Treatment Gain in Violent Offenders: The Relationship Between Proximal Outcomes, Risk Reduction and Violent Recidivism

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This study examines whether change in dynamic risk factors and other treatment targets over the course of violent offender treatment is associated with a reduction in violent recidivism. Data from 82 adult male violent offenders who attended a prison-based violence treatment programme were collected via retrospective file review. Therapeutic change was assessed by comparing pre- and post-treatment Violence Risk Scale (VRS) scores, ratings of denial and minimisation of violence, level of victim awareness, and motivation to change. Completion of offender treatment is found to be associated with significant change on all proximal outcome measures (i.e. reduction in dynamic risk and minimisation of violence, and increased victim empathy). However, these changes do not translate into reductions in reoffending; only one measure of within-treatment change – enhancement of victim awareness – is (negatively) associated with recidivism. These results suggest that caution is required when considering the impact of change in a restricted range of treatment targets on violent recidivism. Future research should focus on identifying reliable indicators of within-treatment change to aid idiographic assessments of violence risk and to elucidate mechanism of change.

Key words: recidivism; therapeutic change; treatment; violence.

Violent offending has significant negative consequences for victims and wide-ranging social, economic and criminal justice costs (Rollings, 2008). A high rate of reoffending among violent offenders, especially in comparison to their non-violent counterparts (Dowden, Blanchette, & Serin, 1999), creates a clear imperative to develop strategies to reduce violent behaviour. Considerable effort has been expended on developing programmes for violent offenders, and empirical evidence has demonstrated that psychosocial interventions can reduce the incidence and severity of violence (McGuire, 2008). Evaluations of offender programmes typically

measure the effectiveness of treatment in terms of reduction in distal outcomes (i.e. recidivism) between treated and untreated samples rather than assessing changes in proximal outcomes (i.e. whether treatment produces changes in dynamic risk factors). Analyses of programme effectiveness that focus solely on group differences in recidivism assume that ‘participation renders an individual offender as treated’ (Friendship, Falshaw, & Beech, 2003, p. 115). Accumulating evidence suggests otherwise and indicates that not all offenders respond to treatment in the same way (Marques, Wiederanders, Day, Nelson, & van Ommeren, 2005; Nunes,

Babchishin, & Cortoni, 2011; Wakeling, Beech, & Freemantle, 2013). A high rate of programme non-completion and post-release reoffending among offender who complete treatment implies that the offenders do not all derive equal benefits from programme attendance (Beggs, 2010). The aim of this article is to examine the relationship between within-treatment changes and recidivism among violent offenders participating in a prison-based treatment programme.

Shifting empirical attention toward the assessment of within-treatment change may provide a more accurate representation of programme effectiveness (Friendship et al., 2003), especially if therapeutic change measures are paired with distal recidivism outcomes. Investigations of within-treatment change have several important applications for offender research and practice. Clinically, information about progress during treatment is crucial for pre-release risk assessments and assists practitioners in identifying whether treatment has been effective for a particular offender (Hanson, Cox, & Woszczyna, 1991). With respect to research endeavours, assessments of intra-individual change may clarify whom treatment is effective for and indicate why treatment works for some offenders, 'even if the group as a whole does not appear to be effectively treated' (Harkins & Beech, 2007, p. 37). Finally, examining within-treatment changes may provide important insights into the mechanisms of change involved in the cessation of offending (Kroner & Yessine, 2013), and identify which components of multidimensional offender rehabilitation programmes are most important for reducing risk of reoffending.

Despite the importance of these applications, surprisingly little research has been conducted to systematically investigate therapeutic change among violent offenders. In particular, only a small collection of studies have investigated if correctional programmes produce a reduction in dynamic risk factors (the purported mechanism of change) among violent offenders (Lewis, Olver, & Wong,

2013) or other within-treatment variables (Chakhssi, de Ruiter, & Bernstein, 2010), and whether such changes impact recidivism outcomes (Serin, Lloyd, Helmus, Derkzen, & Luong, 2013). In an early evaluation of a community-based violence intervention programme (VIP), Polaschek and Dixon (2001) found that violent offenders who completed treatment ($n = 33$) demonstrated significant improvements in anger control throughout treatment and reduced recidivism rates. In particular, those who completed treatment and remained offence-free showed continued improvement on measures of anger control after programme completion, whereas offenders who recidivated showed levels of anger control that are similar to their pre-programme levels. A second study investigating the effectiveness of a prison-based anger management intervention found that increased insight into anger, knowledge of anger management skills, and self-competence in handling anger are associated with significant reductions in violent recidivism following release from prison (Dowden et al., 1999). Although these studies reveal that intra-individual change in anger is associated with a reduction in recidivism among violent offenders, they provide little insight into whether changes in other dynamic risk factors are associated with a reduction in violence.

