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Making sense of risk assessment: An examination of the use of risk and protective instruments and treatment change scores in predicting violent recidivism

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First Author
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Brief description of your contribution to the ‘paper’:
Co-investigator, assisted with conceptualisation of the paper and in developing research questions, supervised statistical analysis, and critically reviewed manuscript

Principal Coordinating Supervisor: Name: Michael Daffern
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Appendix III
Data Collection Protocol and Psychometric Measures

Data Collection Protocol

Identifying Information

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<th>Subject ID#:</th>
<th>Coder ID#:</th>
<th>Data Collection Date:</th>
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Sentencing Information

Where possible, sentencing information is to be drawn from the Individual Management Plan (IMP) file or from official Justice records.

| Aggregate commencement date: |
| Earliest eligibility date (EED): |
| Aggregate end date (EDD): |
| Prison entry date (initial reception): |
| Aggregate term (sentence length - maximum): |
| Total # of presentencing days: |

Demographic / Personal History

| Date of Birth (dd/mm/yyyy): |
| Gender: |
| Ethnicity: 1 = Australian/Caucasian 2 = Aboriginal or Torres Strait Islander 3 = Other, specify: 99 = Don’t know |
| Relationship status: 1 = Single 2 = Partner or casual relationship 3 = Married/Defacto relationship 99 = Don’t know |
| Highest educational achievement: 1 = Complete year 9 or less 2 = Completed year 10-11 3 = Completed year 12 4 = Trade Certificate (and/or TAFE) 99 = Don’t know |
| **Employment history:** | 1 = Unemployed  
2 = Never employed for a full year  
3 = Steady employment for one year or more  
99 = Don’t know |
|--------------------------|--------------------------------------------------|
| **No. of Children:** | 0 = No children  
1 = At least one child  
99 = Don’t know |
| **History of alcohol abuse** | 0 = No  
1 = Yes  
99 = Don’t know |
| **History of drug abuse** | 0 = No  
1 = Yes  
99 = Don’t know |

**Index Offence/s**

| **Sentencing date (dd/mm/yyyy):** | 0 = No  
1 = Yes  
99 = Don’t know |
|-------------------------------|--------------------------------------------------|
| **Violent offence/s:** | 0 = No  
1 = Yes  
99 = Don’t know |
| **Non-violent index offence/s:** | 0 = No  
1 = Yes  
99 = Don’t know |
| **Sexual index offence/s:** | 0 = No  
1 = Yes  
99 = Don’t know |
| **Breach index offence/s:** | 0 = No  
1 = Yes  
99 = Don’t know |
| **Non-sexual violent index offence/s:** | 0 = No  
1 = Yes  
99 = Don’t know |
**Criminal History**

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<th>Description</th>
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<td>Prior non-sexual violent conviction/s:</td>
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<td>Don’t know</td>
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</table>

**File Adequacy Rating**

- 1 = Inadequate information, unable to score at least one measure
- 2 = Some information missing, certain items may need to be omitted, but overall can score the measures
- 3 = File information is sufficient, measures can be scored with relative ease
- 4 = File information is comprehensive, measures can be easily scored
### Rating Sheet for HCR-20V3

<table>
<thead>
<tr>
<th>HCR-20V3 Items</th>
<th>Presence</th>
<th>Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O  N  P  Y</td>
<td>O  L  M  H</td>
</tr>
</tbody>
</table>

#### Historical Scale (history of problems with...)  Rating Period: Lifetime

**H1. Violence**

- a. Child
- b. Adolescent
- c. Adult

**H2. Other Antisocial Behaviour**

- a. Child
- b. Adolescent
- c. Adult

**H3. Relationships**

- a. Intimate relationships
- b. Non-intimate relationships

**H4. Employment**

**H5. Substance Use**

**H6. Mental Disorder**

- a. Psychotic
- b. major mood
- c. other

**H7. Personality Disorder**

- a. antisocial – domineering, unique, special, entitled, deceitful, manipulative, unempathic, reckless,
- b. other

**H8. Traumatic Experience**

- a. Victimization, bullying, neglect, violence, verbal abuse, accidents.
- b. Adverse child-rearing experiences
H9. Violent Attitudes
Minimization, justification, receives enjoyment, association with violent peers

H10. Treatment/Supervision
Response

Other Considerations

Rating Period: Last 6 months or since arrest, if known and less than 6 months

C1. Insight
a. Mental disorder
   b. Violence risk
   c. Need for treatment

C2. Violent Ideation/Intent
Thoughts, persistence, desire/urges, strong emotional responses, level of detail, escalation.

C3. Sx Major Mental Disorder
a. Psychotic
   b. Mood
   c. Other

C4. Instability
a. Affective
   b. Behavioural
   c. Cognitive (distractible, blame, sense of self)

C5. Treatment/Supervision
Response
a. Compliance
   b. Responsiveness

Other Considerations

Risk Management (future problems with...)  Context: Coded for OUT

R1. Professional Services/Plans
Appropriateness, intensity, plans.

R2. Living Situation
### R3. Personal Support
Plans, availability, social network

### R4. Treatment/Supervision Response
a. Compliance
b. Responsiveness

### R5. Stress/Coping

#### Other Considerations

<table>
<thead>
<tr>
<th>Future Violence/Case prioritisation</th>
<th>Serious Physical Harm</th>
<th>Imminent Violence</th>
<th>Recommended Reassessment date</th>
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<tr>
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<td>☐ Low ☐ Mod ☐ High</td>
<td>☐ Low ☐ Mod ☐ High</td>
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Evaluator: __________________________ Signature: __________________________ Date: __________________________

