

Running head: SELF-REPORTED PSYCHOPATHOLOGY PROFILES

Self-reported psychopathology profiles of high risk violent men with and without a history of
physical intimate partner violence

By

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Abstract

Although intimate partner violent men have been found to be different from non-violent men on a number of variables, little research has compared partner violent men to men who engage in violence outside of relationships. The present research explored the similarities and differences between men with and without a history of physical partner violence within a sample of high risk violent men who attended New Zealand's High Risk Special Treatment Units. Pre-treatment psychopathology, measured on the Millon Clinical Multiaxial Inventory III (MCMI-III; Millon, Davis, & Millon, 1997) was compared between these two groups and few differences were found. Comparisons on criminal history, criminal risk and change in dynamic risk also revealed no significant differences between these two groups. This research also explored whether similar or different psychopathology subtypes exist among men with and without a history of intimate partner violence. A latent profile analysis was conducted to examine psychopathology subtypes, and the proportions of men with and without a history of partner violence within each subtype were compared. The results showed that there were similar proportions of men from both groups within each of the subtypes, suggesting that men with and without a history of intimate partner violence share similar psychopathology profiles. The likelihood of reconviction or reimprisonment within 1 year of release from prison was also compared between men with and without a history of intimate partner violence. The two groups were found to be reconvicted at a similar rate for any offence, violent offences, and were at a similar likelihood of being re-imprisoned. To conclude, the results suggest some similarity between men with and without a history of intimate partner violence, but future research should explore a wider range of factors that may distinguish between these two groups and inform whether men who engage in partner violence are unique from men who engage in other forms of violence.

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Literature review

Introduction

Intimate partner violence (IPV) is a significant worldwide social problem. The World Health Organization (2002) defined IPV as "any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship" (World Health Organization 2002, p.89). These behaviours include acts of physical aggression, sexual coercion, psychological abuse and controlling behaviours (World Health Organization, 2002).

In 2013, following a review of global research on intimate partner violence, the World Health Organization estimated that globally, approximately 30% of women had experienced at least one act of physical or sexual violence from a current or former partner in their lifetime. Similarly, the results of the New Zealand Crime and Safety Survey in 2014 showed that 26% of women and 14% of men had experienced one or more acts of violence by an intimate partner in their lifetime. The results also showed that around 1% of the adults surveyed had experienced 61% of violent interpersonal offences by an intimate partner, indicating that intimate partner violence is a recurring experience for some individuals.

Also in New Zealand, a large study including over 2000 women from the Auckland and Waikato regions, found that a large proportion of women had experienced intimate partner violence in their lifetime (Fanslow & Robinson, 2011). The women in this study were questioned about acts of physical, sexual, psychological and emotional abuse committed by their current or most recent male partner in the past 12 months, as well as within their lifetime. Over half (55%) of women who had ever been in an intimate relationship reported that they had experienced at least one type of violence in their lifetime and around a third had experienced more than one type (Fanslow & Robinson, 2011).

Perpetrators of intimate partner violence

Research has found that both men and women perpetrate violence in relationships (Archer, 2000; Magdol et al., 1997). However, most research to date has focused on the characteristics of partner violent men, and the majority of current partner violence interventions are targeted toward male perpetrators.

When examined as a group, men who are violent toward their partners show a number of differences from non-violent men (Holtzworth-Munroe, Bates, Smutzler, & Sandin, 1997). Partner violent men generally report more psychopathology such as depression and mood disorders, are more likely to have a preoccupied/fearful attachment, have greater levels of anger and hostility, are less assertive toward their spouses and have greater negative attributions of their partners behaviour (Holtzworth-Munroe et al., 1997).

However, not all partner violent men are the same, and they have been found to differ from one another on a number of dimensions (Dixon & Browne, 2003). For example, partner violent men have been found to be distinguished on the severity and frequency of partner violence, the degree of violence used outside of relationships, and on personality traits and psychopathology (Holtzworth-Munroe & Stuart, 1994).