Only two studies have specifically linked changes in dynamic risk factors to post-treatment recidivism outcomes in violent offenders (Lewis et al., 2013; Olver, Lewis, & Wong, 2013). In both studies, the Violence Risk Scale (VRS; Wong & Gordon, 2006) is used to assess therapeutic changes in dynamic risk in a sample of 150 high-risk incarcerated adult male violent offenders. Participants attended an eight-month high-intensity cognitive behavioural violence intervention and were followed up for approximately five years following release from prison. The results indicate that reductions in VRS dynamic risk scores are associated with significantly lower violent recidivism after controlling for pre-treatment risk level (Lewis

et al., 2013) and psychopathy (Olver et al., 2013). Positive therapeutic changes are negatively correlated with psychopathy, and thus risk reduction. These findings suggest that dynamic risk factors are changeable and that reductions in risk are associated with lower recidivism upon release, but that psychopathy is a potent responsivity factor that can interfere with treatment outcomes.

Study Aims

Taken together, these findings suggest that a key task for researchers is to elucidate the parameters of effective violent offender treatment by examining proximal or within-treatment gain and clarifying whether these therapeutic gains are associated with reduced violent recidivism. The present study has three aims: (a) to examine whether participation in a prison-based VIP is associated with positive therapeutic gain in four treatment-related domains (dynamic risk for violence, denial or minimisation of violent offending, victim awareness, and motivation to change violent criminal behaviour), (b) to explore whether particular offenders are more or less likely to demonstrate change during treatment – specifically, whether therapeutic change is associated with treatment completion or risk level, and (c) to examine whether change in proximal treatment targets is associated with long-term recidivism outcomes. It was hypothesised that treated participants would demonstrate significant reductions in dynamic risk (as measured by the VRS), a decrease in denial and minimisation, enhanced victim empathy, and higher motivation to change at the end of treatment. It was also hypothesised that change on these proximal treatment targets would be associated with reductions in violent recidivism following release from prison.

Method

Participants

The participants of this study consist of 82 adult male offenders who took part in a

prison-based VIP in Victoria, Australia. The age of the participants ranged from 20 to 67 years, with a mean age of 33.0 years ($SD = 8.5$) at entry to treatment. In terms of ethnicity, 12 are Aboriginal or Torres Strait Islander (14.6%), 53 are Australian Caucasian (64.6%), and 17 are of 'other' descent (20.7%). The average minimum sentence for the participants is 34.6 months ($SD = 32.57$, range 7.7 months to 21 years); 2 participants received maximum life sentences but were released on parole during the study period following the expiration of their minimum term. Prior to the current term of imprisonment, the participants had a mean of 8.1 violent convictions ($SD = 8.12$, range 0 to 35) and 47.1 non-violent convictions ($SD = 39.10$, range 0 to 215). On average, they had served 3.3 prior terms of imprisonment ($SD = 3.29$, range 0 to 6). Most were currently serving a sentence for a violent index offence (96.3%, $n = 79$), including homicide, assault, robbery and other violent offences.

Treatment Objectives

Upon entry to prison in Victoria, offenders with violent convictions are referred for assessment to ascertain their level of violence risk and treatment needs so as to determine their suitability for the VIP. The VRS was completed as part of this assessment process. Offenders rated as moderate or high risk on the VRS are eligible for participation in a VIP (matched to their level of risk and need); clinicians may also override the assessment for offenders whose VRS score is in the low-risk category. The moderate-intensity VIP (MIVIP) and high-intensity VIP (HIVIP) are multi-modal, structured cognitive-behavioural treatment programmes for violent offenders in Victoria, Australia. The VIPs are typically delivered in a closed group therapy format, although may sometimes be delivered on a one-to-one basis (depending on the offender's individual needs). Participation in treatment is voluntary; however, offenders are aware that early release on parole may be

contingent on treatment completion. The VIPs target multiple criminogenic needs believed to contribute to violence, including antisocial attitudes and cognitions, emotion regulation, victim empathy, understanding of offence cycle and acceptance of responsibility for violence. The MIVIP consists of 33 sessions, conducted twice weekly, over a 5-month period, totalling approximately 100 hours of treatment. The HIVIP consists of 67 sessions in the core programme conducted three times per week over a 6-month period, totalling approximately 200 hours of treatment. Additional treatment modules (up to 100 hours more) are offered to offenders, depending on their individual treatment needs. The additional treatment modules offered via the HIVIP address issues related to violence, such as masculinity, substance abuse, anger and problematic interpersonal relationships.

