Predictive Factors of Treatment Non-Completion in the Special Treatment Unit Rehabilitation Programme

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Abstract

Treatment non-completion poses challenges for organisations delivering offending focused group therapy by reducing the efficiency of the interventions. Participants who leave treatment prematurely are also likely to be negatively impacted through loss of potential treatment gains that could have otherwise supported the reduction of reoffending and progression towards a better life. This research aimed to identify the individual and group characteristics which predict treatment non-completion of men participating in high intensity group treatment for violent offending in New Zealand. The data was drawn from an archival file of 261 men who engaged in the Special Treatment Unit Rehabilitation Programme between 2015 and 2018. Binary logistic regression models indicated that treatment non-completion was predicted by dynamic risk of violence, Meanness, and younger age. Coparticipant characteristics had no significant interaction with the completion status of individual group members. The results, implications, and limitations of the study are discussed, and potential directions of future research pertaining to treatment non-completion are identified.

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Predictive Factors of Treatment Non-Completion in the Special Treatment Unit Rehabilitation Programme

Empirical research on psychological treatment for offending-related needs has developed alongside the justice system's increased focus on rehabilitation. Researchers have sought to find how to increase participant engagement in treatment programmes and maximise behaviour change. Consequently, there is substantial evidence demonstrating reductions in dynamic risk and recidivism rates following successful psychological intervention (McGuire, 2002, 2008; Andrews et al., 1990). The Risk, Needs, and Responsivity (RNR) model (Andrews & Bonta, 2006; 2010) is a cornerstone of psychological treatment for offender populations in New Zealand and internationally. The risk principle in the RNR framework specifies that the intensity of an intervention should match the individual's level of risk of recidivism. The needs principle stipulates that offending related treatment needs should be assessed and targeted during treatment. Lastly, responsivity refers to maximizing the participants ability to engage in the intervention by tailoring treatment to suit the individual (Andrews & Bonta, 2006; 2010). Ensuring participants commence and maintain attendance at their assigned intervention is an integral part of maximising engagement and treatment outcomes. However, keeping offenders engaged through to treatment completion has proven more difficult to achieve than merely assigning them to the appropriate intervention. Therefore, it is important to understand the factors that contribute to individuals failing to engage in, and complete, psychological treatment for offending-related needs.

Treatment Non-Completion

Treatment non-completion has been described in various ways and numerous factors are used to characterise a participant as having 'dropped out' of treatment. Definitions of treatment non-completion range from including anyone assigned to a particular programme

regardless of when treatment was terminated (e.g., counting participants who were exited from the unit prior to receiving any intervention; Mahajan et al, 2022), to defining non-completion as attendance less than 80% of therapy sessions (Cullen et al, 2011). Wormith and Olver (2002) categorised non-completion in three ways: client initiated drop out, agency-initiated expulsion, and administratively based exit. As the title suggests, client initiated drop out describes a scenario where the participant opts to leave treatment. Agency-initiated expulsion refers to participants being deemed too disruptive or unable to benefit from treatment. Lastly, Wormith and Olver (2002) described administrative exits as circumstances where the offender was unable to attend or complete treatment due to organizational factors out of their control, such as being transferred to another prison or released to the community. Additionally, the term non-completion is interchanged with attrition and drop-out depending on the study (Beyko & Wong, 2005; Craissati, & Beech, 2001; Wormith & Olver, 2002; Polaschek, 2010; Nunes et al., 2010).

The proportion of offenders who do not complete psychological interventions is well-documented, and non-completion rates vary depending on treatment context and offender characteristics. A meta-analysis of predictors of offender treatment non-completion (Olver et al., 2011) reviewed 114 studies representing a sample of 41,438 offenders, and found a non-completion rate of 27.1%. McMurran and Theodosi (2007) reviewed 16 offender programmes ($n = 9434$) and reported an average non-completion rate of 23.55%. When considering only those who attended treatment in an institutional setting, the non-completion rate dropped to 14.66%. Conversely, in community samples 45.45% of participants did not complete treatment. Snowden (2013) examined treatment non-completion among 185 incarcerated sex offenders in the Clearwater Sex Offender Treatment Program in Canada, finding 24% of participants were either discharged or did not complete treatment. Similar non-completion rates were reported by Seager et al. (2004), in a sample of 146 sex offenders,

where 25% did not complete treatment. Furthermore, a review of prison based Special Treatment Units (STU) in New Zealand, with data from a similar population to the current study (Polaschek & Kilgour, 2013) found 36% of participants did not complete STU programmes.

Factors Associated with Treatment Non-Completion

Numerous studies have investigated factors that predict non-completion of offending-focussed treatment programmes. As a result, a solid pool of research illustrates the variables that predict treatment non-completion within offending populations, including personality characteristics, risk of recidivism, lifestyle factors, and demographic variables. Perhaps not surprisingly, multiple studies have found increased impulsivity is associated with treatment non-completion (Palmer & Humphries, 2016; Cullen et al., 2011; McMurran et al., 2008). More specifically, Palmer and Humphries (2016) found that impulsivity related to lack of planning for the future was often present in people who did not complete treatment, and concluded that deficits in planning may have contributed to this group not considering the consequences of discontinuing treatment. Another individual characteristic related to treatment non-completion is younger age (Olver et al., 2011; Van Voorhis et al, 2004; Kraemer et al., 1998). However, the association with younger age is inconsistent; other studies did not find a statistically significant difference between the age of non-completers and completers (Palmer & Humphries, 2016; Polaschek & Kilgour, 2013). Like many factors that predict non-completion, the causal mechanisms that underpin the relationship between age and treatment non-completion are lacking. Perhaps younger participants have completed fewer custodial sentences and hold less dissonance regarding their offending behaviour, or are further away from the natural onset of desistance associated with older age (Hirschi & Gottfredson, 1983). While hypotheses such as these seem reasonable, the absence of studies

testing them highlights the difficulty in identifying *how* predictive variables influence non-completion.

Wormith and Olver (2002) reported less employment history and lower levels of formal education were associated with treatment non-completion. While it is not uncommon for offenders to have limited legitimate employment history, the association with non-completion may point to work ethic, or lack thereof, as contributing to individuals failing to complete treatment. Lower levels of formal education may point to responsivity issues (e.g., low literacy) that could diminish participant's ability to engage with programmes.

Researchers have also investigated whether psychopathy is related to treatment non-completion. Ogloff et al. (1990) analysed Psychopathy Checklist (PCL, Hare, 1985) data from 80 offenders within a therapeutic community programme. They found that men with higher levels of psychopathy spent less time in treatment and made less progress than the control group. Daly (2017) analysed the relationship between Factor 1 (interpersonal and affective facets) and Factor 2 (lifestyle and antisocial facets) from the PCL and treatment non-completion. The affective facet in Factor 1 was most associated with non-completion and reinforced the findings reported by Olver and Wong (2011). Daly (2017) suggested that emotional dysregulation may have contributed to non-completion by disrupting the therapeutic alliance with staff and decreasing motivation. Further, men who were removed from treatment had higher Psychopathy Checklist Screening Version (PCL:SV; Hart et al., 1995) scores in comparison with those who withdrew or completed, alluding to increased rule breaking and responsivity issues being associated with elevated PCL-SV scores. In contrast to the above, Polaschek (2010) found that PCL:SV scores were not associated with non-completion, in a sample from a similar population to the current study. Overall, there is contradictory evidence regarding the significance of many non-completion factors. Beyko and Wong (2005) posited that inconsistencies in findings related to non-completion

predictors should be expected due to differences in programme design, delivery, and discharge criteria. Further, they suggested that factors not found to predict non-completion may indicate areas where the programme in question is addressing participants' needs (Beyko & Wong, 2005).

