

Research Brief

Quality of the therapeutic alliance and associations with program outcomes for offenders participating in High Intensity Program Units (HIPUs)

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AIM To explore the quality of the therapeutic alliance between short-sentenced offenders participating in High Intensity Program Units (HIPUs) and their program facilitators. We also examined whether the therapeutic alliance changed over treatment, predicted treatment completion, and was associated with HIPU participants' within-treatment change on dynamic risk factors.

FINDINGS AND CONCLUSIONS

HIPU participants (N = 346) and their facilitators (N = 316) rated their therapeutic alliance in the early stages, and again at the end, of treatment in the HIPUs. More than half of HIPU participants and facilitators gave average positive early ratings of the global alliance, in addition to subscales for the relationship bond and agreement on intervention goals and tasks. HIPU participants reported stronger perceptions of the therapeutic alliance than facilitators. Over the course of treatment, the therapeutic alliance between participants and facilitators increased significantly on average.

Early perceptions of the therapeutic alliance from participants' and facilitators' perspectives did not significantly predict treatment completion in the HIPUs; there were indications that this association was largely mediated by the confounding effects of participants' gender. The early therapeutic alliance and development of the alliance over treatment were associated with change on a number of dynamic risk factors, including impulsivity, manifestation of anger, and antisocial attitudes.

We concluded that offenders and program facilitators tend to establish robust therapeutic alliances in the initial weeks of the HIPUs, which continue to develop over the course of the program. While associations between therapeutic alliance and treatment completion were unclear, there were indications that a positive alliance can facilitate processes by which the HIPUs address participants' dynamic risk factors. Evidence for quality therapeutic alliances reflects on the uniquely collaborative and intensive therapeutic environment of the HIPUs, which provides a foundation for behavioural change in short-sentenced offenders.

INTRODUCTION

The therapeutic alliance between a therapist and a client has been identified as a critical influence on the outcomes of treatment. The alliance is a significant predictor of therapeutic gains and behaviour change (Bernecker et al., 2014). The evidence from offender rehabilitation research suggests that a robust therapeutic alliance between program facilitators and offenders predicts positive treatment outcomes such as program completions, behaviour change, and reductions in reoffending (DeSorcy et al., 2016; Polaschek & Ross, 2010; Ross, 2008; Taft et al., 2003, 2004).

Bordin (1979) proposed that the therapeutic alliance is likely to result in a positive treatment outcome if it comprises an agreement on treatment goals, collaboration on the tasks to achieve the goals, and an overall bond of trust and attachment between the therapist and client. A strong alliance that would elicit change among offenders includes program facilitators' rigorous interpersonal communication and the ability to show warmth, acceptance, and empathy, in addition to being perceived as such by clients (Jeglic & Calkins, 2018).

Commencing in 2017, Corrective Services NSW (CSNSW) established an innovative model for delivering interventions to custody-based offenders known as the HIPUs. The HIPUs provide intensive rehabilitative programs and reintegration planning over 16 weeks to offenders on shorter sentences¹. In the HIPUs, short-sentenced offenders access behavioural change interventions delivered for 4 hours a day over 3–4 days per week, on average. The HIPU interventions assist short-sentenced offenders to 'break the cycle' of conviction–release–reoffending.

Despite the challenges of working with offender cohorts, research has indicated that various offender groups including high-risk offenders, violent, and sexual offenders, tend to positively rate the therapeutic alliance with their primary program facilitators (DeSorcy, et al., 2016, 2020; Polaschek & Ross, 2010). There is also evidence to suggest that the strength of the therapeutic alliance between violent offenders and program facilitators continues to develop over the course of custodial treatment (Polaschek & Ross, 2010). Further, studies have shown that offenders tend to perceive the alliance as more positive compared to ratings given by facilitators (Polaschek & Ross, 2010).

The therapeutic alliance is considered a critical factor in offenders' adherence with, and retention in a custody-based treatment program (DeSorcy et al., 2016; Taft et al., 2003). However, examining the relationship between the therapeutic alliance and treatment completion across offender cohorts has revealed mixed results. Some studies have found that the therapeutic alliance does not predict treatment completion, in that ratings of the alliance from program facilitators and independent observers were unrelated to participant dropouts (Beyko & Wong, 2005; Brown & O'Leary, 2000; Taft et al., 2003). In contrast, others report that the therapeutic alliance ratings correlated positively with treatment completion, and offender programs that promote positive alliance had higher offender retention (DeSorcy et al., 2016; Ross, 2008; Taft et al., 2001).