Data Collection Procedure

Two doctoral-level psychology students systematically reviewed three sources of information to code data for the study: Corrections Victoria provided the researchers with access to the participants' clinical service files (which contain pre-treatment assessment information and reports, treatment progress notes and completion reports) and individual management files (which provide information about criminal history, index offence(s) and behaviour during the term of imprisonment), and the Adult Parole Board of Victoria provided access to the participants' parole review files. The variables were coded using a data collection protocol developed specifically for this study. Data for pre-treatment variables were coded exclusively from reports and documents prepared prior to entry to the VIP (e.g. judicial sentencing comments, pre-sentencing reports, pre-treatment prison assessment reports), whereas data for post-treatment variables were coded using treatment progress notes, treatment completion reports and parole eligibility reports.

A sample of 10 cases (12.2%) were randomly selected and dual-coded to assess interrater reliability (IRR), statistics for which were calculated for all variables coded during the file review process with the exception of the VRS scores, which are scored by clinicians from Corrections Victoria and merely transcribed by the researchers. The IRR statistics indicate a high level of agreement for research purposes (Kottner et al., 2011). The average Cohen's kappa (for dichotomous variables) is .81, and all but two kappa values are statistically significant at $p < .05$. The Krippendorff's alpha statistics (for ordinal variables) range from .47 to .95, with a mean alpha of .76 (Hayes & Krippendorff, 2007; Krippendorff, 2004). Intraclass correlation coefficients (ICCs) were calculated for continuous variables using a two-way random-effects model with absolute agreement; the mean single measure ICC was 0.99 (range = 0.97 to 1.00).

Measures

Violence Risk Scale (VRS)

The VRS (Wong & Gordon, 2006) is an actuarial risk assessment instrument developed to evaluate risk of future violence and measure change in dynamic risk associated with treatment. The 6 static and 20 dynamic items are scored on four-point Likert scales (with values from 0 to 3), with higher scores indicating a greater risk of violence. The total score (the sum of the static and dynamic ratings) indicates the level of risk of future violence and can be represented as one of three risk ratings: low (0–34), moderate (35–49), or high (50–78). Items are rated prior to and following treatment, and stage of change is recorded for dynamic items identified as targets for treatment (i.e. items rated as 2 or 3). Progress in treatment is represented by movement towards more advanced stages of change and indicates a reduction in risk for violence. Progression from one stage of change to another is scored as a 0.5 point reduction in pre-treatment scores for each stage of change

advanced. In contrast, deterioration through the stages of change results in the addition of points. All deductions (or additions) are summed to produce a total VRS change score, which is subtracted from pre-treatment scores to produce a post-treatment risk rating. The VRS has been demonstrated to be a valid predictor of violent and non-violent recidivism in a number of Canadian studies (Lewis et al., 2013; Olver et al., 2013; Wong & Gordon, 2006).

Clinicians from Corrections Victoria scored the VRS as part of routine suitability assessments. Offenders determined to pose a moderate or high risk of future violence were referred to attend a prison-based VIP. The VRS was rescored for participants who completed the treatment. The researchers recorded the pre-treatment VRS static, dynamic and total scores for all participants in this study ($n = 82$); however, VRS change scores were only available for 61 of the 67 participants who completed treatment (95.3%).

The Denial and Minimization Checklist-III

The Denial and Minimization Checklist-III (DMCL-III; Langton, Barbaree, & McNamee, 2003) provides a structure for assessing sexual offenders' descriptions of the offences. A modified version of the DMCL-III was used in this study, adapted to assess denial and minimisation of violent offending (vs sexual offending). In research applications, a three-point scale (0 = *not evident*, 1 = *possibly or partially evident*, 2 = *evident*) evaluates the degree to which an offender's description of his violent index offence(s) differs from official documentation; contradictions indicate varying levels of denial and minimisation. The 'Denial' section of the DMCL-III includes three items that indicate whether or not the offender denies involvement in the offence, denies that his conduct was violent and denies that it constitutes a criminal offence. Scores on the three denial items are reviewed and the highest single category is used as the Denial score (ranging from 0 to 2). However, as only

three participants in this sample scored 1 on the Denial section, scores were collapsed to create two groups: denial (scores 1 or 2) and no denial (score of 0). The 'Minimisation' section of the DMCL-III contains seven items which measure the extent to which an offender minimises his violent deviance, the harm suffered by victims and/or the extent of his behaviour, attributes blame to the victim, provides internal and/or external justifications for his behaviour, and minimises his risk for violent reoffending. Total scores range from 0 to 14, with higher scores indicating greater minimisation across categories. Minimisation change scores, indicating reductions in minimisation of responsibility, were calculated by subtracting post-treatment scores from pre-treatment scores.

Victim Empathy

The level of victim awareness and empathy was coded prior to and following participation in treatment, using a coding scheme from the Response to Treatment Scale developed by Langton, Barbaree, Harkins, and Peacock (2006). Responses are scored on a four-point scale ranging from 1 to 4, with higher scores indicating greater victim awareness and empathy. Each point on the scale is anchored by behavioural descriptions to aid coding, where a score of 1 indicates *no awareness expressed of the impact of violence on victims, and no empathy for victims of violent offending* and a score of 4 indicates *a great deal of remorse expressed for his victim(s), and a clear understanding demonstrated of the impact of his crime on the victim(s)*. The victim empathy change scores were calculated by subtracting post-treatment scores from pre-treatment scores.