Adverse childhood events are associated with violent behaviour later in life and are prevalent among offending populations (Widom & Maxfield, 2001). Kustrin (2021) investigated the relationship between various types of childhood maltreatment and rehabilitation outcomes for 417 men who engaged in the Special Treatment Unit rehabilitation programme, representing a population akin to that of the current study. Men who experienced a greater number of traumatic events during childhood were less likely to complete treatment in comparison with men who experienced fewer traumatic events, and traumatic childhood experiences were negatively associated with treatment progress. The study also measured maladaptive personality traits (antisocial, borderline, psychopathic), and found a relationship between psychopathic traits (as measured by the Triarchic Psychopathy Measure [TriPM; Patrick, 2010]) and treatment non-completion. However, antisocial and borderline traits (as measured by the Millon Clinical Multiaxial Inventory 4th Edition [MCMI-IV; Millon et al., 2015]) did not predict treatment non-completion.

A meta-analysis (Olver et al., 2011) found a significant association between treatment non-completion and psychopathy, higher actuarial risk, and shorter sentence length. Responsivity factors associated with non-completion included therapy interfering behaviour (e.g. not completing homework tasks and poor attendance), negative attitudes towards treatment, denial, and lower intelligence levels. However, variation in offender characteristics (e.g., actuarial risk, offence type, ethnicity) and treatment programmes (e.g., modality, prison vs. community setting, number of participants, duration) in the sample may limit its relevance to the current study. Nevertheless, research linking responsivity issues and treatment non-

completion is important because it may shape how the results of responsivity measures are utilised to identify programme participants who could benefit from extra support. Snowden (2013) analysed scores on the Treatment Readiness, Responsivity, and Gain Scale: Screening Version (TRRG:SV; Fishbein & Sheppard, 2006) in relation to sex offender treatment non-completion, finding low treatment readiness and responsivity scores were associated with increased treatment non-completion. Higher dynamic and overall scores on the Violence Risk Scale: Sex Offender Version (VRS:SO; Wong et al., 2003) predicted treatment non-completion, as did the responsivity and criminality factors. Snowden's (2013) research is one of the few studies that explores more specific facets of criminogenic need measures in relation to non-completion.

The efficacy of group treatment has been well documented (Craig et al., 2013) and this treatment format has become common place in correctional settings due to the 'bang for buck' that can be achieved (i.e. efficient use of resources by providing treatment to more people). In addition to being cost effective, group therapy can provide similar levels therapeutic gain than individual treatment when group dynamics are harnessed correctly (Serran, et al, 2013). In contrast with individual variables, group effects have received less attention in research. One of the few studies, completed by Lloyd et al. (2014), analysed the association between overall group risk of recidivism scores, as measured by The Statistical Information on Recidivism–Proxy (SIR-Proxy; Motiuk & Nafekh, 2001; Nafekh, 2003), and actual recidivism rates. Family violence and sex offenders had lower rates of recidivism when placed in groups with lower overall risk, when individual risk was controlled for. There was mixed evidence for the impact of the group's average motivation, cognitive awareness, and knowledge acquisition in relation to treatment outcomes. Notwithstanding, this research has opened the door for further exploration of coparticipant effects on programme performance, treatment gain, and recidivism.

As evident in this literature review, many studies investigating predictors of treatment non-completion have analysed static (unchangeable) risk factors. Although understanding the static predictors associated with non-completion could have utility for programme design and development, the obvious drawback is that participants cannot change these factors, and responding to them may require external adjustments (e.g., programme eligibility criteria). While some dynamic (changeable) risk factors have been identified (e.g., impulsivity) for treatment non-completion, more research is needed on the relationship between criminogenic needs and treatment non-completion. Polaschek (2010) suggested tools such as the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995) and the Violence Risk Scale (VRS; Wong & Gordon, 2006) as possible targets for investigation. Contrary to their static counterparts, dynamic factors have the potential to be changed. As such, establishing the relationship between non-completion and items within dynamic risk measures could identify opportunities for specific and relevant treatment needs to be addressed to support treatment completion.

The primary objective of offender treatment programmes is to reduce recidivism and in turn lessen harm to society. One of the most obvious and arguably important implications for treatment non-completion is participants missing out on treatment gain. Depending on when individuals discontinue treatment, non-completion reduces or eliminates the opportunity for recidivism risk to be lowered. Group interventions are typically designed to achieve maximum treatment gain with the human and financial resources available. McMurran and McCulloch (2007) highlighted that non-completion negatively impacts the cost effectiveness of programme delivery by reducing the number of participants receiving treatment. Thus, from an organisational standpoint, losing participants before or during treatment means that programmes are not running at peak efficiency.

In addition to organisational issues, non-completion may present challenges for the group itself. Yalom's (1995) seminal work identifies 11 therapeutic principles which contribute to the success of group therapy. Notably, the principles of *interpersonal learning*, *imparting information,* and *imitative behaviour* rely heavily on group interactions (Yalom, 1995). With regard to non-completion, losing group members could diminish opportunities for remaining participants to benefit from Yalom's change mechanisms, as they are driven by member-to-member relations and are likely optimised by a full group. Perspectives on ideal group size vary in the literature, however, the recommended number of participants is generally between eight and twelve (Ezhumalai et al., 2018; Linhorst, 2000; Stewart et al., 2009).

Another consideration when examining treatment non-completion is how it relates to recidivism. Early research examining this relationship suggested treatment non-completion is related to increased reoffending (Hanson & Bussière, 1998), however, this association may be due to non-completers having higher baseline actuarial risk, meaning they were already more likely to offend than those who completed treatment. There is conflicting evidence for higher baseline actuarial risk in non-completers. Polaschek (2010) analysed data from 138 high risk violent male prisoners and found no difference between the actuarial risk level of completers and non-completers. Conversely, other studies have found that non-completers had higher baseline actuarial risk (Craissati & Beech, 2001; Wormith & Olver, 2002; Nunes et al., 2010). Consequently, the question is raised, does non-completion of treatment have a causal relationship with increased recidivism? If so, this could mean participant experiences prior to dropping out of treatment exacerbate their dynamic risk factors. It could be argued that entering an intensive treatment unit with other high-risk offenders reinforces participants' criminal attitudes, relationships with criminal peers and other criminogenic needs. The structure, rules, and expectation to work with, and be challenged by, treatment

staff may be uncomfortable prospects for high-risk offenders entering treatment; negative experiences that could further entrench their bleak outlook on prosocial change. To distinguish the role of treatment non-completion in recidivism McMurran and Theodosi (2007) completed a meta-analysis comparing the recidivism rates of untreated offenders and non-completers with similar actuarial risk. The findings showed that non-completers reoffended at a higher rate than those who did not attend treatment, with a bigger effect size for those not completing community-based treatment in comparison with prison-based interventions. The notion that failing to complete treatment not only reduces the participants' opportunity to make treatment gain, but also increases the likelihood of recidivism, suggests research understanding and addressing non-completion is of great importance.