**Overall risk judgement:**
<table>
<thead>
<tr>
<th>Internal Factors</th>
<th>Evidence for</th>
<th>Evidence against</th>
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</thead>
<tbody>
<tr>
<td>1. Intelligence</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>2. Secure attachment in childhood</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>3. Empathy</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>4. Coping</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>5. Self-control</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motivational Factors</th>
<th>Evidence for</th>
<th>Evidence against</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Work</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>7. Leisure activities</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>8. Financial management</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>9. Motivation for treatment</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>10. Attitude towards authority</td>
<td>0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Evidence for</td>
<td>Evidence against</td>
<td></td>
</tr>
<tr>
<td>11. Life goals</td>
<td>Evidence against</td>
<td></td>
</tr>
<tr>
<td>12. Medication</td>
<td>N/A 0 1 2 Omit</td>
<td></td>
</tr>
<tr>
<td>Evidence for</td>
<td>Evidence against</td>
<td></td>
</tr>
<tr>
<td><strong>External Factors</strong></td>
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<td>13. Social network</td>
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</tr>
<tr>
<td>Evidence for</td>
<td>Evidence against</td>
<td></td>
</tr>
<tr>
<td>14. Intimate relationship</td>
<td>0 1 2 Omit</td>
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</tr>
<tr>
<td>Evidence for</td>
<td>Evidence against</td>
<td></td>
</tr>
<tr>
<td>15. Professional care</td>
<td>0 1 2 Omit</td>
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</tr>
<tr>
<td>Evidence for</td>
<td>Evidence against</td>
<td></td>
</tr>
<tr>
<td>16. Living circumstances</td>
<td>0 1 2 Omit</td>
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<tr>
<td>Evidence for</td>
<td>Evidence against</td>
<td></td>
</tr>
<tr>
<td>17. External control</td>
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</tr>
<tr>
<td>Evidence for</td>
<td>Evidence against</td>
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**Other considerations:**

**Final Protection Judgment and Integrative Final Risk Judgment**

SAPROF + HCR-20/HCR-20v3

<table>
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<table>
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<tr>
<td>TRRG:SV Items</td>
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<tr>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Treatment Gain</strong></td>
</tr>
<tr>
<td>1. Evidence of Increased Skills from Program</td>
</tr>
<tr>
<td>2. Disclosure in Program</td>
</tr>
<tr>
<td>3. Application of Knowledge</td>
</tr>
<tr>
<td>4. Application of Skills</td>
</tr>
<tr>
<td>5. Depth of Emotional Understanding of Program Content</td>
</tr>
<tr>
<td>6. Appropriateness of Behavior in Group</td>
</tr>
<tr>
<td>7. Participation</td>
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<td>8. Therapeutic Alliance</td>
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**Total Gain Score**
# VRS Evaluation: Data Collection Sheet

<table>
<thead>
<tr>
<th>File Year:</th>
<th>Date this form completed:</th>
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<tbody>
<tr>
<td>CRN:</td>
<td>Date of birth:</td>
</tr>
<tr>
<td>Sentence date:</td>
<td>JAID:</td>
</tr>
<tr>
<td>Release date:</td>
<td>EDD:</td>
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## VRS Items

<table>
<thead>
<tr>
<th>VRS:SV Date:</th>
<th>1st VRS Date:</th>
<th>2nd Date:</th>
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### Static

<table>
<thead>
<tr>
<th>Score</th>
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<th>Score</th>
<th>Note</th>
<th>Score</th>
<th>Note</th>
</tr>
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<tbody>
<tr>
<td>S1. Current age</td>
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<td></td>
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<tr>
<td>S2. Age at first violent conviction</td>
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<tr>
<td>S3. Number of young offender (juvenile) convictions</td>
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<td></td>
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<tr>
<td>S4. Violence through lifespan</td>
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<td></td>
<td></td>
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<tr>
<td>S5. Prior release failures or escapes</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>S6. Stability of family upbringing</td>
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**Total static score**

### Dynamic

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<th>Score</th>
<th>Note</th>
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<tbody>
<tr>
<td>D1. Violent lifestyle</td>
<td></td>
<td></td>
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<tr>
<td>D2. Criminal personality</td>
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</tr>
<tr>
<td>D3. Criminal attitudes</td>
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<tr>
<td>D6. Interpersonal aggression</td>
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<tr>
<td>D7. Emotional control</td>
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<td>D8. Violence during institutionalisation</td>
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<td>D9. Weapon use</td>
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<td>D10. Insight into violence</td>
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<td>D14. Community support</td>
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<td>D15. Released to high-risk situations</td>
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<td>D16. Violence cycle</td>
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<td>D17. Impulsivity</td>
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<td>D18. Cognitive distortion</td>
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<td>D19. Compliance with community supervision</td>
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<tr>
<td>D20. Security level of anticipated release institution</td>
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**Total dynamic score**

**Total VRS score**

## VIP program

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<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Intensity</th>
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<tbody>
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</table>

If yes, date of commencement

Did the person complete

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th># Sessions attended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

If yes, date of completion

I = insufficient information, N = not applicable, UK = unknown/missing

Notes:
Appendix IV
Book Chapter: Measuring the Intermediate Effects of Offence-Focussed Intervention on Offenders (In Press)

Michael Daffern
Gabrielle Klepfisz
Tamara Sweller
Andrew Day
Chapter Summary

Although it has been clearly established that completion of offence-focussed treatment can lead to reduced re-offending, it is also the case that not all offenders benefit from treatment. This means that treatment providers and release decision-makers have to take great care in determining whether any individual treatment-completer has changed in a way that allays concern about future offending. This chapter discusses the use of methods to evaluate proximal indices of change to help determine whether sufficient change has occurred to conclude that treatment has, indeed, been successful in reducing the propensity for criminal behaviour. We start with an overview of current evidence regarding treatment outcomes for sexual and non-sexual violent offenders. This is followed by a discussion of methods for evaluating change. We conclude with suggestions for how change in dynamic risk and protective factors might best be assessed through multi-item structured risk assessment instruments.

The Effect of Programs on Re-offending

Rigorous program evaluation within correctional settings is difficult and ideally incorporated into the design of the program before it is implemented (Polaschek & Collie, 2004). Many potentially effective programs are never adequately evaluated, whilst others are subject to evaluations using weak designs, often without an appropriate comparison group, reducing our ability to determine whether any treatment has had a particular impact. Further, many program evaluations use recidivism as the primary or sole outcome measure of treatment effectiveness. This approach has several limitations. Most notably, although using officially documented recidivism (e.g., convictions) is helpful in that those people who have a subsequent criminal conviction can truly be said
to have not changed, the same cannot be said for those people who do not have a subsequent conviction; many criminal acts go unreported so relying only on official records may indicate that some people have improved when in fact they have not been caught, charged and/or convicted. Furthermore, since recidivism is a distal outcome, measured at a time following treatment, numerous extraneous factors (e.g., employment, social support, housing) can influence recidivism rates and the successful reintegration of an offender into the community (Jung & Gulyets, 2011; Serin, Lloyd, Helmus, Derkzen, & Luong, 2013). To address these problems some authors argue that the assessment of individual performance during treatment (not just post-treatment) and the level of change achieved, deserves greater attention (Nunes, Babchishin, & Cortoni, 2011). This is the focus of this chapter.