While there is a dearth of research exploring the relationship between the therapeutic alliance and change in risk factors in offenders, limited evidence suggests that the alliance is positively associated with change in risk factors over treatment (Polaschek & Ross, 2010; Ross, 2008; Taft et al. 2004). For example, the therapeutic alliance measured after treatment significantly predicted a change in risk factors, including antisocial attitudes and beliefs, aggression, emotional control, and substance abuse among a cohort of

¹ HIPU policy and procedure defines shorter sentenced inmates eligible for intervention as those with an aggregate custodial sentence of less than two years.

violent offenders (Ross, 2008). Ross (2008) further showed that as the therapeutic alliance increases, attitudes towards criminality also decline. Taft et al. (2004) also reported a reduction in abusive behaviour among violent male offenders as the therapeutic alliance developed. On the other hand, previous research has suggested that the initial therapeutic alliance (measured a few days after treatment commencement) may not predict change in risk factors such as substance abuse, aggression, and antisocial attitude over treatment (Polaschek & Ross, 2010).

AIMS

The aim of the current study is to examine the therapeutic alliance between HIPU participants and their primary program facilitators. To achieve this aim, we first profiled the quality of the therapeutic alliance perceived by HIPU participants and program facilitators. We then assessed if there is any evidence of improvement in the therapeutic alliance over the course of participation in the HIPUs.

This study also aimed to explore the validity and relevance of ratings of the therapeutic alliance for HIPU program outcomes. To do this, we assessed the relationship between the early therapeutic alliance and participants' treatment completion outcomes. We also examined if initial features of the therapeutic alliance, and its growth over the course of the treatment, are associated with the magnitude of within-treatment change on key dynamic risk factors reported by HIPU participants. To do this, we assessed the association of the therapeutic alliance with psychometric measures of antisocial attitudes, impulsivity, manifestation of anger and psychological symptoms of substance abuse.

METHODS

To be eligible for inclusion in this study, HIPU participants must have validly completed an offender version of the Working Alliance Inventory – Short Revised (WAI-SR) or had one completed by their program facilitator, between December 2017 and August 2019. Following this, the sample comprised 346 HIPU participants who directly completed the WAI-SR (Females = 79; Indigenous background = 111), and 316 HIPU participants for whom facilitators completed the WAI-SR (Females = 69; Indigenous background = 107). Measure administrations were typically interdependent, and there were 280 participants who had completed the WAI-SR and also had facilitators complete one for them.

The current study used a modified participant WAI-SR (WAI-SR-P; Tatman & Love, 2010), a 12-item self-report instrument based on the original version developed by Hatcher and Gillaspay (2006) to measure the therapeutic alliance between a program facilitator and an offender. Each item in the WAI-SR is scored on a 5-point Likert scale (1 = seldom, 5 = always). All items are summed to derive an overall (Global) score of the therapeutic alliance quality. Three subscale scores are derived by summing subsets of four items each. The *Bond* subscale outlines the therapeutic bond developed between a participant and the facilitator. The *Goal* subscale represents the degree of agreement concerning the goals of treatment and the *Task* subscale, that depicts the degree of agreement regarding the tasks for achieving the outlined goals. Facilitators completed a similar version of the WAI-SR (WAI-SR-F), which has the same responses scale and factorial structure, although it assesses therapeutic alliance over a total of 10 items.

Participants and program facilitators completed WAI-SRs twice during participation in the HIPUs. The first measure is completed approximately two weeks after the commencement of treatment (referred to in this study as the 'early' therapeutic alliance), and the second one once a participant completes the HIPU program (referred to as the 'late' therapeutic alliance).

FINDINGS

What is the quality of the therapeutic alliance between HIPU participants and program facilitators?

To explore this question, we examined descriptive statistics for early ratings on participant (N = 346) and facilitator (N = 316) versions of the WAI-SR. Initial data diagnostics indicated that the Global and subscale scores on the WAI-SR-P and WAI-SR-F were not normally distributed and were negatively skewed (see Figures 1 & 2). Therefore, we applied non-parametric descriptive statistics and measures of association for the WAI-SR-P and WAI-SR-F scores.

Participant WAI-SR

On average, HIPU participants rated the early therapeutic alliance with their program facilitators positively. The median summed scores across the sample were 16 (out of a possible scale range of 4–20) for the Goal subscale; 15 (of a possible scale range of 4–20) for the Task subscale; 16 (of a possible scale range of 4–20) for the Bond subscale; and 46 (of a possible range of 12–60) for the Global score.

Figure 1 shows the item-level distribution for each WAI-SR subscale and the Global score. Participants tended to give clearly positive ratings (defined here as the endorsement of positive features occurring very often or almost always, indicated by a score of 4 or 5 on the Likert scale) of the alliance with their facilitators. On average, approximately half of all participants (52.6%, n = 182; 52%; n = 180; 50%, n = 173; 47.3%, n = 164) gave positive average item ratings (4–5) on the Bond, the Goal, the Task subscales, and on the Global score of the WAI-SR-P, respectively.