Research has also found that different characteristics of male perpetrators have important implications, such as whether their violent behaviour results in serious consequences or not (Ehrensaft, Moffitt, & Caspi, 2004). Men in clinically abusive relationships where violence results in victim injury, conviction or official intervention have been found to differ from men in non-clinically abusive relationships where violence occurs, but does not result in these consequences (Ehrensaft et al., 2004). For example, men in clinically abusive relationships have been found to perpetrate a greater variety of physically violent acts against their partners and to have had behavioural problems in childhood and

adolescence. Therefore, research investigating differences such as these may inform which factors are best targeted in treatment in order to reduce some of the serious consequences of violence such as victim injury and involvement with the criminal justice system.

Individual characteristics of partner violent men have also been associated with treatment attrition and recidivism (Jewell & Wormith, 2010). For example, treatment non-completers are more likely than treatment completers to be unemployed, have a drug problem and a prior criminal history, and these same factors have been linked to greater rates of recidivism (Olver, Stockdale, & Wormith, 2011). Therefore by better understanding the characteristics of partner violent men, strategies to keep them in treatment and to reduce their risk of re-offending may be improved. This is particularly important, given that rigorous meta-analytic research has shown that domestic violence programmes have a high rate of treatment attrition (Olver et al., 2011), and current domestic violence treatment overall has only a small effect on re-offending against a partner (Babcock, Green, & Robie, 2004).

Negative consequences of intimate partner violence

The prevalence of intimate partner violence is concerning, particularly given the detrimental effects to the health and wellbeing of the victims of this violence (Black, 2011; Coker et al., 2002; Golding, 1999). Meta-analytic research has shown that among victims of partner violence, there is a higher prevalence of mental health issues such as depression, suicidality, post-traumatic stress disorder (PTSD), alcohol abuse and drug dependence than in the general population (Golding, 1999). Similarly, when compared to women who were not victimized, victims of intimate partner violence were on average 3.5 to 3.8 times more likely to experience depression, suicidality and PTSD, and over 5 times more likely to report alcohol and drug abuse or dependence (Golding, 1999). Longitudinal research among New Zealand young adults has also found significant associations between the level of intimate partner violence victimization and the rates of depression and suicidality (Fergusson,

Horwood, & Ridder, 2005). These associations remained significant even when confounding variables were controlled for such as family background, prior psychiatric disorders and current relationship factors (Fergusson et al., 2005).

As well as negative psychological consequences, intimate partner violence has been associated with a range of short and long term physical health effects (Black, 2011; Campbell, 2002). Victims of intimate partner violence may suffer physical injuries, experience chronic pain or insomnia, and other adverse physiological effects on various bodily systems such as the cardiovascular, gastrointestinal, brain and nervous system and immune and endocrine systems (Black, 2011; M. A. Dutton et al., 2006). Sadly in some cases, violence from an intimate partner also results in the loss of life (Black, 2011).

Violence between partners has also been found to increase the risk of violence against children within the family unit (Moffitt & Caspi, 2003; Slep & O'Leary, 2005). In a large community sample of cohabiting couples parenting children between 3 and 7 years, an increased risk of child abuse was found when physical aggression occurred between partners (Slep & O'Leary, 2005). Children who witness violence between their parents are also at greater risk of developing conduct disorder, which is a strong predictor of partner violence in adult relationships (Moffitt & Caspi, 2003).

In summary, intimate partner violence is highly prevalent in New Zealand and worldwide, and the effects of such violence are extensive. Therefore it is important that we understand what influences individuals to engage in such violence, so that these factors can be addressed through treatment and intervention.

The relevance of personality traits and psychopathology to intimate partner violence perpetration

Research has generally supported that intimate partner violence perpetration is the result of the interaction of various factors, and that there is no single cause of this behaviour

(Fanslow & Gulliver, 2015; Stith, Smith, Penn, Ward, & Tritt, 2004). One of the factors that have been associated with an increased risk of intimate partner violence are the individual characteristics of the perpetrators, such as personality traits and general psychopathology (Stith et al., 2004).