Before turning to a review of methods for calculating within-treatment change it is helpful to establish whether contemporary programmes have an impact on participants generally. We now turn to a brief overview of treatment outcomes for sexual and non-sexual violent offenders. In relation to non-sexual violent offenders, there is a surprisingly limited evidence base from which to draw any firm conclusions about the effectiveness of psychological treatment (McGuire, 2008). In what is still the only published meta-analysis of violent offender treatment programs, Polaschek and Collie (2004) identified only nine program evaluations that included a comparison group (matched or randomly allocated) and reported subsequent recidivism rates (although only four studies reported violent recidivism rates). Of these, two were classified as primarily cognitive programs (cognitive skills training and cognitive self change), three as anger management programs, and three as ‘multi-modal’ programs. Polaschek and
Collie concluded that although most of the programs they reviewed showed some level of efficacy, it was difficult to draw any firm conclusions about effectiveness given the small number of studies, the weaknesses inherent in some evaluation designs, and variation in other features such as length, setting, staffing, and the lack of basic information about offender characteristics such as age and level of risk. In addition, some studies omitted to report important details such as program content and delivery, participant and setting characteristics, and little information was provided about the theoretical basis of programs.

In a systematic review of violent offender treatment conducted for the Ministry of Justice (UK), Jolliffe and Farrington (2007) were able to identify only 11 outcome studies that met the required methodological criteria. They cautiously concluded that “interventions with violent offenders were effective both at reducing general and violent re-offending, with a difference in percentage of participants reconvicted of about eight to eleven per cent for general re-offending measures and seven to eight per cent for violent re-offending measures” (p. iv). They did note, however, that effectiveness varied considerably according to factors such as the content of the intervention, the delivery of the intervention, and the methodology of the study. Collectively, these rather inconsistent findings suggest that much can be done to improve the ways in which violent offender treatment is both conceptualised and delivered, as well as to identify the need for more rigorously designed and controlled evaluation research to be conducted.

Since this review was published a number of other evaluations have been reported. Serin, Gobeil, and Preston (2009) reported outcomes of an evaluation of a persistently violent offender treatment program offered to Canadian offenders. They
compared program completers to two control groups (those who completed an alternative program and those who failed to complete), but identified few differences between the groups on a range of measures (including change on measures of treatment targets, institutional misconduct, and post-release returns to custody). Serin and colleagues (2009) suggested that this might mean that either the program is effective with only certain groups of violent offenders, or that it did not meet some of the criteria that are usually associated with the more effective programs (e.g., program integrity and intensity). One other Canadian evaluation has, however, produced more promising results. Cortoni, Nunes, and Latendresse (2006) found that completion of a Canadian Correctional Services Violence Prevention Program led to reductions in institutional misconduct charges in the 6-month and 1-year period following program completion, and that those offenders who had completed the program had lower rates of recidivism than non-treated offenders. Finally, Berry (2003) assessed the efficacy of a cognitive-behavioural, community-based, residential program in New Zealand in terms of severity of re-offence. Treatment completers registered 35.3% fewer violent convictions than matched controls ($p < .01$, $\phi = .30$) and, although non-significant, the mean severity score of completers’ post-treatment convictions (measured as the average days of imprisonment for that offence) was 49% less than the mean severity score for controls. Treated offenders were slower to be reconvicted for violence than control participants. So, whilst not all studies provide such encouraging results, collectively, there is evidence that despite methodological differences in treatment modality, intensity, participants, content, follow-up, and outcome, violence intervention programs typically exhibit some, albeit modest, level of efficacy in reducing any and/or violent recidivism.
Furthermore, it appears that cognitive-behavioural programs that conform to Risk-Need-Responsivity (RNR) principles, often achieve higher-than-average effects (Polaschek, 2011).

Various meta-analytic studies have investigated the outcome of sexual offender treatment (e.g., Hanson, Bourgon, Helmus, & Hodgson, 2009; Schmucker & Lösel, 2015). Lösel and Schmucker’s (2005) meta-analysis (including both general and sexual offender specific treatment), for example, found that programs designed specifically for sexual offenders had a significant positive effect, with an overall treatment effectiveness of 37% reduction in sexual recidivism. Of note is that this meta-analysis included studies in which both psychological and surgical modes of treatment were administered, which presents additional variables that impact on behavioural change (surgical methods had a larger impact). Lösel and Schmucker (2005) also found that treatment effectiveness was greater for community-based treatment programs than for those delivered in custodial settings. A more recent meta-analysis by Schmucker and Lösel (2015) reported a somewhat lower mean effect size (3.6 percentage points; 10.1% for treated offenders compared to 13.7% for untreated offenders) suggesting greater caution in making claims about the effectiveness of treatment programs.

Hanson, Bourgon, Helmus, and Hodgson (2009) reported that sexual and general recidivism rates for treated sexual offenders were lower than those observed for comparison groups. However, they asserted that the weak research designs of the majority of studies should decrease confidence in the findings, in particular because the effects tended to be stronger in the studies with weak research designs. As a result, they suggested that it is reasonable to conclude that there is no evidence that sexual offender
treatment reduces recidivism. Despite this, studies in which the treatment programs adhered to the Risk-Need-Responsivity model consistently demonstrated greater treatment effectiveness than those reporting on treatment programs that did not adhere to these three principles.

Less positive conclusions have, however, emerged from more recent research syntheses. In one systematic review of randomised controlled trials, the main finding was that there was no evidence that active intervention reduced sexual recidivism (Dennis et al., 2012). Dennis et al. (2012) argued that without further randomised controlled trials there could be continued use of ineffective or harmful interventions for sexual offenders, in addition to the misconception that an individual is at reduced risk of re-offending following treatment. As Levenson and Prescott (2013) suggest, purely providing treatment to sexual offenders is not sufficient and clinicians must work to support clients in their efforts to develop an emotional understanding of the material. Additionally, sexual offender treatment effectiveness studies have generally focused on the *absolute* measure of recidivism rates, thus ignoring *relative* measures of client improvement (e.g., delayed recidivism, decreased severity, or decreased frequency).