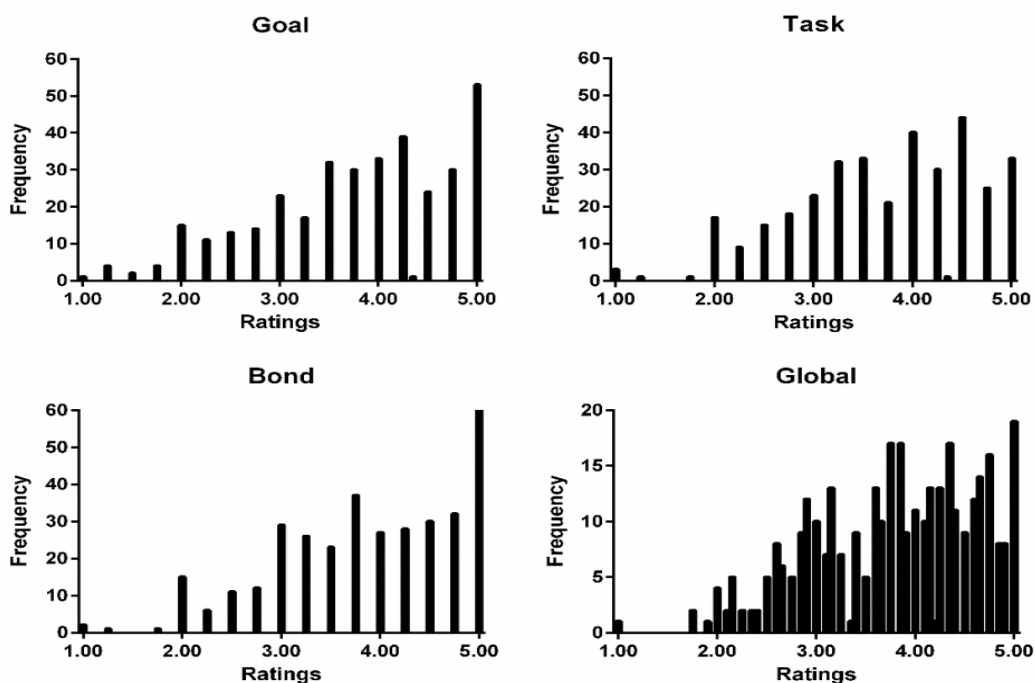


Figure 1. Distribution of item level means for HIPU participants' responses on the Goal, Task and Bond subscales, and the Global score of the WAI-SR Participant version

Spearman rank-order correlations indicated that responses on all subscales were highly correlated with each other with strong effect sizes (see Table 1)².

Facilitator WAI-SR

On average, program facilitators also rated their early therapeutic alliance with HIPU participants positively. The median summed scores across the sample were 12 (out of a possible scale range of 3–15) for the Goal subscale; 12 (of a possible scale range of 3–15) for the Task subscale; 16 (of a possible scale range of 4–20) for the Bond subscale; and 40 (of a possible range of 10–50) for the Global score.

Figure 2 shows the distribution of item-level means for each WAI-SR subscale and the Global score for facilitators' responses. Two-thirds of facilitators (66%, $n = 208$) gave their allotted participants positive average item ratings on the Bond subscale. More than half of facilitators gave positive average ratings for the Goal (58.5%, $n = 185$) and the Task (55%; $n = 174$) subscales. On aggregate, slightly more than half of facilitators gave positive average item ratings on the Global score (53.4%, $n = 169$).