Motivation

A single item was developed to assess the participants' post-treatment level of motivation to change offending behaviour (i.e. to cease offending). Post-treatment motivation

to change was rated on a five-point Likert type scale, with scores ranging from 1 (no motivation to change offending behaviour) to 5 (consistently high motivation to change behaviour).

Recidivism

Official recidivism data were sourced from the Victoria Police operational policing database (i.e. the Law Enforcement Assistance Programme). Recidivism was defined as any charge for a new violent offence (e.g. murder/manslaughter, assault, robbery, and other violent offences against a person) following release from prison. Two types of data were used to calculate recidivism. First, violent recidivism was coded as either '0' (no violent charges) or '1' (violent charge(s)). Second, time at risk was calculated and defined as days until first violent re-offence for recidivist participants, or days from release until the end of the study period for non-recidivist participants. On average, follow-up was conducted after 3.65 years ($SD = 0.96$, range = 1.67 to 5.25).

Data Analysis

Statistical analyses focused on examining whether participation in the VIP produced measurable change on proximal targets of treatment, and if so whether these changes predict violent recidivism. The first stage of data analysis consisted of a series of paired sample *t*-tests to determine whether participation in treatment is associated with reduction of risk of violence, reduction of denial and minimisation, and increase in empathy towards victims. The effect size for each variable was estimated using Cohen's *d*. In the second phase of the analysis Pearson and point-biserial correlation coefficients were calculated to investigate the relationship between measures of therapeutic change, and independent *t*-tests were utilised to explore whether treatment completion is associated with better proximal outcomes in comparison to non-completion.

Finally, a series of Cox regression survival analyses were undertaken to explore the relationship between therapeutic outcomes and violent recidivism. Cox regression analysis is considered an appropriate analysis for this study as it can account for differences in length of follow-up times. The first Cox regression analysis explored whether change in dynamic risk is associated with violent recidivism after statistically controlling for the VRS pre-treatment total score to account for individual differences in initial risk level. Individual differences in risk level prior to entry to treatment can limit the amount of change that is possible, and thus can influence VRS change scores (i.e. higher-risk offenders have more room for improvement and thus a greater likelihood of showing reductions in risk compared to lower-risk offenders). Similarly, two further Cox regression analyses were conducted to investigate whether minimisation and victim empathy change scores are associated with recidivism, while controlling for individual differences in initial scores on these variables. A final Cox regression analysis was conducted to examine the relationship between motivation to change and violent recidivism. For all Cox regression analyses, the dependent variable is any new violent charge (0 = no, 1 = yes), and the time scale is days of follow-up, calculated as the date of release from prison until the date of the first violent charge (for recidivists) or the censor date (for non-recidivists).

A small amount of data are missing for two of the researcher-coded variables – victim empathy ratings ($n = 5$) and motivation scores ($n = 1$) – due to the limited amount of post-treatment information available in some offender files. Values for these missing cases have been estimated via a stepwise regression procedure (Tabachnick & Fidell, 2001).

Results

At admission to treatment most participants (68.3%, $n = 56$) were classified as being a moderate risk for committing further

violence, while 26 (31.7%) were classified as high risk. The mean pre-treatment VRS total scale score for all 82 participants was 45.46 ($SD = 7.83$, range = 30 to 74). Accordingly, the majority commenced the MIVIP (75.6%, $n = 62$) compared to the HIVIP (24.4%, $n = 20$). The participants in the MIVIP attended treatment for an average of 115.41 days ($SD = 33.88$) while the participants in the HIVIP attended treatment for significantly longer ($M = 144.45$ days, $SD = 56.59$), $t(79) = -2.78$, $p = .007$, $d = 0.72$, 95% CI (-9.44, 7.99). Overall, more participants in the MIVIP successfully completed treatment (85.5%, $n = 53$) compared to those in the HIVIP (70.0%, $n = 14$); however, these differences are non-significant, $\chi^2(1, n = 82) = 2.42$, $p = .119$. A total of 67 participants (81.7% of the sample) completed treatment.