In a systematic review of interventions for adults who sexually offended against children, Langstrom, Enebrink, Lauren, Lindblom, Werko, & Hanson, (2013) concluded that the evidence is currently insufficient to determine if cognitive behavioural therapy with relapse prevention reduces sexual offending. This review identified little research of acceptable quality relating to the individual-level prevention of child sexual abuse. However, a recent meta-analysis that used a sample of 29 well-controlled comparisons
concluded that treatment can effectively reduce recidivism in sexual offenders (Schmucker & Lösel, 2015).

The lack of high quality studies and the aforementioned results indicate, in our view, that it is still not possible to unambiguously demonstrate treatment effectiveness for either violent or sexually violent offenders and that it cannot be assumed that treatment completion guarantees that the changes required to positively influence recidivism have occurred (Olver & Wong, 2013). Furthermore, although evaluating group-level changes and their relation to recidivism is useful in determining the efficacy of treatment as a whole, evaluating treatment completers as a single cohort may attenuate or mask significant effects among those who do, or do not, receive benefit from treatment (Beggs, 2010).

The importance of focusing on within-treatment change is highlighted in research from the general clinical psychology and psychiatry literature, where distal outcomes are typically not the primary outcome measure; rather, the most common indices of evidence-based practice are more immediate (e.g., no longer meeting criteria for a psychiatric diagnosis). Thus, the detailed examination of within-treatment change may be a useful index of treatment success that can be used as an adjunct or alternative to measuring the recidivism rates of treatment completers versus non-completers.

**Risk factors and within-treatment change**

There are two categories of risk factors that are generally considered when determining risk of recidivism: static and dynamic (Andrews et al., 1990). Static factors are those that are unchangeable and, as such, represent unsuitable treatment targets (Mann, Hanson, & Thornton, 2010) and, further, cannot be used to determine whether
an offender has improved (or not). Dynamic risk factors are changeable, with their modification or elimination representing the mechanism that underlies a decrease in offending behaviour (Serin & Lloyd, 2009). As Douglas and Skeem (2005) outline, a dynamic risk factor must: (i) be an antecedent to, and increase the propensity for, violence; (ii) be changeable; and, (iii) predict changes in violent re-offending as a result of treatment. Although limited research has examined whether individual-level changes in dynamic risk factors are actually associated with re-offending, it seems logical that if offenders complete treatment with fewer dynamic risk factors present, then such changes should be associated with reduced recidivism.

**Pre-Post Change Scores.** One common method to evaluate within-treatment change is to assess whether there is evidence of significant changes on intermediary treatment targets, or proximal offence-related dynamic risk factors (Friendship, Falshaw, & Beech, 2003). These criminogenic needs are functionally related to offending behaviour and thus, when used as clinical targets, offer more immediate indicators of treatment success. To this end, individuals may complete psychometric tests measuring dynamic risk factors pre- and post-treatment and raw pre-post difference scores can be used to provide an estimate of treatment change (e.g., Hudson, Wales, Bakker, & Ward, 2002). It is important to note, however, that when using raw pre-post change scores, the magnitude of change on one measure cannot be compared to another measure since such scores are unstandardised and scale-specific (Olver, Beggs, Chrisofferson, & Wong, 2014).

Furthermore, raw pre-post score comparisons make no adjustment for measurement error. Every psychological test encompasses a degree of error, and when
estimating change, a limitation is posed by the presence of ceiling and/or floor effects (Hammond & O’Rourke, 2007). For example, those individuals deemed most ‘deviant’ or ‘high-risk’ at pre-treatment have greater scope for improvement. As an attempt to control for this, standardised residual change (RCZ) scores can be calculated by regressing raw change scores onto the pre-treatment scores for each psychometric variable (Beggs & Grace, 2011). The unique variance accounted for by pre-treatment scores can be calculated from these regressions (i.e., obtained change score – predicted change score) and then standardised for each variable (Beggs & Grace, 2011). Thus, while simple change scores reflect the actual amount of change between pre- and post-treatment, without controlling for pre-treatment differences, residualised change scores “seek to determine what the observed change would have been if everyone had started out equal” (Rogosa, Brandt, & Zimowski, 1982, p. 741; Woessner & Schwedler, 2014).

Another issue when using self-report psychological tests to determine change in dynamic risk factors is that these tests may be vulnerable to lying, manipulation, and self-presentation biases. Triangulating self-report data with clinician and observer-rated and measures as well as other data pertaining to progress could be used to counter these concerns and validate self-report psychological test data. It should not be assumed that simply because somebody has a history of antisocial conduct that their responses to psychological tests are invalid; offender self-report questionnaires can be both accurate and valid (Mills, Loza & Kroner, 2003).

**The Reliable Change Index (RCI).** Researchers examining the efficacy of offender rehabilitation programmes have recently become interested in using the Reliable Change Index (RCI) to measure individual change. The RCI is a standardised
measure of within-treatment change, which adjusts for test reliability and calculates whether change is statistically reliable \((p < .05)\) and not simply caused by chance or measurement error (Barnett, Wakeling, Mandeville-Norden, & Rakestrow, 2013). The RCI is calculated using an offender’s scores on a predetermined measure and the formula proposed by Christensen and Mendoza (1986, p. 305):

\[
RCI = \frac{X_2 - X_1}{S_{diff}}
\]

This formula takes into account inherent measurement error, where \(X_2\) represents a subject’s post-test score, \(X_1\) represents that same subject’s pre-test score, and \(S_{diff}\) represents the standard error of the difference between \(X_2\) and \(X_1\):

\[
S_{diff} = SD\sqrt{2(SE)^2}
\]

The standard error of measurement \((SE)\) is computed with the formula:

\[
SE = SD\sqrt{(1-r_{xx})}
\]

\(SD\) refers to the pre-treatment standard deviation for the offender group for each measure and \(r_{xx}\) refers to the test-retest reliability of that measure. Jacobson and Truax (1991) suggest that an RCI of 1.96 or above reflects real (reliable) change for a two-tailed test with a 95% confidence interval.