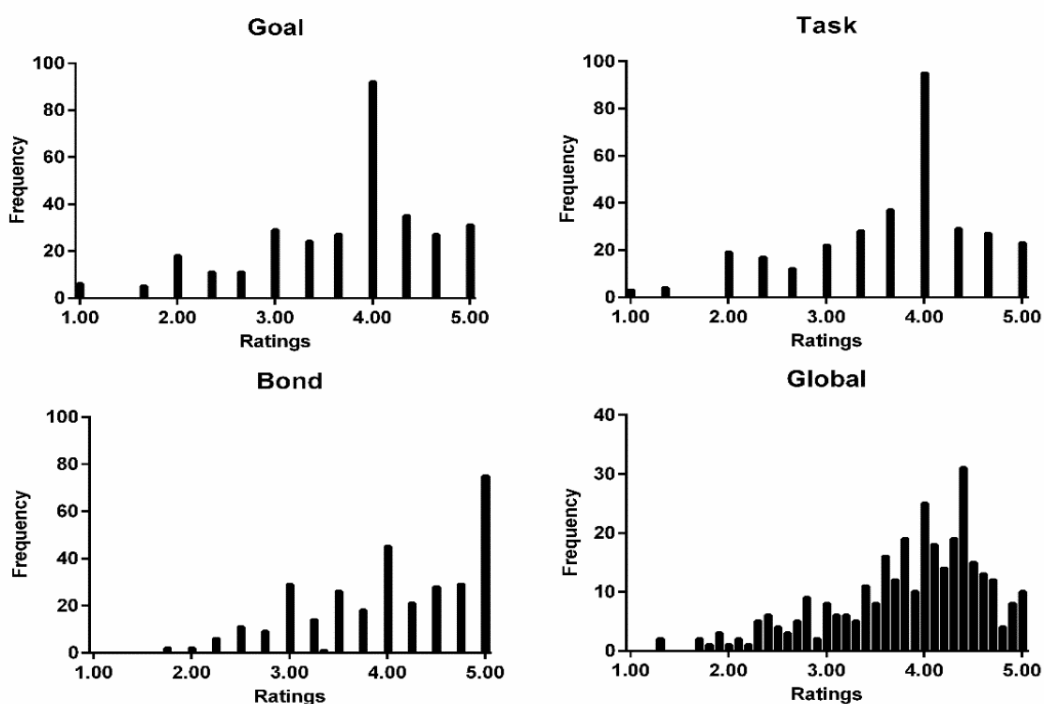


Figure 2. Distribution of item level means for HIPU facilitators' responses on the Goal, Task and Bond subscales, and the Global score of the WAI-SR facilitator version

Spearman rank-order correlations indicated that responses on facilitator WAI-SR subscales were significantly positively correlated with each other and had moderate to strong effect sizes (see Table 1). The Goal and Task subscales strongly correlated with each other. Though statistically significant, the strength of the correlations between Goal and Bond, and between Task and Bond factors were moderate.

² A Spearman rho value below 0.39 was classed as weak effect size, between 0.40 and 0.59 as moderate effect size, and above 0.60 as strong effect size (Rea & Parker, 1992).

Table 1. Inter-factor correlations for participant and facilitator versions of the WAI-SR

Factor	WAI-SR-P (N = 346)		WAI-SR-F (N = 316)	
	Spearman's rho	p	Spearman's rho	p
Goal – Task	0.73	< .001	0.87	< .001
Goal – Bond	0.71	< .001	0.51	< .001
Task – Bond	0.60	< .001	0.50	< .001

Correspondence between ratings of the therapeutic alliance

We compared participants' and facilitators' early therapeutic alliance ratings across WAI-SR subscale and Global scores (see Table 2). There was a total of 280 offenders who had both participant and facilitator ratings of the early alliance on the WAI-SR. Correlations between participant-rated and facilitator-rated therapeutic alliance were weak for the Task and the Goal scores, and non-significant for the Bond and the Global scores. All correlations were in the positive direction, so that as participant ratings increased this tended to be associated with increases in facilitator ratings.

Participants' alliance ratings were significantly higher than facilitators for the Task, Goal, and Global scores (see Mann-Whitney U test results, Table 2). These results indicate that participants and their facilitators independently evaluated the therapeutic alliance in the HIPUs and have different perspectives of the constructs of the alliance.

Table 2. Correlations and comparison between participants' and facilitators' WAI-SR ratings

WAI-SR measure	Correlation		Difference	
	rho	p	W	p
Global	0.11	0.06	56159.5	<.001
Goal	0.13	0.02	62076.5	<.001
Task	0.19	0.001	62444.0	<.001
Bond	0.01	0.76	35640.5	0.06

Is there evidence of improvement in the therapeutic alliance between facilitators and participants over the course of participation in the HIPUs?

We used repeated-measures analyses (Wilcoxon signed-rank tests) to determine if the quality of the therapeutic alliance between participants and facilitators changed over treatment in the HIPUs. Compared to early ratings of the alliance, late ratings were significantly more positive on average for all three subscales and the Global scores of WAI-SR-P and WAI-SR-F with moderate to large effect sizes (see Table 3).³

These findings suggest that the therapeutic alliance tended to continue to develop over treatment between participants and facilitators. HIPU participants and facilitators appeared to build therapeutic bonds over treatment, and their agreement on the goals and tasks of the HIPUs became stronger over the course of the program.

³ Though the early and late WAI-SR-F median subscale values were similar, the early sum of ranks was lower than late scores (see Table 3). The difference in the sum of the ranks was large enough to be statistically significant.

Table 3. Within-group comparisons of early and late ratings on the WAI-SR among participants and facilitators

Measure	WAI-SR-P (N = 159)				WAI-SR-F (N = 156)			
	Early		Late		Early		Late	
	Mdn (IQR)	Mdn (IQR)	W*	r	Mdn (IQR)	Mdn (IQR)	W*	r
Goal	16 (6)	18 (6)	6485.5	0.41	16 (6)	16 (2.25)	5527.5	0.55
Task	15 (6)	18 (5)	6801.5	0.53	12 (3)	12 (3)	5495.5	0.57
Bond	16 (6)	17 (6)	5617.5	0.45	12 (6)	12 (5)	6359.5	0.47
Global	46 (15.5)	53 (15.5)	8523.0	0.51	38 (11)	41 (8.25)	7988.5	0.57

* W = Wilcoxon test statistic, $p < .001$. Mdn = Median, IQR = Inter quartile range, r = effect size (rank-biserial)

Does the quality of the initial therapeutic alliance between facilitators and participants predict successful completion of the HIPU program?