Beyko and Wong (2005) highlighted that previous research regarding treatment non-completion has been used to develop criteria to exclude participants from engaging in programmes. However, they opposed this approach and assert that knowledge of predictive factors for treatment non-completion should assist in adapting psychological interventions to fit participants. A rationale could be developed for adopting either of these approaches to utilising understanding of non-completion factors, and this would likely depend on the nature of the variable being considered, the treatment context, and offender population. For example, Beyko and Wong (2005) found that sex offenders who were more aggressive tended to not complete treatment more frequently compared with those who demonstrate less aggression. This information could inform staff about who may require extra support to manage their interpersonal aggression prior to and during treatment. Alternatively, programme eligibility criteria could be adjusted to exclude participants displaying aggression over a certain threshold with the aim of increasing completion rates. The former scenario appears more adherent to the RNR model, particularly the responsivity and need principles. Viewing dynamic risk factors that predict non-completion as treatment needs or responsivity

issues to be addressed reflects the intention of maximising treatment attendance and engagement.

Special Treatment Units and Programme

The current study uses data from New Zealand's Special Treatment Units (STU) for high-risk offenders. The first prison based STU was established in 1998 in the form of Te Whare Manaakitanga at Rimutaka Prison. The programme delivered group based Cognitive Behavioural Therapy (CBT) targeting violent offending within a therapeutic community. Subsequently, three more STUs have been established across New Zealand, Puna Tatari (Springhill Prison), Karaka (Waikeria Prison), and Matapuna (Christchurch Men's Prison). The STUs include the Special Treatment Unit Rehabilitation Programme Revised (STURP-R), which targets violence and the Adult Sex Offender Treatment Programme (ASOTP) for men who have sexually offended against adult victims. The STURP-R is an intensive nine-month closed group programme which typically begins with 11 participants. The primary treatment modality in the STURP-R is CBT and incorporates aspects of Dialectical Behaviour Therapy (DBT) along with a focus on group processes. Group sessions run three times per week for three hours and are facilitated by a psychologist and a programme facilitator. The STURP-R is divided into four phases and content includes developing emotion regulation strategies, communication skills, presenting a timeline, offence mapping, and safety planning. In between session tasks are set regularly and reviewed during therapy sessions. Participants are encouraged to involve whānau in their treatment journey and there are scheduled events for whanau to engage with their tāne and therapy staff in the unit. Participant engagement and progress is reviewed at the end of each phase with feedback and goals reviewed for the next stage of the programme.

Special Treatment Units are designed to function as Therapeutic Communities (TC) to provide participants with opportunities to implement learning and practice skills from the

therapy room. The TC's offer employment positions, activities (e.g., band room, sports), and weekly community meetings with participants and staff. Additional intermittent courses include parenting skills, drivers licensing, meditation, and yoga. The integration of treatment and custodial housing require collaboration between custody and therapy teams to meet the requirements and goals of both parties. Participants' behaviour is monitored by all staff and case management meetings are held to reinforce behaviour change and address rule infractions. Behaviour contracts are implemented to support participants who continue to have behavioural difficulties, and placement reviews are undertaken by the unit managers to determine if participants who exhibit consistent or severe rule breaking will remain in the unit.

Eligibility and Assessment

To be eligible for the STURP-R, men need a history of violent offending and a high risk of reconviction (i.e., Risk of Reconviction*Risk of Imprisonment [RoC*RoI] above 0.7). Men with a RoC*RoI below 0.7 can be referred if they demonstrate high dynamic risk of violence assessed through the Violence Risk Scale (VRS). Potential participants are added to a waitlist and their sentence progress and updated information (e.g., responsivity issues) is tracked. The push for offenders to be parole ready, meaning they should have completed or be engaged in rehabilitative pathways once eligible for parole, means that participants are entering STU's at earlier stages of their sentences. Previously, men often entered the programme after they became eligible for parole, but the view that time spent on sentence after becoming parole eligible should be focused on reintegration has contributed this becoming less common. In addition to meeting criteria for risk and offending history, men must also have demonstrated a period of stable behaviour prior to beginning treatment. One of the common factors that precludes acceptance onto a programme is negative institutional behaviour such as violence or drug use. Once accepted, men often require a transfer between

prisons to attend. Participants are allocated to STUs based on their home region, or where they intend to be released, with the aim of assisting reintegration and whānau (family and support people) contact.

The Current Study

Our review of the literature demonstrates that there has been some research into the predictive power of psychometric measures and risk profiles in relation to treatment non-completion. However, there is further need for research analysing how the measures administered to high-risk offenders in New Zealand relate to the likelihood of participants completing treatment. This study aims to provide further insight into how psychometric assessments and offender risk profiles predict treatment non-completion of participants engaging in the Special Treatment Unit Rehabilitation Programme. The findings of this study may be used to identify responsivity barriers related to treatment non-completion and support those with higher likelihood of not completing treatment All psychometric assessment used in this research were administered prior to treatment commencing. This study aims to answer the following questions:

Are there differences in scores for completers and non-completers on the Violence Risk Scale (VRS), Triarchic Psychopathy Measure (TriPM; see Method), risk of reconviction (RoC*RoI) and further, if there are, which are unique predictors of non-completion when the others are taken into account?

Which group level psychometric scores (Meanness, VRS Dynamic, RoC*RoI) are unique predictors of non-completion when individual predictors are taken into account? The VRS dynamic and RoC*RoI scores were included as a conceptual replication of Lloyd et al. (2014), and Meanness was included because it was the only TriPM scale that individually predicted non-completion.

Method

Participants

The study utilised an archival dataset of 261 male participants who were referred for treatment to address their violent offending at a prison-based STU between 2015 and 2018. The STUs the data was drawn from were Karaka (Waikeria Prison), Te Whare Manaakitanga (Rimutaka Prison), and Matapuna (Christchurch Mens Prison). Table 1 shows that most men in the sample were Māori ($n = 182$), followed by Pākehā (European) and Pacific Peoples. Participants' ages at the beginning of treatment ranged from 18 to 60 years ($M = 33.6$, $SD = 9.5$). The dataset included risk of reconviction scores measured by the RoC*RoI, and the mean RoC*RoI for the sample was .70 ($SD = .15$). Programme attendance data showed that 64.8% of participants completed treatment ($n = 169$) and the remaining 35.2% did not complete ($n = 92$). Table 1 includes participants' lead offence, which identifies the type of offending which accounted for the largest part of their imprisonment sentence. Most of the sample's lead offence was violence, followed by burglary and drug offending.

Table 1

Ethnicity and Lead Offence of the Sample (n= 261) by Treatment Completion

Variable	n (%)	Completers (n = X)	Non-completers (n = X)	χ^2	p	φ_c
Ethnicity				2.38	.494	.096
Māori	182 (69.7%)	115 (63.2%)	67 (36.8%)			
European	61 (23.4%)	43 (70.5%)	18 (29.5%)			
Pacific	15 (5.7%)	10 (66.7%)	5 (33.3%)			
Other	3 (1.1%)	2 (66.7%)	1 (33.3%)			
Lead offence				18.39	.019	.265
Violence	178 (68.2%)	110 (61.8%)	68 (38.2%)			
Burglary	32 (12.3%)	23 (71.9%)	9 (28.1%)			
Drugs	20 (7.7%)	17 (85%)	3 (15%)			
Sexual	8 (3.1%)	6 (75%)	2 (25%)			
Dishonesty	4 1.5%)	3 (75%)	1 (25%)			
Property	4 (1.5%)	3 (75%)	1 (25%)			
Traffic	3 (1.1%)	3 (100%)	0 (0%)			
Other	6 (2.3%)	4 (66.7%)	2 (33.3%)			
Missing	6 (2.3%)	0 (0%)	6 (100%)			

Procedure

Basic demographic data such as age and ethnicity were collected through interviews by treatment staff during the assessment phase of the programme (i.e. pre-treatment). Baseline psychometric measures were also administered during the assessment phase. Risk of reconviction data (RoC*RoI; Bakker et al., 1999) and conviction history was retrieved from the Ara Poutama Aotearoa (New Zealand Department of Corrections) Integrated Offender Management System. Participant information was collated in data-capture forms and digitised at the termination of treatment, then uploaded to a central database held at the Ara Poutama Aotearoa National Office. We obtained a collated data file from the DOC which was used for all the analyses.