The RCI can be used with small sample sizes, which is a common problem in forensic programme evaluation. Furthermore, it is capable of providing information that is unattainable through group-level analyses. For example, the RCI can be used to systematically classify and compare individuals based on whether or not they have reliably changed in treatment. Thus, although the RCI cannot replace statistics based on group means, when research examining treatment response is more idiographic, the RCI
permits examination of individual progress over time. Ostensibly, knowing whether someone has changed during treatment is central to decisions regarding an offender’s conditional release, custodial placement, and further supervision and/or treatment need.

**A Worked Example**

Suppose two individuals completed a violent offender treatment program that aimed to reduce anger. Scores for trait anger (T-Ang) were scored at pre- and post-treatment. Person 1 recorded a pre-treatment score of 16 and a post-treatment score of 40. To calculate their RCI, the following steps need to be taken:

\[
RCI = \frac{X_2 - X_1}{S_{diff}}
\]

Therefore,

\[
RCI = \frac{40 - 16}{S_{diff}}
\]

Let’s say that the pre-treatment standard deviation for the offender group on T-Ang is 4.82 and the 14-day test-retest reliability for T-Ang is 0.70.

Given that:

\[
S_{diff} = SD\sqrt{2(SE)^2} \quad \text{and} \quad SE = SD\sqrt{(1-r_{xx})}
\]

Therefore,

\[
SE = 4.82\sqrt{(1-0.70)} \quad \therefore SE = 2.64
\]

Therefore,

\[
S_{diff} = \sqrt{2(2.64)^2} \quad \therefore S_{diff} = 3.73
\]

Now, returning to the original equation:

\[
RCI = \frac{40 - 16}{3.73} \quad \therefore RCI = 6.43
\]
Note that person 1’s level of trait anger increased following treatment, since the absolute value of their RCI is greater than 1.96, person 1 has achieved reliably significant change on this measure, despite the change occurring in an undesired direction.

Let’s consider another individual. Person 2 recorded a pre-treatment score of 23 and a post-treatment score of 16 on the same measure. From the calculations above, we now know that $S_{diff} = 3.73$. Therefore, to calculate reliable change:

$$RCI = \frac{16 - 23}{3.73} \therefore RCI = -1.88$$

Although this individual seems to have improved in treatment and their trait anger score has decreased, since the absolute value of their RCI does not exceed 1.96, person 2 has not reliably changed on this measure during treatment.

**Clinically Significant Change (CSC).** Some authors argue that it is not merely the magnitude of change that is important, but whether offenders can be classified as functioning at a ‘normal’ level following treatment (Jacobson, Follette, & Revenstorf, 1986). By calculating clinically significant change (CSC), researchers can determine not only whether offenders have reliably changed, but also whether they have achieved a ‘treated’ profile, and are thus psychometrically indistinguishable from a sample of non-offenders (Barnett et al., 2013).

To ascertain whether an individual has achieved CSC, a cut-off point needs to be determined; that is, the point that the subject must cross at the time of post-treatment
assessment in order to be deemed changed to a clinically significant degree or to within a functional range. This can be done using the following formula (Jacobson & Truax, 1991, p. 13):

\[ c = \frac{S_0 M_1 + s_1 M_0}{s_0 + s_1} \]

Here, \( s_0 \) and \( M_0 \) represent the standard deviation and mean for the normative population, respectively, whereas \( s_1 \) and \( M_1 \) represent the standard deviation and mean for the offender population, respectively. By combining post-treatment scores and the amount of change achieved (reliable versus no reliable change), researchers have created descriptive subgroups to differentiate and communicate an individual’s response to treatment:

Table 1. *CSC Outcome Categories adapted from Wakeling, Beech & Freemantle (2013)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovered</td>
<td>An individual who demonstrated reliable change and who moved from the dysfunctional to the functional range post-treatment</td>
</tr>
<tr>
<td>Improved</td>
<td>An individual who demonstrated reliable change but who was not within the functional range post-treatment</td>
</tr>
<tr>
<td>Already okay</td>
<td>An individual in the functional range both pre- and post-treatment, irrespective of the amount of change made in treatment</td>
</tr>
<tr>
<td>Unchanged</td>
<td>An individual who did not demonstrate reliable change. The individual’s score may still move from dysfunctional to functional (or vice versa), yet this change is not reliable.</td>
</tr>
<tr>
<td>Deteriorated</td>
<td>An individual who demonstrated reliable change in the undesired direction, and who was in the dysfunctional range post-treatment</td>
</tr>
</tbody>
</table>

Using the CSC method, significant differences between ‘treated’ and ‘untreated’ offenders can be elucidated and more reliably attributed to treatment without the
influence of confounding variables (e.g., environmental or motivational factors) (Friendship et al., 2003). Notably, however, the calculation of CSC requires valid and contemporary non-offender norms, and these are often unavailable for forensic-specific measures. Furthermore, the CSC approach depends on the quality of the psychometric measures used.

A Worked Example

Suppose the following descriptive statistics are used for the calculation of the CSC cut-off:

<table>
<thead>
<tr>
<th></th>
<th>Normative Sample</th>
<th>Offender Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( M (SD) )</td>
<td>( M (SD) )</td>
</tr>
<tr>
<td>Trait Anger</td>
<td>18.40 (5.42)</td>
<td>23.11 (6.40)</td>
</tr>
</tbody>
</table>

To calculate the cut-off for clinically significant change:

\[
C = \frac{S_0 M_1 + s_1 M_0}{s_0 + s_1}
\]

\[
\therefore c = \frac{(5.42 \times 23.11) + (6.40 \times 18.40)}{5.42 + 6.40} \therefore c = \frac{243.0162}{11.82} = 20.56
\]

Accordingly, a score of 20.56 on trait anger represents the point at which an individual moves from the dysfunctional to the functional range on this measure.