The following analyses examined whether the early therapeutic alliance between participants and facilitators (WAI-SR-P N = 245; WAI-SR-F N = 252) predicts treatment completion in the HIPUs.

Logistic regression models were developed to examine the current research question for participant and facilitator WAI-SRs. Each model used a block design consisting of two blocks of variables. The first block in each model included the relevant therapeutic alliance scores. The second block also included age, gender, Indigenous cultural background, and risk of recidivism as assessed by the Level of Service Inventory-Revised (LSI-R: Andrews & Bonta, 2000) as covariates to adjust for any confounding effects these variables may have on the alliance measures. Each regression model was repeated for 1) the Global scores and 2) all subscale scores from participant and facilitator WAI-SRs, giving a total of four models. Tables 4 and 5 summarise the relationship between predictors, covariates, and treatment completion in the HIPUs and related statistics.

Participant WAI-SR

The Global model revealed that the early overall therapeutic alliance was not significantly associated with the odds of treatment completion (see Table 4). When adjusted for covariates in the second block, the Global scores did not significantly predict the odds of treatment completion.

In the subscale model, the results of block 1 revealed a significant negative relationship between the Task scores and the odds of treatment completion (see Table 5). The association revealed that the odds of treatment completion in the HIPUs reduced by 10%, with each one-point increase in the Task score. However, when covariates were adjusted in the second block, no significant relationship persisted between the Task scores and treatment completion. The second block also revealed that the gender of participants was significantly associated with treatment completion. This pattern of results suggests that the relationship between the therapeutic alliance and treatment completion observed in block 1 was mediated by the gender of participants.

Facilitator WAI-SR

The Global model revealed that the early overall therapeutic alliance significantly predicted participants' odds of treatment completion; however, the direction of the coefficient also indicated that an increasingly positive alliance was negatively associated with treatment completion (see Table 4). With a one-point increase in Global score, the odds of treatment completion reduced by 5%. After adjusting for covariates,

the negative relationship between the early Global scores and the odds of treatment completion was no longer significant. Consistent with the WAI-SR-P, the gender of participants covaried significantly with the odds of completion.

The results of the subscale WAI-SR-F model also revealed that the early Bond scores were significantly negatively associated with the odds of treatment completion in the HIPUs (see Table 5). With a one-point increase in the Bond score, the odds of treatment completion reduced by 17%. However, after adjusting for covariates, the odds of treatment completion attenuated to 13%, with every unit increase in the Bond score. Consistent with the earlier pattern, this negative relationship was significantly mediated by the gender of HIPU participants.

Table 4. WAI-SR-P and WAI-SR-F Global scores and covariates as predictors of treatment completion

Global Model	WAI-SR-P				WAI-SR-F			
	B	Odds Ratio	(95% CI)	p	B	Odds Ratio	(95% CI)	p
Block 1								
Global Score	-0.02	0.98	(0.96, 1.00)	0.09	-0.05	0.95	(0.91, 0.99)	0.02
Block 2								
Age	0.01	1.01	(0.96, 1.01)	0.3	0.01	1.01	(0.98, 1.04)	0.52
Gender	1.22	3.22	(1.86, 5.60)	<.001	1.25	3.51	(1.87, 6.59)	<.001
Indigenous	-0.03	0.97	(0.57, 1.65)	0.91	-0.12	0.15	(0.47, 1.66)	0.7
LSI-R Total	-0.02	0.98	(0.94, 1.02)	0.24	0	1	(0.96, 1.04)	0.89
Global Score	-0.01	0.99	(0.96, 1.01)	0.31	-0.04	0.96	(1.00, 1.09)	0.05

Table 5. WAI-SR-P and WAI-SR-F subscale scores and covariates as predictors of treatment completion

Subscale Model	WAI-SR-P				WAI-SR-F			
	B	Odds Ratio	(95% CI)	p	B	Odds Ratio	(95% CI)	p
Block 1								
Goal	0.06	1.06	(0.96, 1.18)	0.24	0.08	0.92	(0.85, 1.39)	0.52
Task	-0.11	0.9	(0.81, 0.99)	0.04	-0.03	0.97	(0.75, 1.24)	0.78
Bond	-0.03	0.97	(0.89, 1.06)	0.51	-0.18	0.83	(0.75, 0.93)	<.001
Block 2								
Age	0.01	1.02	(0.99, 1.04)	0.28	0.01	1.01	(0.98, 1.04)	0.55
Gender	1.18	3.27	(1.87, 5.70)	<.001	1.14	3.13	(1.65, 5.95)	<.001
Indigenous	-0.05	0.95	(0.56, 1.62)	0.85	-0.13	0.87	(0.46, 1.64)	0.67
LSI-R Total	-0.02	0.98	(0.94, 1.02)	0.24	-0.002	1	(0.96, 1.04)	0.94
Goal	0.08	1.09	(0.98, 1.21)	0.13	0.06	0.94	(0.83, 1.36)	0.62
Task	-0.1	0.91	(0.81, 1.01)	0.07	-0.05	1.05	(0.74, 1.22)	0.68
Bond	-0.03	0.96	(0.88, 1.06)	0.42	-0.13	0.87	(0.78, 0.98)	0.02