Measures

The dataset included psychometric data from the Violence Risk Scale (Wong & Gordon, 2000) and the Triarchic Psychopathy Measure (TriPM; Patrick, 2010).

Violence Risk Scale

The VRS is an actuarial risk assessment tool designed to assess the likelihood of future violent behaviour. The VRS includes six static (unchangeable) items and 20 dynamic (changeable) items that can be assessed to monitor variations in risk of violent recidivism and identify treatment targets for intervention. The measure incorporates a Stage of Change Model adapted from Prochaska and DiClemente's (1983) Transtheoretical Model of Change alongside the dynamic items to provide an assessment of treatment readiness and behaviour change. The stages of change are: pre-contemplation (the individual does not perceive they have a problem and does not plan to change), contemplation (the individual is aware of their problems and intends to change, but is yet to make relevant behavioural adjustments), preparation (the individual recognises their problem areas and has made behavioural adjustments, but the changes may be new and inconsistent), action (the individual has

demonstrated consistent and relevant changes to their behaviour, attitudes and/or surroundings, but have yet to generalised their changes to different contexts, and maintenance (behaviour changes have been consistently demonstrated across contexts and relapse prevention strategies have been utilised in high risk situations; Wong & Gordon, 2000). The VRS is widely used across correctional settings in New Zealand and internationally and is administered to inform parole assessments, treatment plans, and allocation to appropriate interventions. The data set for the current study included individual item scores, stage of change ratings, and dynamic and static total scores.

The Triarchic Psychopathy Measure

The Triarchic model conceptualises psychopathy as a combination of three personality components: disinhibition, boldness, and Meanness (Patrick, 2010). Disinhibition indicates lack of impulse control, emotion regulation deficits, and difficulty delaying gratification. Meanness is characterised by a lack of empathy, interpersonal exploitation and hostility, diminished ability to form attachments with others, and a tendency to be cruel and destructive. Boldness signifies tendencies towards social assertiveness, lack of fear, adventurousness, and heightened confidence (Patrick, & Drislane, 2015). The TriPM is a self-report measure that assesses respondents' agreement with statements that reflect the three components of psychopathy. The measure includes 58 items and respondents select their responses from a four-point Likert scale (i.e., true, somewhat true, somewhat false, or false). The data set for the current study included individual component scale scores that were combined to provide an overall measure of psychopathy.

*RoC*RoI*

The RoC*RoI is an automated actuarial risk measure that multiplies offenders' Risk of Reconviction (RoC) by their Risk of Imprisonment (RoI). The RoC*RoI is derived from variables that predict risk of reconviction including age of first offence, seriousness of

previous offending, time between sentences, number of convictions, age, and gender. Combining risk of reconviction and risk of imprisonment scores considers offenders' likelihood of reconviction alongside the predicted seriousness of future convictions, providing a more specific measure of risk than risk of reconviction alone (Bakker et al., 1999).

Outcome Variables

The data set included eight categories to describe participants' reasons for leaving treatment prior to completion. The eight types (with the percentage they comprised in the non-completer sample, and examples) were: therapist initiated exit due to treatment behaviour (26.1%; e.g., lack of engagement in therapy sessions or threats of violence towards therapy staff or other group members), therapist initiated exit due to responsivity issues (14.1%; e.g., therapy staff terminating treatment due to the participants cognitive deficits that prohibited comprehension or completion of core treatment tasks), participant initiated exit due to safety concerns (3.3%; e.g., participant request to terminate treatment after being the victim of threats or violence from other participants), participant initiated exit due to personal reasons (10.8%; e.g., participant request to terminate treatment to transfer to another prison closer to family), custody initiated exit due to misconduct/offending (30.4%; e.g., removal from the treatment unit after engaging in violence or drug use in the custodial space), custody initiated exit due to security classification change (4.3%; e.g., removal from the treatment unit by custodial staff after increased security classification from low to high due to rule breaking), and custody initiated exit due to safety concerns (10.9%; e.g., removal from the unit due to custodial staff recognising threats to the participants safety).

In the current study, we defined non-completion as the termination of treatment at any point prior to a participant being deemed by therapy staff to have fulfilled the requirements of the programme. Programme requirements were conceptualised by treatment staff into three

domains: therapy engagement, treatment progress, and adherence to unit rules. Behaviour which reflected therapy engagement included consistently attending treatment sessions, actively contributing to group discussions, and completing programme tasks (e.g., thought diaries, offence maps, safety plan). Given the diverse presentations and treatment needs of participants, treatment progress was viewed differently depending on the individual. However, general indicators of treatment progress included participants demonstrating understanding of psychological models and applying those to their own experiences (e.g., identifying their unhelpful thinking and maladaptive core beliefs), identifying the factors which contributed to their offending pathway (e.g., core beliefs, relationships, emotion dysregulation), practicing helpful emotion regulation and communication strategies, and becoming better at managing offence paralleling behaviour (i.e., institutional behaviour that is underpinned by offending related beliefs, goals, affects, and behavioural scripts, and is functionally similar the individuals offending) (Shine, 2010) and unhelpful/disruptive behaviour in the group room and unit. Lastly, adherence to unit rules included maintaining appropriate behaviour in the custodial and therapy environments and taking on board feedback when rule infractions occurred.

The dataset included two categories to describe participants who had completed treatment. These were 'completed' and 'completed but did not graduate'. The latter was only applicable to 10 participants (5.9% of the completion group). Grounds for participants being deemed to have completed but not graduated included engaging in behaviour that warranted exit from the programme after completing all components of treatment, or demonstrating a lack of treatment gain at the end of the programme. However, it was unclear if these criteria were being applied consistently across the dataset and therefore may not be reliable. We included these 10 cases in the completion group to align with the view of therapy staff that those participants had completed all programme content.

Each participant was allocated to one of the categories above to describe their completion status. We condensed the reasons for finishing into a dichotomous completion indicator (0 = non-complete, 1 = complete) for analyses of treatment completion status. The reasons for leaving treatment that were assigned to the completion category were "completed" and "completed but did not graduate". The remaining reasons for leaving were assigned to the non-completion category.

Data Preparation

Ara Poutama Aotearoa provided us with an initial dataset of 274 participants. To prepare the data we identified and addressed missing information, excluded duplicates, and coded variables for entry into IBM SPSS Statistics v.27. Details of the data preparation process are outlined below.

The initial sample ($n = 274$) included 13 participants with two entries in the dataset due to having been exited from treatment and returning for a second attempt within the timeframe of data collection. To eliminate duplicates, we removed the 13 participants' second attempt at the programme. Second attempts were excluded to maintain maximum homogeneity in the sample (i.e., ensuring the sample predominantly consisted of participants who attempted STURP for the first time)[1].