Considering the information from the preceding example, person 1 achieved reliably significant change, and moved from the functional (T-Ang = 16) to the dysfunctional (T-Ang = 40) range following treatment. Note that a T-Ang score of 40 is considered ‘dysfunctional’ since it is above the clinically significant change cut-off of
20.56. Based on this information and the CSC categories listed above, person 1 would be classified as having ‘Deteriorated’ following treatment. Conversely, person 2 moved from the dysfunctional (T-Ang = 23) to the functional (T-Ang = 16) range following treatment. However, they did not achieve reliably significant change on trait anger since the absolute value of their RCI did not exceed 1.96. Therefore, person 2 would be classified as ‘Unchanged’ despite moving from the dysfunctional to the functional range. Individuals who remain in a dysfunctional range at post-treatment but who improve over the course of treatment, continue to have outstanding treatment needs. It is likely that these individuals begin the process of change in custody and this process can continue into the community (Olver et al., 2015). As a result, the measurement of change does not necessarily end once custody-based treatment processes are completed.

**Linking Within-Treatment Change and Recidivism**

In order to draw conclusions about the meaningfulness of treatment change, Bowen (2012) argues that within-treatment changes must be associated with behavioural change in the expected direction. Few studies have investigated this area and, as yet, there is a lack of reliable and consistent evidence to link within-treatment change in violent and sexual offenders to decreased recidivism. Results of extant research suggest CSC is unrelated to recidivism (Klepfisz, O’Brien & Daffern, 2014) or its effects are non-significant once risk status is taken into account (e.g., Barnett et al., 2013; Wakeling et al., 2013); for example, Wakeling et al. (2013) found CSC was a modest predictor of recidivism on a number of psychometric tests measuring sexual obsessions, empathy, perspective taking, rumination, self-esteem, and impulsivity; however, it did not make a significant incremental contribution above risk level.
These findings raise concerns about the validity of reliable and clinically significant change measurements using standardized psychological tests when assessing treatment progress (for discussion see Olver et al., 2015 and Wakeling et al., 2013 who note that the CSC method depends upon the quality of the psychological tests used and the availability of appropriate norms—calculation of CSC relies upon non-offender normative data). Olver et al. (2015) note that many studies have used measures that are unrelated to recidivism. Some psychological tests contain indices of criminogenic needs which have the potential to capture changes in risk; however, most of these lack sufficiently structured guidelines for measuring change or assessing the level of risk reduction that results from the change (Olver, Nicholaichuk, Kingston, & Wong, 2014). Additionally, one of the reasons why studies exploring RCI and CSC with narrowly focused psychological tests that were not designed for forensic purposes, reveal non-significant findings is that criminal behavior is complex and multiply determined. Offending is typically the consequence of the interaction and activity of numerous dynamic risk factors. Change in any one dynamic risk factor is unlikely to be sufficient when there are other risk factors present. As such, any assessment strategy requires consideration of various risk and protective factors.

One approach to ensuring breadth in the assessment of dynamic risk and protective factors for change assessment purposes is to assess the offender prior to and after treatment using multi-item structured risk and protective assessment instruments; it is critical these instruments contain dynamic factors. In this approach change in the total criminogenic need (dynamic items total score) or protective factors are determined through comparison of pre- and post- test scores. Five studies have shown that change
on the Violence Risk Scale-Sexual Offender Version (VRS-SO, Wong, Olver, Nicholaichuk & Gordon, 2002) is associated with recidivism in sexual offenders and recent work exploring change scores using dynamic items from the Violence Risk Scale (VRS, Wong & Gordon, 2003) has also provided support for the use of change scores derived from pre and post assessments on the dynamic items on the VRS to predict recidivism. For example, Lewis, Olver & Wong (2012) found that following completion of the Aggressive Behavior Control program, psychopathic violent offenders’ VRS dynamic change scores were significantly negatively correlated with violent recidivism. However, there is limited research into this change assessment methodology and some inconsistent results exist. For example, Klepfisz, O’Brien and Daffern (2014) assessed change in the VRS, and although offenders typically made positive changes in terms of reducing violence potential, dynamic risk item change scores on the VRS were unrelated to violent recidivism.

Other structured risk assessment instruments incorporating dynamic risk factors, such as the HCR-20 may also be used to measure change, as may measures incorporating protective factors. For example, De Vries Robbé, de Vogel, Douglas and Nijman (2014) studied 108 (44 violent and 64 sexually violent) discharged forensic psychiatric patients and explored pre- and post-treatment assessments of risk (HCR-20) and protective factors using the Structured Assessment of Protective Factors for Violence Risk (SAPROF; de Vogel et al., 2012). Total scores were composed for the HCR-20, the SAPROF and their subscales. In addition, a total risk minus total protection score was calculated, an HCR-SAPROF index. Results showed that improvements on risk and protective factors during treatment showed good predictive
validity for abstention from violence for short- (1 year) as well as long-term (11 years) follow-up.

In terms of the application of CSC measurement to multi-item risk assessment instruments Olver et al. (2015) recently proposed a novel method; they identified individuals who had a score of 17 or lower on the VRS-SO, which equates with an average of 1 point per item for the 17 dynamic items, which indicates than none of the dynamic risk factors can be considered a criminogenic need (see Olver et al., 2015 pp.99-100 for elaboration). Results revealed CSC-group differences in 5-year rates of sexual and violent recidivism but when controlling for pre-treatment risk level the post-treatment CSC category was less important than the risk level in terms of predicting recidivism. In summary, these findings suggest that assessment of change is best approached using multi-item structured risk assessment measures containing dynamic risk items. Change can be reliably assessed using these instruments but care must be taken to remain mindful of pre-treatment risk level. At the end of treatment many people will continue to present with some level of risk and some persistent criminogenic needs (ongoing active dynamic risk factors) and some protective factors may be weak or absent. Intervention (treatment and management) should be focused on the remaining risk and protective factors and to a level of intensity that matches the strength of these issues.

**Protective Factors.** Recently, increased attention has been paid toward to the risk prevention potential of dynamic protective factors (see Chapter XX). *Protective factors* are defined as any characteristic of a person or their environment or situation, which reduces the risk for future violence (de Vries Robbé, de Vogel, & Stam, 2012). Dynamic
protective factors can refer to internal personal characteristics, such as empathy, coping, and self-control; internal motivational factors, such as work, leisure activities, motivation for treatment, and life goals; and external support factors, including social network, professional care, and living circumstances (de Vogel, de Ruiter, Bouman, & de Vries Robbé, 2012).