Do HIPU participants' and facilitators' ratings of the therapeutic alliance predict within-treatment change on dynamic risk factors?

A battery of self-report psychometric measures is routinely administered to all HIPU participants to assess various dynamic risk factors before and after completing treatment. This battery consists primarily of four measures. The *Measures of Criminal Attitudes and Associates* (MCAA; Mills & Kroner, 2001) assess risk

factors relating to antisocial attitudes towards violence, entitlement, antisocial intent, and associates. The *Novaco Anger Scale and Provocation Inventory* (NAS-PI; Novaco, 2003), a two-part measure, assesses various anger disposition and regulation domains, hostile attitudes, irritability, impulsive reactions, verbal aggression, anger intensity, and sensitivity to provocations. The *Barratt Impulsivity Scale-11* (BIS-11; Patton et al., 1995) assesses the behavioural construct of impulsiveness expressed through decision making, actions and forethought. Lastly, the *Severity of Dependence Scale* (SDS; Gossop et al., 1995) is a brief scale that measures an individual's psychological dependence for a nominated substance.

This research question aimed to examine if the therapeutic alliance has a relationship with the magnitude of HIPU participants' change on dynamic risk factors over the course of treatment. We used residualised change scores to assess the magnitude of change in dynamic risk factors while adjusting for statistical artefacts associated with participants' level of risk at baseline. We examined our research question through two sub-questions and used two sets of regression models.

The first model examined if early ratings of the therapeutic alliance are associated with participants' change in risk factors over treatment. We assessed this association by regressing early alliance scores on post-treatment risk scores while adjusting for pre-treatment risk scores. We hypothesised that the HIPU participants who perceive a positive early therapeutic alliance would show a greater positive change on dynamic risk factors over the course of treatment.

The second model examined if development of the therapeutic alliance over the course of treatment is related to the magnitude of change in participants' risk factors. Here, we assessed if change in ratings on the WAI-SR between early and late versions predicted change scores on risk factors. In a similar manner to risk scores, we calculated change in WAI-SR ratings over treatment in the form of residualised change scores to account for variation in the therapeutic alliance at baseline. We hypothesised that developing a positive (or more positive) alliance over time would contribute to a positive change in dynamic risk factors over the course of treatment.

The two models were repeated with participants' and facilitators' Global WAI-SR scores entered as predictors in separate analyses⁴. For psychometric measures, we used total and factorial scores of MCAA, NAS-PI, BIS-11 and the total SDS scores. The pattern of results for each relationship across participant and facilitator WAI-SRs are described below.

Table 6 presents the regression model coefficients for both models across WAI-SR-P and WAI-SR-F. Beta coefficients can be interpreted so that positive values indicate a positive association between the predictor (in this case, higher scores on the WAI-SR or greater increases in scores over treatment) and the outcome (in this case, the magnitude of change in risk measure scores over treatment⁵), and negative values indicate a negative association between predictor and outcome.

Participant WAI-SR

Early alliance and within-treatment change. Regression modelling indicated that the early Global alliance ratings were significantly associated with the magnitude of change in the BIS-Planning scores. The direction of the coefficient indicated that an increasingly positive early overall therapeutic alliance was associated with a greater reduction in non-planning impulsivity over treatment, which is indicative of an

⁴ We also examined the relationships between subscale scores for WAI-SR-P and WAI-SR-F, and risk change scores, and found similar results across risk factors. For brevity, we only report results with the Global scores.

⁵ For most risk measures, higher scores indicate greater dynamic risk. An exception is anger regulation, where higher scores indicate stronger regulation capacities.

improved ability to think ahead before engaging in an offending behaviour. There were no significant associations between the WAI-SR Global scores and change on other measures of dynamic risk factors.

Development of the alliance and within-treatment change. Here, the magnitude of change in the Global ratings was significantly associated with the extent of change on the NAS-Total and NAS-Regulation scores. This suggests that increasingly positive perceptions of the therapeutic alliance over treatment are associated with decreases in the manifestation of anger and with improvement in abilities to regulate anger among HIPU participants. There were no significant associations between the development of therapeutic alliance and change in the remaining risk measures.