Therapeutic Change

To determine the extent to which participation in the VIP produced changes on intermediate targets of treatment, pre- and post-treatment comparisons were made for VRS scores, minimisation of violence, and victim empathy ratings. As can be seen from Table 1, there is a significant change on all factors, except for VRS static scores. Participation in treatment resulted in reductions in VRS dynamic risk scale scores of large magnitude, generating a mean VRS dynamic change score of 4.82 (range = 0 to 16); there is also a significant change in VRS total scores

(range = -1 to 16). Examination of the DMCL-III scores revealed that minimisation of responsibility for violent behaviour was significantly reduced post-treatment; on average, level of minimisation was reduced by 1.95 points (range = -4 to 8). Furthermore, an exact McNemar's (non-parametric) test determined that there is a statistically significant difference in the proportion of participants who denied aspects of their violent index offences pre- and post-intervention, 39.0% vs 28.0%, $n = 82$, $p = .035$. Programme participation also led to significant increases in empathy towards victim(s) ($M = 0.65$, range = -3 to 4). Overall, the participants demonstrated a moderate level of motivation to change their violent offending behaviour at the end of their participation in treatment ($M = 3.06$, $SD = 0.78$, range = 1 to 4).

Correlations Between Risk and Therapeutic Change

A series of Pearson product-moment correlations were conducted to examine whether therapeutic change is associated with initial violence risk level and to explore correlations between therapeutic outcomes (Table 2). These analyses revealed that VRS change scores are positively correlated with pre-treatment VRS total scale scores, indicating that the higher-risk participants showed a greater level of change following treatment. Consistent with these findings, VRS change scores are also positively associated with duration in

Table 1. Pre- and post-treatment scores on proximal measures of therapeutic change.

Measure	Pre-treatment		Post-treatment		Change		Paired-samples <i>t</i> -test		95% CI		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	LL	UL	Cohen's <i>d</i>
VRS static score	11.59	3.20	11.57	3.17	-	-	0.38	.709	-0.55	0.57	.00
VRS dynamic score	32.59	5.21	27.76	4.79	4.83	3.30	11.44	< .001	0.10	1.85	.97
VRS total score	44.41	7.05	39.33	6.22	5.07	3.40	11.64	< .001	-0.40	1.94	.77
Minimisation	6.00	2.55	4.05	2.83	1.95	2.59	6.82	< .001	0.32	1.14	.73
Victim empathy	1.61	0.73	2.26	0.84	0.65	0.86	-6.78	< .001	-0.95	0.71	.83

Note: '-' = not applicable; CI = confidence interval for Cohen's *d*; LL = lower limit; UL = upper limit; VRS = Violence Risk Scale. For the VRS scores, $n = 61$; for the minimisation and victim empathy scores, $n = 82$.

Table 2. Correlation coefficients between measures of therapeutic change.

	2	3	4	5	6
1. VRS total score (pre-tx)	.47***	.02	-.13	.10	-.31**
2. VRS dynamic change score	-	-.02	.23	.17	.22
3. Denial (post-tx)		-	.03	.08	-.12
4. Minimisation change score			-	.15	.44***
5. Victim empathy change score				-	.25*
6. Motivation to change (post-tx)					-

Note: * $p < .05$, two-tailed; ** $p < .01$, two-tailed; *** $p < .001$, two-tailed. VRS = Violence Risk Scale. For VRS dynamic change scores, $n = 61$, for all other scores, $n = 82$.

treatment; that is, the more time participants spent in treatment, the higher their VRS change scores are, $r = .41$, $p = .001$, $n = 61$. The VRS change scores demonstrate a small, positive correlation with post-treatment motivation to change behaviour; however, the VRS change scores are not significantly correlated with minimisation or victim empathy change scores, or the post-treatment level of denial. Overall, the post-treatment level of motivation to change offending behaviour is positively correlated with minimisation and victim empathy change scores, although change in minimisation and victim empathy are not related to each other.

Treatment Completion and Change

The majority of participants completed treatment (81.7%). Participants were most likely to exit the programme prior to completion as a result of administrative decisions such as prison transfers due to misconduct or early release ($n = 12$, 70.6%); few participants were removed from the programme by the facilitators ($n = 3$, 17.7%) or chose to discontinue treatment ($n = 2$, 11.8%). A series of independent sample t -tests were conducted to compare therapeutic outcomes among the participants who completed treatment ($n = 67$) and the participants who did not ($n = 15$); this series of comparative analyses was not conducted with VRS change scores, as post-treatment VRS scores were only available for the participants who completed the

programme. The participants who completed treatment demonstrate significantly greater reductions in minimisation ($M = 2.28$, $SD = 2.59$) in comparison to participants who did not complete treatment ($M = 0.47$, $SD = 2.07$), $t(80) = -2.53$, $p = .013$, $d = 0.73$, 95% CI(0.21, 1.26). Those who completed treatment were also rated as having significantly higher motivation to change violent behaviour at the end of the VIP ($M = 3.21$, $SD = 0.69$) compared to those who did not complete treatment ($M = 2.40$, $SD = 0.83$), $t(79) = -3.97$, $p < .001$, $d = 1.15$, 95% CI(1.00, 1.30). However, there was no difference between the groups in relation to victim empathy change scores, $t(80) = -1.23$, $p = .223$. The mean victim empathy change score was 0.70 ($SD = 0.70$) for the participants who completed the programme and 0.40 ($SD = 0.61$) for the participants who did not. Post-treatment denial of responsibility is also not significantly different among those who completed treatment (26.9%) and those who did not (33.3%), $\chi^2(1, n = 82) = 0.25$, $p = .614$.