Rather than focusing only on risk factors in the form of negative behaviour, the development and measurement of positive behaviour through intervention is also thought to be important when determining an offender’s risk level (see Rogers, 2000). Mooney and Daffern (2013) demonstrated that pro-social skills observed in prison were of greater predictive value for violent recidivism than observed negative behaviour. As a result, both pro-social and risk-related behaviour must be monitored. This finding is consistent with the assertion that offenders’ ability to change might be most effective when they concentrate on building daily pro-social habits, particularly when sequences of behaviour paralleling offence chains previously culminating in offending behaviour occur (see discussion of Offence Paralleling Behaviour in Daffern, Jones & Shine, 2010).

Initial studies assessing protective factors using the SAPROF (de Vogel et al., 2012) have provided promising results. In a sample of 108 forensic psychiatric adult male inpatients at the Van der Hoeven Clinic in Utrecht, de Vries Robbé, de Vogel, Douglas, and Nijman (2014) found that SAPROF change scores were predictive of violent recidivism for 1-year follow-up as well as for long-term follow-up. These findings exemplify that treatment changes can have positive effects on abstention from violence, and that this might be in the form of an increase in protective factors and/or a
decrease in risk factors for violence. Coupland’s (2015) dissertation was the first to examine the SAPROF in a non-psychiatric forensic sample. Participants included 178 federally incarcerated adult male offenders who participated in the Aggressive Behavior Control treatment programme at the Regional Psychiatric Centre in Saskatoon, Canada. In this sample, total SAPROF change scores from pre-treatment to release significantly predicted nonsexual violent recidivism (all convictions and charges) after controlling for pre-treatment protection. Accordingly, offenders low on the SAPROF protection factors had higher and faster rates of violent failure in the community than those with low to moderate scorers.

**Complications in assessing the manifestations of dynamic risk factors in secure settings**

A key challenge in the assessment of dynamic risk and protective factors is determining whether they are present when the environment is designed to prevent risk factors from manifesting. As such, assessors need to consider how dynamic risk factors manifest in the custodial setting (their form may be altered or muted as a consequence of environmental contingencies) and how the absence of a dynamic risk factor in the secure environment may not mean that the risk factor is no longer present (e.g., many sexual offenders will not engage in sexually deviant behaviour and they may deny ongoing sexually deviant interests or these interests may not be aroused because of the lack of stimuli). Whether a dynamic risk factor is observable in the prison setting will depend on its strength and whether the environment provides triggers or contains features that suppress the risk factor. In one of the few studies that has investigated this, Sweller, Warren and Daffern (2015) asked mental health professionals with experience working
with sexual offenders in secure settings how they determine whether dynamic risk factors for sexual offending manifest in prison (the examples of risk factors were drawn from two sexual offender risk assessment tools: the Risk of Sexual Violence Protocol (RSVP) and the Violence Risk Scale: Sexual Offender version (VRS:SO). For each risk factor, participants were asked to provide examples of behaviours they might expect if the dynamic risk factors were present and active; and also, to provide examples of behaviours they might observe if these risk factors were no longer active and had been replaced with more pro-social behaviour. Results revealed a wide variety of manifest risk-related and positive behaviours. However, in general, participants’ responses for risk-related behaviours were more descriptive and they reported more risk-related behaviours than positive behaviours. Participants often stated that the positive behaviours were simply the absence of risk-related behaviours.

This research also identified the difficulty clinicians have in identifying behaviour indicative of positive change. This might reflect a range of issues, such as: psychologists being trained in the use of risk assessment tools, which focus on risk-related factors (de Vries Robbé, de Vogel, & de Spa, 2011; Miller, 2006; Rogers, 2000; Sheldrick, 1999); the culture of a custodial environment based on punishment or consequences for antisocial behaviour; and the focus is on observed difficulties or problematic behaviour when clinicians discuss clients with custodial staff. These observations are also consistent with previous research on the Offence Analogue and Offence Reduction Behaviour Guide for the Violence Risk Scale, which has shown that staff rarely document pro-social behaviour (Mooney & Daffern, 2013).
Sweller and colleagues (under review) also noted considerable variation in participants’ ease in identifying manifestations of dynamic risk factors. For some risk factors, participants reported many behavioural manifestations (e.g., interpersonal aggression) but for other dynamic risk factors, participants reported very few behavioural manifestations (e.g., sexual deviance). Additional research is clearly required to better understand how dynamic risk factors manifest in prison, and further, why some risk factors may persist but not manifest, and the way in which environmental factors may stimulate or suppress these propensities. Finally, Sweller et al. (2015) noted that some behavioural manifestations identified by participants were uncommon and appeared unrelated to the risk factor in question. This may suggest that some assessors are uncertain about the behaviours that offenders exhibit when a particular dynamic risk factor is manifest; alternatively, there may be idiosyncratic manifestations of these risk factors. Ultimately, this suggests that careful scrutiny of the behaviour is required before determining that it is relevant to the person’s offending. Sweller and colleagues reported that those risk factors that are more internal to the offender (i.e., related to thoughts and attitudes) produced more uncommon and seemingly irrelevant responses, suggesting that when clinicians cannot directly observe the relevant behaviour they are more likely to consider a range of behaviours as relevant to the dynamic risk factor. To help counter these problems, assessors need to understand ‘normal’ responses to incarceration as well as the ‘typical’ manifestations of dynamic risk factors in the custodial environment.

**Conclusion**

The coherence of current conceptualisations of risk, and therefore change assessments that are based on measurement of risk, has recently been questioned (see
Ward & Beech, 2014). However, in this chapter we have suggested that the most valid method currently available to assess the impact of treatment and change over time involves the repeat assessment of dynamic risk and protective factors using clinician-rated multi-item structured risk assessment instruments containing dynamic risk factors instruments with established predictive validity. There are now several studies which show significant relationships between change scores and recidivism for the VRS:SO, VRS, and HCR-20v³. Tools such as the SAPROF, which measures dynamic protective factors, also hold some promise in helping treatment facilitators, release decision makers and program evaluators to determine whether meaningful change in violent and sexual offenders has actually occurred.

Key Readings


References


Coupland, R. B. A. (2015). *An examination of dynamic risk, protective factors, and treatment-related change in violent offenders.* (Doctor of Philosophy), University of Saskatchewan, Saskatoon, Canada.


review of medical and psychological interventions. *British Medical Journal, 9*(347;f4630), 1-11.