Longitudinal research has found that as early as adolescence, differences in personality traits and psychopathology are present among men who are later violent in their adult relationships, and men who are not (Ehrensaft et al., 2004). In this study, men who participated in the Dunedin Health and Development Multidisciplinary Study were divided into three groups; men involved in clinical intimate partner violence (abuse which resulted in injury, conviction or official intervention), men who were non-clinically abusive (abuse without clinical consequences) and non-abusive men (Ehrensaft et al., 2004).

Clinically abusive men were more likely than non-clinically abusive men and non-abusive men to have a history of childhood and adolescent behaviour problems, as reported by their parents and teachers, and to have had adolescent diagnoses of conduct disorder and attention deficit disorder (Ehrensaft et al., 2004). Further research has confirmed this link, where early behavioural problems and conduct disorder are consistent predictors of intimate partner violence in adulthood (Capaldi, Knoble, Shortt, & Kim, 2012).

Clinically abusive men were also significantly higher than non-clinically abusive men on a number of personality traits measured on the Multidimensional Personality Questionnaire at age 18 years (Ehrensaft et al., 2004). In particular, they were more prone to worry, were suspicious of others and were willing to hurt others for personal advancement. They also had lower moral standards and were less sociable with others. This suggests that personality and psychopathology may play a developmental role in subsequent partner violence that results in serious legal and physical consequences.

Personality disorder traits present during late adolescence have also been found to be associated with an increased risk of partner violence in adulthood (Ehrensaft, Cohen, & Johnson, 2006). In a community cohort from New York, personality disorder traits were assessed at a mean age of 22, including Cluster A (paranoid, schizoid and schizotypal), Cluster B (histrionic, narcissistic and borderline) and Cluster C (dependent, avoidant, obsessive-compulsive) traits. Both Cluster A and Cluster B traits were found to increase the risk of partner violence at age 31. These traits were also consistently high from adolescence to adulthood among intimate partner violent men, whereas non-violent men showed a decrease in these traits over time (Ehrensaft et al., 2006). This suggests that individuals with more stable traits such as mistrust of others, avoidance, unusual beliefs, impulsivity, anger and emotional instability during adolescence are at a greater risk of engaging in partner violence in adulthood.

However Cluster C traits were stably low from adolescence to adulthood among partner violent men, whereas non-violent men showed a rise in these traits around early adulthood. This suggests that compared to Cluster A and Cluster B traits, Cluster C traits may play a protective role against partner violence (Ehrensaft et al., 2006). Therefore it appears that personality traits and psychopathology may play a developmental role in the perpetration of violence against a partner.

Intimate partner violent offenders have also been found to report a diverse range of psychopathology (Gondolf, 1999). In one study, a large sample of 840 men who were court or self-referred to batterer treatment programmes, reported on the MCMI-III, a clinical self-report measure of dysfunctional personality patterns and clinical syndromes. It was found that 90% of the sample scored within the range that indicates a prominent dysfunctional personality trait on at least one of the basic personality pattern scales, and around half (48%) scored within the range that indicates the possibility of a clinical personality disorder. The most

common personality scale elevations were narcissistic (25%), passive-aggressive (24%), antisocial (19%) and depressive (19%). In terms of severe dysfunction, 16% reported a moderately severe level of personality functioning, and 15% reported a severe clinical syndrome.

Some research also indicates that psychopathology may play a role in the persistence of violence against an intimate partner (Walker, Bowen, Brown, & Sleath, 2015). In this study 'persisters' or men who reported relationship violence within their lifetime on the Revised Conflict Tactics Scale, and also within the past 12 months, and 'desisters', who reported violence in their lifetime but not in the past 12 months were compared on the Millon Clinical Multiaxial Inventory (MCMI-III; Millon et al., 1997)

It was found that although both groups had large percentages of clinically relevant scores (BR>74), there were larger percentages on the majority of MCMI-III scales for the persisters. The persisters were also found to score significantly higher than the desisters on a large number of scales, some of which included schizoid, avoidant, dependent, borderline, paranoid, anxiety, dysthymia and PTSD (Walker et al., 2015). An association between the level of personality dysfunction and group was also found where a greater proportion of persisters than desisters were classified with severe personality dysfunction (i.e they scored above BR 84 on at least one of: borderline, paranoid and schizotypal).