Treatment Completion and Recidivism

During the follow-up period, 31 (37.8%) of the participants were charged with committing a new violent offence; the average time to the first charge of committing a violent offence was 2.85 years ($SD = 1.46$). A hierarchical Cox regression analysis was conducted to investigate the relationship between treatment completion and violent recidivism

(entered into the second step) after controlling for pre-treatment VRS total scores (entered into the first step). The first step of the model is significant, $\chi^2(1, n = 82) = 4.86$, $\beta = .057$, $SE = .026$, $p = .028$, $e^\beta = 1.06$, 95% CI(1.01, 1.11), indicating that VRS scores are associated with an increased risk of violent recidivism. The hazard ratio (e^β) for this analysis indicates that violent recidivism risk increases by 6% with each 1-point increase in VRS scores. The addition of the treatment completion status variable in step two of the model did not result in a further increase in predictive power, $\Delta\chi^2(1, n = 82) = 0.89$, $p = .344$; treatment completion was not found to significantly reduce recidivism in comparison to non-completion, $\beta = -.422$, $SE = .433$, $p = .330$, $e^\beta = 0.66$, after controlling for violence risk. Overall, 53.3% ($n = 8$) of the participants who did not complete the programme committed a violent offence during the follow-up period compared to 34.3% ($n = 23$) of the participants who did complete the programme.

Recidivism and Change

A series of hierarchical Cox regression models was conducted to investigate whether therapeutic change scores are associated with

violent recidivism after controlling for pre-treatment individual differences on each factor. The results of these analyses are presented in Table 3. Contrary to expectations, VRS dynamic risk change scores are not significantly related to violent reoffending after controlling for pre-existing differences in violence risk. Similarly, minimisation change scores, after controlling for initial individual differences, do not predict violent recidivism. However, victim empathy change scores are significantly associated with violent recidivism after controlling for pre-treatment empathy levels. The hazard ratio (e^β) of 0.565 indicates that every 1-point increase in victim empathy change scores (after accounting for initial differences in empathy) is associated with a 43.5% decrease in risk of violence. That is, improvements in victim empathy and awareness are associated with reduced violent recidivism following release. A final Cox regression analysis was conducted to examine whether post-treatment motivation to change behaviour predicts violent recidivism. The resulting model approaches traditional significance levels, $\chi^2(1, n = 82) = 3.60$, $p = .058$. Those participants who demonstrated a desire to change their violent offending behaviour at the time of exiting treatment were found to be less

Table 3. Cox regression survival analyses – relative contribution of therapeutic outcomes in predicting violent recidivism.

Cox regression model	<i>n</i>	β	<i>SE</i> (β)	<i>p</i>	Hazard ratio (e^β)	95% confidence interval (e^β)	
						Lower	Upper
1 VRS total score (pre-tx)	61	.048	.035	.175	1.049	0.979	1.123
VRS dynamic change	61	.025	.069	.714	1.025	0.897	1.173
2 Min. total (pre-tx)	82	.121	.071	.089	1.129	0.982	1.299
Min. change		-.082	.078	.299	0.922	0.790	1.075
3 Empathy total (pre-tx)	82	-.620	.311	.046	0.538	0.292	0.990
Empathy change		-.571	.276	.035	0.565	0.329	0.971
4 Denial (pre-tx)	82	.073	.477	.878	1.076	0.423	2.739
Denial (post-tx)		-.309	.531	.340	0.734	0.359	2.078
5 Motivation to change behaviour	82	-.462	.245	.059	0.630	0.390	1.017

Note: Empathy = victim empathy; Min. = Minimisation; VRS = Violence Risk Scale.

likely to violently reoffend. The hazard ratio indicates that for every 1-point increase in motivation there is a 37.0% reduction in the probability of being charged with a new violent offence. None of the therapeutic change scores predict violent recidivism.

It is possible that post-treatment scores may be a better predictor of violent recidivism because they capture the full variability of scores on these measures. To explore this possibility, the abovementioned Cox regression analyses were repeated using post-treatment scores as the criterion variable of interest: pre-treatment scores were entered into the first step of a series of sequential Cox regression analyses to control for individual differences (three further analyses were conducted), and post-treatment (i) VRS total scale scores, (ii) minimisation scores, and (iii) victim empathy scores were entered into the second step of each analysis. The models produced the same results as detailed above; post-treatment VRS total scale and minimisation scores are not significantly associated with violent recidivism – however, post-treatment victim empathy scores are related to reductions in violent recidivism after controlling for individual differences in pre-treatment empathy ratings, $\Delta\chi^2(1, n = 82) = 4.43$, $\beta = -.571$, $SE = .276$, $p = .039$, $e^{\beta} = 0.57$.