Facilitator WAI-SR

Early alliance and within-treatment change. The early Global ratings on the WAI-SR by facilitators were significantly associated with the magnitude of participants' change on the NAS-Regulation and MCAA-Associates scores. This result suggests that a more positive early alliance from facilitators' perspective corresponds with an improvement in participants' abilities to regulate anger post-treatment, as well as lower endorsement of association with others who are involved in criminal activities. There were no other significant associations between the early alliance and remaining dynamic risk factors.

Development of the alliance and within-treatment change. Change in facilitators' Global WAI-SR ratings over the course of treatment was significantly associated with the magnitude of change on the BIS-Total, BIS-Planning, MCAA-Total, MCAA-Violence, MCAA-Entitlement and, NAS-Arousal scores. These results indicate that increasingly positive development of the therapeutic alliance over treatment was associated with a reduction in overall impulsiveness and non-planning impulsivity, lower endorsement of violent attitudes and entitlement, and reduced problems containing the duration of anger. There were non-significant associations between change in the Global alliance over treatment from the facilitator perspective and change in risk factors on the remaining measures.

Table 6. Regression modelling coefficients for associations between WAI-SR Global scores and change in risk scores

Measure	Factor	WAI-SR-P				WAI-SR-F			
		Early Alliance – Risk Change		Alliance Change – Risk Change		Early Alliance – Risk Change		Alliance Change – Risk Change	
		B	Beta	B	Beta	B	Beta	B	Beta
NAS-PI	Total	-0.03	-0.02	-0.32	-0.19*	-0.11	-0.05	-0.41	-0.14
	Cognitive	-0.03	-0.07	-0.09	-0.16	0.005	0.008	-0.11	-0.12
	Arousal	-0.03	-0.05	-0.11	-0.17	-0.04	-0.06	-0.21	-0.19*
	Behavioural	0.03	0.04	-0.11	-0.16	-0.08	-0.1	-0.09	-0.08
	Regulation	-0.01	-0.04	0.09	0.23**	0.13	0.27**	0.05	0.08
	PI	-0.23	-0.12	0.06	0.69	-0.001	-0.009	0.71	-0.01
BIS-11	Total	-0.05	-0.05	-0.09	-0.09	-0.15	-0.11	-0.36	-0.18*
	Attention	0.01	0.03	-0.04	-0.11	-0.05	-0.12	-0.04	-0.06
	Motor	0.02	0.04	-0.05	-0.11	-0.07	-0.15	-0.11	-0.15
	Planning	-0.1	-0.20**	-0.002	-0.05	-0.004	-0.004	-0.16	-0.19*
MCAA	Total	-0.03	-0.03	-0.12	-0.13	-0.02	-0.02	-0.32	-0.20*
	Violence	-0.04	-0.04	-0.05	-0.15	0.04	0.11	-0.13	-0.23**
	Entitlement	-.005	-0.01	-0.02	-0.08	-0.02	-0.08	-0.14	-0.33***
	Intent	-0.03	-0.08	-0.06	-0.16	-0.003	-0.01	-0.05	-0.1
SDS	Associates	-.001	-0.001	-0.003	-0.02	-0.05	-0.19*	-0.01	-0.03
	Total	0.02	0.04	-0.05	-0.07	0.03	0.06	-0.08	-0.1

***: $p < .001$; **: $p < .01$, *: $p < .05$

CONCLUSIONS

A strong therapeutic alliance is vital in the process of change for offenders enrolled in rehabilitation programs (Polaschek & Ross, 2010; Ross, 2008). This study examined the quality of the early therapeutic alliance between HIPU participants and their program facilitators, as assessed by both participants' and facilitators' ratings on the WAI-SR, as well as change in the alliance over the course of treatment. We also examined if the early therapeutic alliance predicted treatment completion and explored associations between the alliance and within-treatment change in dynamic risk factors.

Development of the therapeutic alliance between facilitators and HIPU participants

We found that more than half of HIPU participants and their facilitators gave positive average ratings of the early therapeutic alliance and underlying factors. The high alliance ratings early in treatment give indications that the introductory stages of the HIPUs help promote a productive relationship between participants and facilitators that is conducive to behavioural change in offenders. It suggests that participants and program facilitators can mutually work towards intervention goals using appropriate tasks while sharing a strong therapeutic bond.

Consistent with previous research (Brown & O'Leary, 2000; Horvath, 1994; Ross, 2008), we found a significant correlation between the three WAI-SR subscales when rated by both participants and facilitators. These correlations suggest that participant and facilitator WAI-SRs reflect an overall picture of a therapeutic alliance consisting of the Goal, Task, and Bond scores rather than unitary constructs represented by each subscale (Ross, 2008). On the other hand, perceptions of the alliance between HIPU participants and facilitators were poorly correlated. Participants also tended to rate the perceived alliance higher than facilitators, which aligns with previous research involving psychotherapy clients and violent offenders receiving treatment in custody (Bachelor & Salame, 2000; Hersoug et al., 2001; Polaschek & Ross, 2010; Ross, 2008; Taft et al., 2003). These results imply that participants and facilitators may have independent perspectives of the therapeutic alliance in the HIPUs, and their perceptions of the alliance may evolve differently as treatment progresses (Bachelor & Salame, 2000).