Missing Data

Nine participants were missing RoC*RoI scores (3 completers and 6 non-completers). They were assigned the mean RoC*RoI score of participants with the same completion status (Completer: $M = .68$; Non-Completer: $M = .73$) in order to retain the largest possible sample size. A small number of participants from the non-completion group ($n = 10$) were missing VRS and mean Stage of Change (SOC) scores. The data were likely missing due to

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[1] While we excluded the second attempts of participants who had two entries in the dataset, there may have been repeaters in the sample from prior to the period the data was collected.

participants exiting the programme prior to staff completing their psychometric evaluations. These participants were assigned mean scores calculated from the non-completion group for their missing data (VRS total score: $M = 59.9$; VRS SOC: $M = 1.71$). Lastly, participants with missing TriPM scores ($n = 10$, 1 completer and 9 non-completers) were assigned the mean TriPM score of participants with the same completion status (completer: Boldness $M = 29.61$, Meanness $M = 19.57$, Disinhibition $M = 36.84$; non-completers: Boldness $M = 30.04$, Meanness $M = 23.78$, Disinhibition $M = 38.80$).

Data Coding

Participants' ages were calculated based on the date they started core treatment; however, a small number of starting dates were missing and these participants' ages were calculated using the date they began starters group. Starters groups were preliminary sessions delivered prior to core treatment designed to familiarise participants with the therapy space and begin setting expectations for the rest of the programme.

We coded VRS stage of change (SOC) scores using the following numerical values: Pre-contemplation (1), Contemplation (2), Preparation (3), Action (4), and Maintenance (5). The VRS administration manual (Wong & Gordon, 2000) indicates no difference in scoring should be assigned between Pre-contemplation and contemplation when calculating risk. However, VRS SOC scores in the dataset predominantly consisted of pre-contemplation and contemplation scores, which resulted in limited variance across the sample. Therefore, we coded pre-contemplation and contemplation separately to increase variance for analysis, in keeping with previous studies we have done (Polaschek et al., 2018). Individual VRS SOC scores were tallied then divided by the number of items on which each participant scored a 2 or a 3, because these are the only items that must be assigned a SOC score.

Plan for Analysis

We compared psychometric and risk scores for completers and non-completers using independent-samples t-tests. We explored the relationships between the predictor variables and with treatment completion using the Pearson correlation coefficient. Binary logistic regression was undertaken to test how well the analysis variables predicted treatment non-completion. Finally, we added group level variables to the existing logistic regressions to examine the contribution of group mean scores for the two measures of risk—RoC*RoI, and Dynamic VRS scores, and the one TriPM scale (Meanness) that individually predicted treatment non-completion.

Results

First, we examined whether there were differences by completion status on the psychometric variables, RoC*RoI, and age. Table 2 shows there were statistically significant differences between the mean scores of completers and non-completers for age, RoC*RoI, VRS (Static, Dynamic, and Total), VRS SOC, TriPM Meanness, and TriPM total. Non-completers had significantly higher scores in all VRS variables with Cohen's effect size suggesting a small to moderate (Pallant, 2002) difference in VRS Total and VRS dynamic scores for the two groups. The completion group had higher pre-treatment mean VRS SOC scores, with higher scores indicating greater engagement in the change. Non-completers scored higher on the Manness component of the TriPM, with Cohen's effect size suggesting a small to moderate difference. There were no significant differences in TriPM Boldness and Disinhibition score for the two groups.

Table 2

Independent Samples t-test Comparing Means of Independent Variables by Treatment

Completion

Variable	Completers M	Non-completers M	t	df	p	d [95% CI]
RoC*RoI	.68	.73	2.90	259	.004	.38 [.12, .63]
VRS Static	12.56	13.35	2.29 [a]	227.16	.023	.28 [.02, .53]
VRS Dynamic	43.77	46.56	3.85 [a]	221.47	<.001	.47 [.21, .73]
VRS Total	56.32	59.92	3.89 [a]	223.77	<.001	.47 [.22, .73]
Stage of Change	1.86	1.71	-3.76 [a]	223.86	<.001	-.46 [-.71, -.20]
Boldness	29.60	30.04	.47	259	.64	.06 [-.19, .32]
Meanness	19.57	23.78	3.27	259	.001	.42 [.17, .68]
Disinhibition	36.84	38.8	1.56	259	.12	.20 [-.05, .46]
TriPM Total	86.02	92.61	2.72	259	.007	.35 [.10, .61]
Age	35.10	30.86	-3.52	259	<.001	-.46 [-.71, -.20]

Note. CI = Confidence interval.

[a] Value assumes variance not equal across groups.

Table 3

Pearson Product-Moment Corelation Coefficients for all Variables Measured at the Individual Level

Variable		1	2	3	4	5	6	7	8
1. RoC*RoI		_							
		_							
2. VRS Static	*r*	.471	_						
	p	<.001	_						
3. VRS Dynamic	*r*	.357	.428	_					
	p	<.001	<.001	_					
4. Stage of Change	r	-.098	-.106	-.258	_				
	p	.115	.088	<.001	_				
5. Boldness	*r*	.125	.077	.126	-.016	_			
	p	.043	.241	.043	.793	_			
6. Meanness	*r*	.097	.155	.325	-.083	.157	_		
	p	.117	.012	<.001	.181	.011	_		
7. Disinhibition	*r*	.211	.225	.324	.041	-.003	.465	_	
	p	<.001	<.001	<.001	.507	.959	<.001	_	
8. Completion	*r*	-.177	-.131	-.22	.214	-.029	-.199	-.096	_
	p	.004	.034	<.001	<.001	.637	.001	.121	_

We used Pearson Product-Moment Correlations to explore the relationships between the independent psychometric variables. Table 3 shows the variables with a small (Pallant, 2002) negative correlation with treatment completion were risk of reconviction (RoC*RoI), VRS Dynamic, VRS Static, and Meanness. There was a small positive association between VRS SOC score and treatment completion, indicating higher levels of engagement in change early in treatment correlated with higher rates of treatment completion. The RoC*RoI showed moderate positive correlations with both VRS variables, demonstrating that scores on the two risk measure variables were associated.

Next, we examined the prediction of non-completion using combinations of independent variables, and identified which variables remained significant predictors when controlling for the predictive variance contributed by the others. We used VRS and TriPM component scores, RoC*RoI, and age as predictor variables for the first logistic regression. The full model including all predictor variables was statistically significant, $\chi2$ (7) = 28.94, p = <.001, which showed the model could differentiate completers and non-completers. The model pseudo-R^2 was between .105 (Cox & Snell) and .144 (Nagelkerke) and correctly classified 69% of participants. Table 4 shows that VRS dynamic score, Meanness, and age were statistically significant predictors of non-completion. For every one unit increase in Meanness and VRS dynamic scores, the likelihood of treatment non-completion increased 3% and 6% respectively. The RoC*RoI had the largest odds ratio in predicting non-completion but was a non-significant predictor, with the confidence interval around the odds ratio indicating a high level of imprecision in this estimate. Lastly, lower age predicted higher likelihood of treatment non-completion.

Table 4

Logistic Regression of Psychometric Variable Component Scores, RoC*RoI, and Age on

Completion Status

Variable	B	SE	Wald	Sig	Odds Ratio	95% C.I
VRS Static	-.02	.06	.17	.682	.98	.87, 1.10
VRS Dynamic	.06	.03	4.71	.030	1.06	1.01, 1.13
Boldness	-.02	.02	.60	.439	.98	.95, 1.02
Meanness	.03	.02	4.07	.044	1.03	1.00, 1.07
Disinhibition	-.01	.02	.72	.397	.99	.95, 1.02
RoC*RoI	1.74	1.17	2.22	.136	5.70	.58, 56.29
Age	-.04	.02	5.72	.017	.96	.93, .99

The predictor variables used for the next regression (table 5) were total VRS and

TriPM scores, RoC*RoI, and age. The full model including all predictor variables was

statistically significant; $\chi2$ (4) = 23.48, p = <.001, which showed the model could

differentiate completers and non-completers. The model pseudo-R^2 was between .086 (Cox &

Snell) and .118 (Nagelkerke) and showed a slight increase in correct classification of non-

completers (69.3%) from the previous regression. Age was the only statistically significant

individual predictor of non-completion.