Discussion

Evaluations of programme effectiveness have typically assumed that programme completion is associated with positive changes in intermediary treatment targets and that these changes equate with a reduction in the propensity for offending. Few studies have directly tested these assumptions, especially among violent offenders (Serin et al., 2013). The current study aimed to move beyond traditional examinations of distal outcomes of offender treatment by examining proximal or within-treatment outcomes as ancillary indicators of treatment effectiveness. Specifically, this study examines the relationship between therapeutic change over the course

of a prison-based violence intervention programme, and violent recidivism following release. Despite finding significant group-level changes on all proximal outcomes, reductions in dynamic risk factors and changes in minimisation of responsibility for offending were found to be unrelated to violent recidivism; only enhancement of victim empathy over the course of treatment and post-treatment motivation to change behaviour was found to be associated with a reduced propensity for violence.

Consistent with expectations, the initial phase of analyses revealed significant group-level changes of a medium to large magnitude across all proximal outcome measures. In particular, VRS dynamic risk scores significantly reduced over the course of treatment, indicating a reduction in the propensity for violence associated with programme completion. This finding is consistent with two recent studies that assessed change on the VRS among high-risk violent offenders (Lewis et al., 2013; Olver et al., 2013). Offenders in the present study also demonstrated a significant reduction in denial and minimisation, and an enhancement of victim empathy when comparing pre- and post-treatment scores. These results confirm the dynamic nature of these constructs and are consistent with past research showing that participation in treatment is associated with significant within-treatment changes (Brown, Harkins, & Beech, 2012; Kingston, Yates, & Olver, 2013; Semiati, Murphy, & Elliott, 2013; Stirpe, Wilson, & Long, 2001).

Not surprisingly, therapeutic change was found to be associated with treatment completion; that is, risk reduction is positively correlated with length of time in treatment, and offenders who complete treatment demonstrate significantly higher degrees of change in minimisation and victim awareness and are rated as having higher motivation to change their behaviour, compared to those who do not complete treatment. Considered in isolation, these results suggest that an assessment of within-treatment change may

be an effective measure of treatment success. However, despite evidence of therapeutic gains associated with treatment completion, change on proximal outcomes is not consistently associated with a reduction in violent recidivism, as originally hypothesised. Only two proximal outcome measures have emerged as significant predictors of violent recidivism: enhancement of victim-specific empathy, and post-treatment motivation to change behaviour. In general, offenders lacked empathy towards the victim(s) of their violent offences prior to the commencement of treatment; however, over the course of the VIP their level of victim awareness and empathy significantly improved, and this change is significantly associated with violent recidivism (after controlling for individual differences in pre-treatment empathy ratings). This finding is consistent with those of Brown et al. (2012) who found that victim-specific empathy among sexual offenders improved over the course of treatment, and that deterioration in empathy among a small group of offenders is associated with increased sexual recidivism. Although empathy is considered a core risk factor for aggression (Bock & Hosser, 2013) and forms a major component of treatment (Polaschek & Reynolds, 2004), few studies have examined the relationship between empathy (generalised and victim-specific) and recidivism among adult violent offenders. These findings are a noteworthy contribution to the field, as most of the research on victim empathy has been conducted on sexual offenders (Yates, 2009); this is the first study, to the authors' knowledge, to investigate change in victim-specific empathy among violent offenders.

The enhancement of motivation to change behaviour and the reduction of denial and minimisation are often cited as important goals for offender treatment (Tierney & McCabe, 2002), and a considerable degree of therapeutic effort is expended in an attempt to assist offenders with overcoming denial and increasing motivation throughout treatment (Harkins, Beech, & Goodwill, 2010).

Consistent with expectations, offenders with higher levels of motivation to change their behaviour are less likely to reoffend violently (although this relationship only approaches statistical significance and so should be interpreted with caution). Motivation is frequently defined in terms of an offender's willingness to participate in treatment (Tierney & McCabe, 2002), and as such, few studies have linked motivation to change (vs motivation for treatment) with recidivism outcomes. Contrary to expectations, this study has not found the post-treatment level of denial or minimisation (or change scores) to be related to violent recidivism. Few studies have found a direct connection between denial and/or minimisation and recidivism among violent offenders, and the utility of these constructs as a predictor of sexual recidivism continues to be debated (Hanson & Morton-Bourgon, 2005; Lund, 2000; Marshall, Marshall, & Kingston, 2011).