Therefore the research literature indicates that personality and psychopathology may play a role in the aetiology and persistence of violence against an intimate partner, and so may be an important factor to address through treatment or intervention.

Is intimate partner violence associated with a personality or psychopathology profile that is unique in comparison to violent offenders?

The extent to which individuals who are violent towards their intimate partners are different from individuals who are violent toward others outside of their relationships has been examined in only a handful of studies (Moffitt, Krueger, Caspi, & Fagan, 2000; Theobald, Farrington, Coid, & Piquero, 2016). One longitudinal study examined whether the same or different personality traits predict partner violence and general crime (Moffitt et al., 2000). At age 18, participants completed the Multidimensional Personality Questionnaire which assessed three key personality factors. At age 21 the participants reported on their involvement in general crime and intimate partner violence.

The results showed that negative emotionality, which involves a low threshold for the experience of negative emotions such as anger and anxiety and a view of the world as threatening, positively predicted both partner violence and general crime (Moffitt et al., 2000). However, constraint, which involves the ability to control impulses, negatively predicted general crime, but was not significantly related to partner violence. In further comparisons, where individuals who were only violent outside of relationships were compared to those violent within and outside of relationships, there was no significant difference between these two groups on negative emotionality or constraint (Moffitt et al., 2000). This research indicates that personality traits of perpetrators such as negative emotionality are related to partner violence, but these traits may also be related to violence against people other than intimate partners (Moffitt et al., 2000).

Recent prospective longitudinal research has also compared men who have not engaged in violence toward a partner, but who have other violent convictions (violent conviction only group), to men who are violent towards intimate partners and others (generally violent group; Theobald, Farrington, Coid, & Piquero, 2016). In this study, the

violent conviction only group consisted of men who did not report intimate partner violence on the Conflict Tactics Scale and had violent convictions that were not against an intimate partner. The generally violent group included men who had engaged in partner violence, and who also had other violent convictions. These violent groups were compared on Cluster B personality traits (histrionic, narcissistic, borderline), and a measure of life success.

At age 48, men in the sample were interviewed to assess DSM-IV Cluster B traits. Men in the generally violent group were found to be significantly more likely to obtain higher scores with relation to Cluster B traits (histrionic, narcissistic, borderline and antisocial personality disorder) compared to the violent conviction only group. High scores on cluster B traits were also associated with the violent conviction only group, although this relationship was only marginally significant (Theobald et al., 2016).

At ages 32 and 48, men in the sample were also questioned regarding their success in various areas over the past 5 years such as having satisfactory accommodation and employment, abstaining from antisocial behaviours and drug/alcohol consumption (Theobald et al., 2016). At both time points, the generally violent men were more likely to have poorer life success overall, such as poorer accommodation and employment and greater drug use. However, the violent conviction only group had a greater likelihood of some antisocial behaviours. At age 32, they were more likely to have engaged in fights outside of the home, and at age 48, to self-report offending behaviours and to have been convicted.

These results indicate that men who are violent toward partners and others, and men who are only violent outside of intimate relationships may not be distinct based on psychopathology. However these violent groups have only been compared on specific types of psychopathology such as negative emotionality and Cluster B traits, and so there is a lack of knowledge around how they are similar or different on other personality traits and psychological conditions such as anxiety or dependent/avoidant traits.

What implications do personality traits and psychopathology have for the treatment of intimate partner violent offenders?

Within the broader offender rehabilitation literature, personality and psychopathology have been found to have some important implications (Olver, Stockdale & Wormith, 2011). One of these implications is that offenders with particular personality traits/disorders or psychological characteristics are less likely to complete treatment. In a meta-analysis, Olver et al., (2011) examined factors predictive of attrition from offender treatment programmes. Across a range of offender programmes including sex offender treatment and domestic violence programmes, offenders with diagnosed antisocial personality disorder or with psychopathy (high PCL-R score) had a higher rate of non-completion than offenders without these characteristics.