Olver, M., Beggs Christofferson, S., & Wong, S. (2015). Evaluation and applications of the clinically significant change method with the Violence Risk Scale-Sexual


Dear Professor Ogloff,

The Department of Justice and Regulation Human Research Ethics Committee (JHREC) has considered the additional information you have provided in regard to your application considered at its meeting on 15 September 2016 in relation to the project Validation of the Violence Risk Scale and the Violence Risk Scale-Screening Version in a Victorian offender sample and has granted full approval for the duration of the investigation. The Department of Justice and Regulation reference number for this project is CF/16/14164. Please note the following requirements:

- To confirm JHREC approval, please sign the Undertaking form attached and provide an electronic copy within 10 business days.
- The JHREC is to be notified immediately of any matter that arises that may affect the conduct or continuation of the approved project.
- You are required to provide an Annual Report every 12 months (if applicable) and to provide a completion report at the end of the project (see the Department of Justice and Regulation website for the forms).
- Note that for long term/ongoing projects approval is only granted for three years, after which time a completion report is to be submitted. The project must be renewed with a new application before the initial three year period has expired.
- The Department of Justice and Regulation would also appreciate receiving copies of any relevant publications, papers, theses, conferences presentations or audiovisual materials that result from this research.
- All future correspondence regarding this project must be sent electronically to ethics@justice.vic.gov.au and include the reference number and the project title. Hard copies will not be accepted.

Undertaking - For Signature & Return

If you have any queries regarding this application, you are welcome to contact me on (03) 8684 1514 or email: ethics@justice.vic.gov.au.

Yours sincerely

Justice Human Research Ethics Committee

Nicholas O'Meara | JHREC Secretary

Information Integrity & Access
Department of Justice & Regulation
GPO Box 4356 / Level 24, 121 Exhibition Street
MELBOURNE VIC 3001

Phone: (03) 8684 1514

Email:

To: Prof. Michael Daffern, CFBS

Dear Michael,

**SHR Project 2016/271 – Violent offenders’ treatment change in dynamic risk and protective factors: Associations with violent recidivism**

Prof. Michael Daffern, Ms Gabrielle Klepfisz (Student) - CFBS/FHAD
Approved Duration: 07-10-2016 to 31-01-2018
(JHREC Ref CF/16/14164)

I refer to the application submitted on your behalf by Ms Gabrielle Klepfisz for Swinburne ethics clearance for the above project.

Relevant documentation pertaining to the application, as emailed on 06 October 2016 with attachment, was given expedited ethical review on behalf of Swinburne's Human Research Ethics Committee (SUHREC) by a delegate significantly on the basis of the ethical review conducted by the Department of Justice & Regulation (Vic) Human Research Ethics Committee (JHREC Ref CF/16/14164).

I am pleased to advise that, as submitted to date and as regards Swinburne, ethics clearance has been given for the above project to proceed in line with standard on-going ethics clearance conditions outlined below and as follows. JHREC may need to be apprised of the Swinburne ethics clearance.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the *National Statement on Ethical Conduct in Human Research* and with respect to secure data use, retention and disposal.

- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.

- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.

- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project. Information on project monitoring, self-audits and progress reports can be found on the Research Intranet pages. (However, formats required by or submissions to Justice HREC in this regard may be acceptable all things being equal.)
- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact the Research Ethics Office if you have any queries about on-going ethics clearance as regards Swinburne, citing the Swinburne project number. Please retain a copy of this email as part of project record-keeping.

Yours sincerely,
Astrid Nordmann
Appendix VI
Summary of Journals

*Psychology, Crime & Law* promotes the study and application of psychological approaches to crime, criminal and civil law, and the influence of law on behaviour. The content includes the aetiology of criminal behaviour and studies of different offender groups; crime detection; courtroom studies in areas such as jury behaviour, decision making, and expert testimony; behaviour of litigants, lawyers, judges, and court officers, both in and outside the courtroom; issues of offender management including prisons, probation, and rehabilitation initiatives; and studies of public, including the victim, reactions to crime and the legal process. It publishes reviews and brief reports which make a significant contribution to the psychology of law, crime and legal behaviour. Internationally, *Psychology, Crime & Law* provides professionals in the areas of forensic-clinical psychology, law, and crime with the very latest cutting edge research and theory.

Journal Impact Factor = 1.408

*Aggression and Violent Behavior*, a review journal, is a multidisciplinary journal that publishes substantive and integrative reviews, as well as summary reports of innovative ongoing clinical research programs on a wide range of topics germane to the field of aggression and violent behaviour. Papers encompass a large variety of issues, populations, and domains, including homicide (serial, spree, and mass murder: sexual homicide), sexual deviance and assault (rape, serial rape, child molestation, paraphilias), child and youth violence (firesetting, gang violence, juvenile sexual offending), family violence (child physical and sexual abuse, child neglect, incest, spouse and elder abuse), genetic predispositions, and the physiological basis of aggression.

Journal Impact Factor = 1.928

*The International Journal of Forensic Mental Health* provides an international forum for disseminating research and practical developments to forensic mental health professionals. Forensic populations include both adults and youth involved in the criminal justice system, particularly mentally disordered offenders and sex offenders.
The focus is on forensic issues such as criminal responsibility, competency or fitness to stand trial, risk assessment, family violence, and treatment of forensic clients. The journal reflects the international audience represented by the International Association of Forensic Mental Health Services, and articles comparing the law and/or practice in different countries are encouraged. The journal is the official publication of the International Association of Forensic Mental Health Services.

Journal Impact Factor = 1.362

*Criminal Justice and Behavior* promotes scholarly evaluations of assessment, classification, prevention, intervention, and treatment programs to help the correctional professional develop successful programs based on sound and informative theoretical and research foundations. Publishing timely, well-conceived, and lively scholarship, *Criminal Justice and Behavior* advances the knowledge and expertise of professionals and academics involved in forensic psychology, with a concentration on correctional psychology. *Criminal Justice and Behavior* publishes articles examining psychological and behavioural aspects of the juvenile and criminal justice systems. The concepts "criminal justice" and "behavior" should be interpreted broadly to include analyses of etiology of delinquent or criminal behaviour, the process of law violation, victimology, offender classification and treatment, deterrence, and incapacitation.

Journal Impact Factor = 2.099