Table 5

Logistic Regression of Psychometric Variable Total Scores, RoC*RoI, and Age on

Completion Status

Variable	B	SE	Wald	Sig	Odds Ratio	95% C.I
VRS Total	0.04	0.02	3.62	.057	1.04	0.10, 1.09
TriPM Total	0.01	0.01	0.87	.352	1.01	0.99, 1.02
RoC*RoI	1.21	1.14	1.13	.287	3.37	0.36, 31.54
Age	-0.04	0.02	4.98	.026	0.96	0.93, 1.00

Next we wanted to investigate whether characteristics of members of the participant's treatment group contributed significantly to the prediction of treatment non-completion, over and above the participant level variables we had already used. As our initial regression had found individual Meanness and VRS dynamic score to be significant predictors of non-completion, we created a group level variable for each of these, along with group RoC*RoI. We created the group level variables by calculating the mean scores (RoC*RoI, Meanness, and VRS dynamic) for each treatment group, but excluding participants' own score from their group's mean.

Because participants were nested in groups, we determined whether there was evidence that some of the variance in whether participants failed to complete the programme was due to the group they were in. We estimated an intercept-only model in SPSS which showed that the variance associated with the Level 2 Group variable was non-significant: estimated variance=0.15, $z=.895, p=.19$. We also calculated an Intraclass Correlation Coefficient (ICC) using the formula supplied by Crowson (2020). The ICC was 0.04 which is below the 0.5 recommended as the cut off for determining that data are clustered (Heck et al., 2014). Because the data were not clustered (i.e., there was no relationship between which group people were in and non-completion), we were able to add the group risk variables to the previous logistic regressions, rather than needing to use a multi-level modelling approach.

We added the group level variables to the component score regression (from Table 4) and the model remained statistically significant ($\chi2$ (10) = 34.58, p = <.001; see Table 6). The model pseudo-R^2 was between .124 (Cox & Snell) and .171 (Nagelkerke) and correctly classified 71% of participants. In addition, age, individual VRS dynamic, and individual Meanness remained statistically significant. The group variables were not significant as individual predictors of treatment non-completion.

Table 6

Logistic Regression of Psychometric Variable Component Scores, RoC*RoI, Age, and Group

Level Variables on Completion Status

Variable	B	SE	Wald	Sig	Odds Ratio	95% C.I
VRS Static	-.03	.06	.23	.630	.97	.86, 1.10
VRS Dynamic	.08	.03	6.28	.012	1.08	1.02, 1.15
Boldness	-.02	.02	.60	.454	.99	.95, 1.02
Meanness	.03	.02	4.23	.040	1.04	1.00, 1.07
Disinhibition	-.01	.02	.51	.475	.99	.96, 1.02
RoC*RoI	1.98	1.20	2.77	.096	7.26	.70, 74.97
Age	-.04	.02	5.24	.022	.96	.93, .10
Group RoC*RoI	-.27	3.03	.001	.929	.77	.00, 288.94
Group Meanness	.07	.05	2.00	.157	1.08	.97, 1.20
Group VRS Dynamic	-.06	.06	1.06	.304	.94	.84, 1.06

Finally, we added the group level variables to the regression using scores for the whole scales (from table 5) and the model remained statistically significant ($\chi2$ (7) = 28.41, *p* = <.001, see table 7). The model pseudo-R^2 was between .103 (Cox & Snell) and .142 (Nagelkerke) and correctly classified 69% of participants. The group variables were not significant as individual predictors treatment non-completion.

Table 7

Logistic Regression of Psychometric Variable Total Scores, RoC*RoI, Age, and Group Level

Variables on Completion Status

Variable	B	SE	Wald	Sig	Odds Ratio	95% C.I
VRS Total	0.05	0.02	4.73	.03	1.05	1.01, 1.10
TriPM Total	0.01	0.01	1.32	.251	1.01	0.99, 1.02
RoC*RoI	1.38	1.16	1.43	.232	4.00	0.41, 38.54
Age	-0.34	0.16	4.43	.035	0.97	0.93, 1.00
Group RoC*RoI	0.09	2.97	0.00	.975	1.10	0, 370.26
Group Meanness	0.06	0.05	1.45	.229	1.06	0.96, 1.18
Group VRS Dynamic	-0.05	0.06	0.80	.370	0.95	0.85, 1.06

Discussion

The current study investigated the differences in the age, risk of reconviction, and psychometric scores of offenders who completed and did not complete group treatment for violent offending. The ability for RoC*RoI, TriPM, and VRS scores, and age to predict the likelihood of treatment non-completion was analysed. Lastly, group characteristics including the Meanness, VRS Dynamic score, and RoC*RoI of co-participants were examined in relation to treatment non-completion.

Treatment Non-Completion Rates

Of the 261 participants in our final dataset, 92 (35.2%) did not complete treatment. Our findings show similar non-completion rates to those found in previous studies using comparable New Zealand samples of men with a high risk of violent reoffending completing similar programmes (Polaschek, & Kilgour, 2013; Polaschek, 2010). The stability of non-completion rates over time in the studies mentioned above may reflect consistencies in the participant characteristics and delivery of treatment. The broad range of non-completion rates reported in the international literature make it challenging to compare the results of the current study. Most similarly, Olver et al. (2011) reported a 27.1% non-completion rate in their meta-analysis of 41,438 offenders. However, the 114 studies that were analysed included diverse offender types and prison based and community programmes. Other studies of prison-based treatment programmes have found non-completion rates between 14% and 25% (Snowden, 2013; Seager et al., 2004) which may suggest there is room for improvement regarding participant retention in STURP. Notwithstanding, it is important to consider what very low non-completion rates may indicate about treatment programmes, over and above not losing many participants. One possibility is programme content and process failing to provide an appropriate level of challenge (e.g., shallow and generic content, and lack of emotional engagement), resulting in participants having an 'easy' path to completion, likely

accompanied by minimal therapeutic progress. Further, treatment staff with loose boundaries who avoid providing challenging feedback to participants may facilitate higher treatment completion rates by excusing behaviour which would otherwise have required intervention. These ideas put into question whether it is desirable to aim for total participant retention, as it would likely mean compromising the integrity of treatment. It seems there may be a 'healthy' level of treatment non-completion which allows for those who are not adequately motivated or engaged in treatment to be removed, and for personal, responsivity, or safety issues which require people to leave treatment to be accounted for. While it is unclear what an optimal treatment non-completion rate is, or if such thing exists, it appears that understanding patterns in *why* participants are completing or not completing treatment is of great importance.

The non-completion group had a lower mean age (M=30.86) in comparison with the completion group (M=35.10). These results corroborated findings from a variety of previous studies (Olver et al., 2011; Van Voorhis, et al., 2004; Kraemer et al., 1998). It is not possible to determine a causal relationship between age and non-completion from our analysis, but underlying factors may include younger participants taking rehabilitation less seriously, lack of consideration for the long-term consequences of their actions, and having spent less time in prison (Dedopoulos, 2011).