As treatment progressed in the HIPUs, the perception of the therapeutic alliance between participants and facilitators increased. This is consistent with previous research (Carmel & Friedlander, 2009; Polaschek & Ross, 2010; Ross, 2008), and suggests that the agreement over goals and tasks and the therapeutic bond between participants and facilitators developed positively over the course of treatment in the HIPUs. This positive change was perhaps driven by the unique and collaborative therapeutic environment of the HIPUs. The intensive nature and delivery of criminogenic programs and reintegration services followed by the substantial number of contact hours between participants and facilitators over 16 weeks may be particularly conducive to growth of the therapeutic alliance.

Early therapeutic alliance and treatment completion in the HIPUs

We found a negative relationship between participants' early ratings on the Task subscale and their odds of treatment completion. Results also revealed a negative association between facilitators' early perceptions of the overall alliance as well as therapeutic bonds, and odds of treatment completion. Taken at face value, these results appear to suggest that a more positive therapeutic alliance may be detrimental to treatment completion outcomes. However, we found that these negative associations were fully mediated or significantly attenuated after adding other covariates into the model.

Examination of model results indicates that associations between the therapeutic alliance and treatment completion were likely confounded by participants' gender. While female HIPU participants generally rated the alliance higher than males, they were much less likely to complete treatment (51%, F vs 78%, M). It has been noted that the administrative barriers to treatment completion are higher for female HIPU participants than for male participants. These barriers include competition for the same female participants from other programs, early parole or release to intensive corrections orders, and insufficient time to complete treatment in the HIPUs (Mahajan et al., 2021; Mahajan et al., in preparation). Hence, a female HIPU participant may have a robust early alliance, but administrative barriers result in her premature dropout from the HIPUs, confounding the relationship between the alliance and treatment completion. A robust therapeutic alliance could be expected to act as a buffer against behavioural or therapeutic attrition, but this is less likely to be the case for administrative attrition. Overall, the pattern of results highlights challenges in isolating the effects of therapeutic processes on treatment completion outcomes from those of other logistic and administrative influences, particularly in highly structured custodial settings.

Relationships between the therapeutic alliance and dynamic risk factors

We found that the therapeutic alliance was associated with within-treatment change on a small number of risk factors. Participants who perceived a strong early alliance or reported increases in the alliance over treatment made significant reductions on several self-reported risk factors, including overall impulsivity, lack of forethought before engaging in offending behaviours, the manifestation of anger and ability to regulate anger, irritability, and antisocial attitudes. Our results were consistent with previous research indicating a positive association between change in dynamic risk factors and a change in the therapeutic alliance over treatment (Polaschek & Ross, 2010; Ross, 2008; Walters, 2006). Change in the therapeutic alliance over treatment showed a clearer pattern of associations with improvement in risk factors compared to initial ratings of the early alliance, emphasising that the therapeutic alliance is a dynamic construct that requires ongoing development and maintenance in order to promote treatment gains (Hanson & Wallace-Capretta, 2000).

While associations were observed between ratings of the therapeutic alliance and change in risk factors, this was not consistent across all measures of dynamic risk. While an important facilitative process, the therapeutic alliance may not be sufficient to uniformly impact on offenders' treatment needs alone (Horvath & Luborsky, 1993; Ross, 2008). Other factors including group cohesion, participant and facilitator related factors, program content, and individual motivation are likely to mediate between the therapeutic alliance and outcomes across the various targets of treatment (Ross, 2008). Psychometric factors, such as varying levels of measurement error and the extent to which measures are susceptible to response bias both before and after treatment (Edens et al., 2000; Howard & van Doorn; 2018; Juarez & Howard, 2018), could have also complicated assessment of the therapeutic alliance and its associations with different risk factors.

Some other limitations of the study are acknowledged. Only a subset of HIPU participants completed or were administered WAI-SR measures, and it is possible that completion of these measures may have been biased towards offenders who were more likely to return higher or lower scores than average. In addition, the current study took only two measurements of the alliance, preventing assessment of any therapeutic ruptures and other dynamics throughout the treatment process, which are crucial for promoting treatment engagement and efficacy (Ross, 2008; Safran, 1998). Notwithstanding these limitations, the results of this study show that participants and their program facilitators tended to have positive perceptions of the establishment and development of their therapeutic alliances in the HIPUs. While the relationship between

WAI–SR scores and the likelihood of program completion requires further examination, there were positive indications that development and maintenance of the alliance may be an important factor in achieving changes in dynamic risk factors that are the targets of intervention for HIPU participants.

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