Contrary to past research investigating the predictive validity of the VRS (Lewis et al., 2013; Olver et al., 2013), a significant reduction in dynamic risk for violence is not associated with a concurrent reduction in violent recidivism. The level of change in dynamic factors as measured by the VRS in this study ($M = 4.83$) is similar to the average change scores of $M = 4.8$ and $M = 4.7$ reported in two previous studies of high-risk offenders (Lewis et al., 2013; Olver et al., 2013), thus it is unlikely that the magnitude of the change is insufficient to influence recidivism outcomes. It is possible that the VRS dynamic risk change measured here is an overestimate of the gains that offenders made in treatment (as it was scored by treating clinicians) and therefore does not accurately reflect real improvement and the true level of violence risk at the completion of treatment. It may be important to triangulate treatment providers' assessments with information derived from observations of the offenders' behaviour outside the treatment environment in order to assess the veracity of therapeutic changes observed during group sessions and thus

capture the true degree of change on treatment targets (Wong & Gordon, 2013). Alternatively, it may be that the sample size in the current study is too small to produce statistically-significant effects.

Implications for Future Research and Practice

The literature has not yet reliably established whether change on treatment targets or proximal outcomes of treatment are linked with reductions in recidivism in violent offenders (Serin et al., 2013). Further research is required to clarify whether intermediate targets of treatment are useful indicators of programme effectiveness. The current study only investigates the limited range of possible treatment targets that could be scored from available file information. Future studies should investigate whether change on other criminogenic need domains is associated with violent recidivism. A comprehensive review of studies on intra-individual change by Serin et al. (2013) indicates that therapeutic gains on measures of antisocial attitudes and beliefs, antisocial personality patterns (e.g. hostility and impulsivity), social support and substance use are reliable predictors of recidivism. These findings support conceptualisations of these characteristics as core risk factors for recidivism and dynamic treatment targets that are amenable to intervention. Thus, future studies of within-treatment change in violent offenders should explore these dynamic risk domains.

It is also important to note that group-level analyses of change do not indicate outcomes at the individual level. More recently, research has focused on reliable change indices and assessments of clinically-significant change (Barnett, Wakeling, Mandeville-Norden, & Rakestrow, 2013; Kroner & Yessine, 2013; Nunes et al., 2011; Wakeling et al., 2013). An extension of the current study recently explored these hypotheses for a subset of offenders who completed the VIP and had pre- and post-treatment scores

available on a number of psychometric measures (Klepfsz, O'Brien, & Daffern, 2014). The results of this study indicate that although a small proportion of offenders achieved reliable and clinically-significant change on indices of criminal attitudes and anger, these within-treatment changes are not predictive of violent recidivism. The limited evidence available to date suggests that although intra-individual changes on intermediate targets of treatment provide useful clinical information about the amount of therapeutic gains an offender has made during treatment, these assessments do not provide incremental information in predicting recidivism over static risk assessments. Thus, caution is required when drawing conclusions about within-treatment changes (Kroner & Yessine, 2013).

Limitations and Future Directions

A number of limitations associated with the research methodology employed in this study should be considered. First, the absence of an untreated control group makes it difficult to determine whether the observed changes were a consequence of programme participation or caused by another factor, such as the passage of time, maturation, or repeated assessment. Although it is often hard to conduct repeated-measure assessments with untreated offenders, the inclusion of a control group in future research would provide clear evidence of whether or not changes on proximal targets, and associated reductions in recidivism, are a product of treatment. Second, the retrospective nature of the study design and use of file review methodology to code within-treatment variables has strengths but also weakness. Although care was taken to ensure that the variables were coded based only on pre- and post-treatment information, it is impossible for researchers to remain blind to treatment and recidivism outcomes due to the nature of the information available and its location in offender files. Prospective designs which utilise multiple methods to

gather and test information (e.g. clinician-rated indicators of risk and treatment gains, self-report psychometric assessment data, analysis of behavioural data) may provide new insights into how within-treatment changes are functionally related to programme participation and recidivism, and counter the limitations associated with using a retrospective design. Third, the relatively small sample and absence of post-treatment risk ratings for those who did not complete treatment may also have impacted the findings. Further research with a larger sample that includes comprehensive therapeutic change data from all offenders who attended treatment would likely be advantageous. Finally, the study does not investigate all post-treatment variables that might be associated with recidivism (e.g. change in criminal attitudes/beliefs, antisocial associates, impulsivity, personality features) and is unable to control for factors that might contribute to increased risk for recidivism following release from prison (e.g. community-based variables such as housing issues, return to substance use, family and/or social support). It is possible that these unmeasured variables are important contributors to recidivism outcomes that may mask the effects of treatment or therapeutic gains.

Conclusions

Studies of within-treatment change on intermediate targets of treatment are important for clinical practice and research as these investigations assist in the identification of factors that are sensitive to change. Assessing change on intermediate treatment targets provides information that complements between-group assessments when determining programme effectiveness. Few studies have explicitly linked therapeutic changes with distal outcomes such as recidivism; this is a significant strength of the current study. Further research is required to understand how change occurs, the best ways of quantifying individual change, and the amount of change needed to reduce risk of future violence.

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