Static Risk and Treatment Non-Completion

Non-completers were found to have significantly higher mean RoC*RoI scores than those who completed treatment. These results aligned with previous research regarding static risk of treatment non-completers from Canada and the United Kingdom (Craissati & Beech, 2001; Wormith & Olver, 2002; Nunes et al, 2010), but contradicted Polaschek (2010) who found a non-significant (2%) difference in RoC*RoI scores between completion groups. Higher RoC*RoI scores indicated increased presence of static risk of reconviction factors in non-completers such as number of previous convictions and age at first conviction.

Additionally, non-completers had higher mean VRS static scores. Most of the static risk items in the VRS are included in the 15 variables which underpin the RoC*RoI, however, the VRS has added items which it assesses including stability of family upbringing and history of violent offending. Given the overlap in static items included in the two measures it is perhaps not surprising that statistically significant results were found for both. Our results support the notion that offenders with higher risk of reconviction are more likely to drop out of treatment.

Dynamic Risk and Stage of Change

We found higher dynamic VRS scores were associated with treatment non-completion, suggesting that participants with greater criminogenic treatment needs were more likely to discontinue the programme prematurely. These results contradicted findings from a previous study analysing a similar sample that found non-significant differences between the dynamic VRS scores of completers and non-completers (Polaschek & Kilgour, 2013). In contrast, dynamic scores from the VRS-SO, which shares some dynamic items with the VRS, have also been found to predict treatment non-completion (Snowden, 2013). Outside of the studies mentioned, there has been limited research regarding the predictive power of the VRS in relation to treatment non-completion, and thus minimal empirical context for these results to be interpreted. However, the notion that higher dynamic risk can predict treatment non-completion adds to our understanding of who may be more likely to 'not make the finish line'. The presence of increased dynamic risk in non-completers is further reinforced when the non-completion group's reasons for treatment termination are considered. Polaschek (2010) posited that self-driven removal from treatment (e.g., asking to leave) that likely has negative long-term consequences (e.g., reduced likelihood of parole) can theoretically be linked to dynamic risk factors such as impulsivity. Further, removal from treatment for misconducts, offending, or disruptive behaviour in therapy has more obvious links to the presence of dynamic risk factors. Over two thirds of the non-completion group in our study

discontinued treatment for the aforementioned reasons, which could be indicative of untreated dynamic risk factors manifesting in behaviour that resulted in treatment termination.

Non-completers had significantly lower SOC scores than completers, indicating they had engaged in less change related to their treatment targets at the beginning of the programme. These results are consistent with Polaschek and Kilgour's (2013) findings in a sample of 264 high risk offenders. Given lower SOC scores indicate less problem awareness and fewer plans to change, non-completers were on average further away from behavioural change than completers at the start of treatment. Although each participant's starting point is different, non-completers lower SOC scores could reflect the presence of increased challenges, and more personal effort and commitment to change required to make treatment gains and advance their SOC. Those already engaging in change at the beginning of the programme may have experienced some success and movement towards their treatment goals, supporting their completion of the programme.

Psychopathy and Associated Traits

The Tri-PM conceptualises Meanness as empathy deficits, lack of or disdain for close attachments, exploitativeness, empowerment through cruelty, excitement seeking, rebelliousness (Patrick et al., 2009). Our study found that non-completers had significantly higher Meanness scores in comparison with those who completed the programme, and that increased Meanness predicted treatment non-completion. When considering the extensive interpersonal requirements of high intensity group treatment, the characteristics associated with Meanness do not appear conducive to long lasting and meaningful engagement, which is supported by our results. Possible explanations for the relationship between Meanness and non-completion are those who are more rebellious likely find following rules and conforming to group processes more challenging. In addition, a lack of empathy and difficulty with close

attachments may hinder the development of relationships with other group members and building trust with treatment staff - a notion that is supported by Polaschek et al's (2021) finding that Meanness predicted poorer relationships of parolees with their probation officers following release from prison. Elevations in Meanness scores of non-completers may also support our findings relating VRS dynamic score to non-completion. The features that characterise Meanness map well onto dynamic VRS items, including criminal personality, stability of relationships, and criminal attitudes. The similarities suggest that Meanness is likely targeted during treatment and reinforces the idea that those with higher dynamic risk are less likely to complete treatment.

Tri-PM describes disinhibition as tendencies towards impulsiveness, weak behavioural restraint, hostility, mistrust, and difficulty regulating emotion (Patrick, 2010). Our analyses indicated the disinhibition facet did not predict treatment non-completion, nor was there a statistically significant difference in the mean disinhibition scores between completion groups. The lack of relationship found between non-completion and disinhibition may conflict with previous studies (Palmer & Humphries, 2016; Cullen et al., 2011; McMurran et al., 2008) which demonstrated that individuals with higher levels of impulsivity (i.e., a feature of disinhibition) were less likely to complete treatment. It is possible the contradictory results in the current study were influenced by differences in the way impulsivity was measured and defined. For example, Palmer and Humphries (2016) utilised the Barratt Impulsiveness Scale-11 (BIS-11; Patton et al., 1995) to measure impulsivity, which assesses attentional impulsivity (ability to maintain attention and cognitive decision making), motor impulsivity (tendency to act without thinking), and non-planning impulsivity (lack of consideration for future consequences). In comparison, the Triarchic Psychopathy Model includes disinhibition as one characteristic of psychopathy rather than measuring disinhibition alone. The psychometrics have obvious overlap in how impulsivity and

disinhibition are conceptualised, but there are also differences in the characteristics that are measured. Variations in what aspects of impulsivity the BIS-11 and Tri-PM measure could explain the inconsistent results between our study and previous research. However, the divergent results may indicate different levels of impulsivity between participant samples. Some characteristics of disinhibition (i.e., hostility, mistrust, and difficulty regulating emotion) are also embedded in the dynamic VRS items, such as interpersonal aggression and emotional control. Although our analysis of the dynamic VRS items only looked at the scale as a whole, it is possible that these characteristics contributed to the predictive value of the dynamic VRS score which could suggest that some features of disinhibition are predictive of treatment non-completion.

Non-completers had significantly higher total mean Tri-PM scores compared to completers. However, our regression analysis showed that Tri-PM total score did not predict treatment non-completion. Comparison of our component score (table 4) and total score (table 5) regression models shows that the Tri-PM became non-significant once all components were added, suggesting the Meanness component carried the predictive load of the psychometric. Further, the results demonstrate the utility of reducing psychometric measures into component level variables to provide a more specific understanding of how the measure interacts with the outcome variable. The current research appears to be one of the few studies that has analysed the Tri-PM in relation to treatment non-completion, with most coming before it using the PCL to measure psychopathy. There has been varying findings associating PCL scores and treatment non-completion (Olver & Wong, 2011; Daly, 2017; Polaschek, 2010) with some indication that elevated PCL scores can be predictive.

Group Effects on Treatment Non-Completion

Our study investigated how coparticipant characteristics related to individual treatment completion status. We developed the group variables (RoC*RoI, Dynamic VRS,

and Meanness) by calculating the mean scores for each group minus the individual's score. The results showed a non-significant relationship between all group variables and treatment non-completion. The current study appears to be the first to explore these group variables in relation to individual treatment completion. Research by Lloyd et al. (2014) found that higher risk and larger variation of risk within groups tended to diminish the positive association between group capacities (e.g., motivation, literacy, empathy) and treatment outcome, and concluded that consideration should be given to the effect of coparticipants on treatment outcomes when delivering group treatment. In comparison, our sample was significantly smaller and less diverse in risk (i.e., all high risk of reoffending). Increased homogeneity of risk in the current study likely contributed to non-significant results we observed between group risk and treatment non-completion. Albeit sparce, the existing literature suggests further investigation into group characteristics could be beneficial to understanding coparticipant effects on individual treatment progress and contribute to refining the delivery of group treatment for offending behaviour.

Limitations

The archival nature of this study meant that it was challenging, and in some cases not possible, to retrieve information which was missing from the data set. The participants who were missing psychometric data were assigned the mean scores of that measure from their respective completion group. This strategy to address missing data was chosen to maintain maximum sample size, which was important as most participants with missing data were from the non-completion group which was substantially smaller than the completion group. Our strategy to address missing data may have had some bearing on the study's results. Given those with missing data were assigned the mean psychometric scores of the respective completion group, the variance across the dataset was likely reduced, possibly lowering the chances of finding statistical differences in the sample. While generating information based

on mean scores may have reduced the validity of the data, we viewed this approach as more favourable than not including those with missing data which would have significantly reduced the non-completion group sample size.

   Another limitation in the dataset was the application of the completion category 'completed but did not graduate'. This completion status was assigned to 10 participants and only used by staff from one Special Treatment Unit, which may suggest inconsistent use of this completion category. Further, 'completed but did not graduate' was not an official category on the data capture form provided by Ara Poutama Aotearoa to treatment staff. The circumstances under which the 'completed but did not graduate' status was applied were unclear and likely varied between participants. When converting the completion categories into a binary variable, we included the 10 participants who 'completed but did not graduate' in the completion group to align with the treatment staff's view that the individuals had made enough treatment progress to have been considered to have completed the programme.

Implications

   This study has developed our understanding of non-completion rates and the factors which may predict non-completion for high-risk offenders engaging in prison-based group treatment. In addition to providing a somewhat recent indication of non-completion rates in the Special Treatment Unit Rehabilitation Programme, the findings provide context for the interpretation of future studies analysing treatment non-completion. The results have reaffirmed previous findings that lower age can predict treatment non-completion (Olver et al., 2011; Van Voorhis et al, 2004; Kraemer et al., 1998), and added confirmatory evidence to the varying findings associating dynamic risk factors with non-completion (Polaschek & Kilgour, 2013; Snowden, 2013). Consequently, attempts to address treatment non-completion may benefit from considering what causal mechanisms may underlie these relationships. Meanness, a variable which does not appear to have been analysed in relation

to treatment non-completion before, was found to be predictive at the individual level. Our results, in addition to Polaschek et al's (2021) relating Meanness to poorer relationships with probation officers, suggest Meanness is an important characteristic in understanding offender behaviour that should continue to be measured and analysed.

We began exploring the effect of group characteristics on individual treatment non-completion, an area left relatively untouched by previous researchers. The group variables we analysed did not predict treatment non-completion which indicates Meanness and Dynamic VRS score lost their predictive significance once coparticipant scores were included. Although our group variable results were non-significant, they may provide a platform for the analysis of different group variables to be conducted in the future.

In light of our results, the question is raised, how could this information be utilised in practical sense? Knowing what predicts non-completion could help to identify those who may be at higher risk of not completing treatment prior to beginning the programme, and indicate who may benefit most from preparatory support. A theoretical view is that preparatory support could begin to address some of the issues which contribute to increased risk of non-completion (e.g., targeting meanness through developing empathy and relationship skills). It is likely that preparatory support would have varying outcomes and effects on individual's ability to complete treatment. The challenging, prolonged, and sometimes unpredictable journey of those engaging in high intensity group treatment means that preparing someone for every difficult circumstance they are likely to encounter is unrealistic. However, the potential utility lies in preparing those at higher risk of non-completion of managing some of the risk factors that are likely to trip them up. Given the scarcity of psychological resources, support would likely need to be allocated to participants deemed to be at most risk of not completing (e.g., those with the most elevated or highest number of non-completion predictors). After determining who resources should be assigned to, the implementation of

psychological interventions to target dynamic characteristics related to treatment non-completion could then support participants to work on those areas prior to engaging in the programme. However, it is unclear how viable this process would be to operationalise due to the extant pressure on psychological services resources.

Future Research

Although the current study showed non-significant associations between group variables and treatment non-completion, further exploration of the area is warranted due to lack of extant literature. The interpersonal nature of group therapy means the web of relational dynamics between group members, including group leaders, are multiplied and potentially more complex in comparison with individual therapy. All group members have a unique relationship with each other, in addition to their relationship with, and place in, the group as a whole (Johnson et al., 2005). Further, group members bring individual characteristics such as personality traits, communication style, offending history, risk level, trauma, and psychopathology. The combination of individual differences and multiplicity of relationship dynamics are likely key factors that contribute to the way a group functions. A limitation of the group variables in the current study was lack of information regarding the interpersonal processes that occurred during treatment. Often referred to as group climate, the quality of group interactions has been linked to greater treatment outcomes in group psychotherapy outside the correctional setting (Burlingame et al., 2003). MacKenzie (1998) identified three constructs related to group climate; conflict, engagement, and avoidance. Conflict includes disruptions to the group due to interpersonal disputes and difficulties developing trust between group members. Engagement refers to the working atmosphere that is established and is contributed to by self-disclosure, therapeutic confrontation, and understanding of content. Lastly, avoidance describes how much participants avoid taking ownership of their treatment journey. Given that fostering a positive group climate appears to

be an important part of successful group therapy, it is a topic worthy of further investigation. Future research looking into treatment non-completion with a similar sample of participants could benefit from analysing how group climate relates to levels of non-completion. The Group Climate Questionnaire—Short Form (GQC; MacKenzie, 1983) appears to be one of the few measures available to gauge participants perceptions of group climate. The GQC is a 12 item self-report measure based on the previously described group climate constructs and assesses how individual group members view the therapeutic environment. The integration of such a measure into the standard battery of post treatment psychometrics that participants complete could facilitate a greater understanding of the role group climate plays in treatment outcomes.

The therapeutic community model integrated into New Zealand's Special Treatment Units incorporates the custodial space as an extension of the therapy rooms where participants are expected to practice their skills. The immersive treatment environment may suggest that looking beyond the group room at wider ecological factors could glean valuable information pertinent to individual treatment progress. Consequently, another area that may warrant investigation in relation to treatment non-completion is participants' experiences and perceptions of custodial staff in the unit they are completing treatment. Participants often hold entrenched anti-authority attitudes that are coupled with histories of negative experiences with authority figures that can result in hostility and mistrust towards custodial staff. Conversely, treatment staff indicated that positive and supportive interactions with custodial staff can be of great benefit to challenging participants negative views of authority and provide opportunities for progress towards treatment goals outside of the therapy room. As such, analysis of how participants engage with and perceive custodial staff may provide insight into how these factors interact with the likelihood of completing treatment.

Conclusion

This study demonstrated that age, dynamic risk of violence, and Meanness can predict treatment non-completion in high-risk violent offenders. The non-completion rates we identified were similar to those found in previous research using comparable samples. Coparticipant characteristics (Meanness, Dynamic VRS, and RoC*RoI) were found to be non-significant predictors of individual treatment non-completion. Notwithstanding, the scarcity of research investigating the relationship between coparticipant characteristics and individual treatment progress highlights the need for further exploration in this area. A more complete understanding of the factors which contribute to treatment non-completion may support organisations delivering psychological interventions for offending to sustain participant engagement, and subsequently may improve treatment outcomes towards reducing offending.

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