Offenders with other psychological characteristics, such as psychosis, personality disorder and borderline personality disorder also had a higher rate of treatment non-completion (Olver et al., 2011). Offenders who had an alcohol or substance use problem also had a moderately higher rate of treatment non-completion than those without such problems. Importantly, treatment attrition was associated with increases in general recidivism, sexual recidivism and violent recidivism, indicating that offenders that did not complete treatment, and possessed the characteristics previously mentioned may have been higher risk prior to entering treatment (Olver et al., 2011).

Based on these associations, it is important to understand the different personality and psychopathology profiles that offenders present with, and whether different combinations of these characteristics influence their likelihood of completing treatment and re-offending.

Intimate partner violent offender subtypes

Although research has shown a number of personality and psychopathology traits to be associated with the perpetration of IPV, intimate partner violent offenders have also been found to be heterogeneous in terms of their psychopathology profiles (Holtzworth-Munroe, Meehan, Herron, Rehman, & Stuart, 2000; Waltz, Babcock, Jacobson, & Gottman, 2000).

This heterogeneity has been identified through one of the well known typologies of intimate partner violence proposed by Holtzworth-Munroe and Stuart (1994). Following a review of 15 existing offender typologies, they proposed that partner violent offenders could be differentiated on three key dimensions. These dimensions included the severity/frequency of partner violence, the generality of violence (whether violence is used inside and outside of the family) and the extent of personality disorder and psychopathology (Holtzworth-Munroe & Stuart, 1994).

It was proposed that three offender types could be identified using these dimensions. A generally violent/antisocial (GVA) type and a dysphoric/borderline (DB) type were proposed that would engage in frequent/severe marital violence, but could be distinguished on psychopathology. The GVA type were suggested to present with antisocial and psychopathic traits, to engage in high levels of alcohol and drug abuse, and to have the most extensive criminal histories

In contrast, the dysphoric/borderline (DB) type were suggested to be the most psychologically distressed and to present with borderline and schizoid personality traits, alcohol and drug abuse and dysphoria (Holtzworth-Munroe & Stuart, 1994). This type was also proposed to engage in some extra-familial violence, although their violence was mainly within the family.

Lastly, a family only (FO) type who engage in less frequent/severe marital violence than the other types and use violence mainly within relationships was proposed. Compared to the previous types, they were proposed to show little or no psychopathology. Since this typology was proposed, much research has examined whether these sub-types of intimate partner violent offenders can be identified in a range of samples (Hamberger, Lohr, Bonge, & Tolin, 1996; Holtzworth-Munroe et al., 2000; Tweed & Dutton, 1998).

Research with community samples of partner violent men has generally supported the Holtzworth-Munroe and Stuart (1994) proposed subtypes (Holtzworth-Munroe et al., 2000; Waltz et al., 2000). In a sample of married couples recruited from the community, maritally violent men were identified through reports by either spouse of at least one act of physical violence in the past year on the Revised Conflict Tactics Scale (Holtzworth-Munroe et al., 2000). To explore subtypes of maritally violent men, a cluster analysis was then conducted on the three dimensions proposed by Holtzworth-Munroe and Stuart (1994).

The variables entered into the cluster analysis included the highest report of physical violence in the past year by either spouse on the Revised Conflict Tactics Scale, a generality of violence score based on the husbands' report of violence towards people other than his intimate partner in the past year, and scores on two factors derived from the MCMI-III (a measure of dysfunctional personality traits and psychopathology). The factors derived from the MCMI-III included an antisocial factor containing five items from the antisocial personality scale, and a fear of abandonment factor, which included a mix of borderline and dependent personality items (Holtzworth-Munroe et al., 2000).

The cluster analysis produced three subtypes that largely resembled the Holtzworth-Munroe et al., (1994) typology, along with an additional subtype. A 'family only' cluster reported the lowest levels of both antisocial traits and borderline/dependent traits. A second cluster that resembled the generally violent/antisocial type reported the highest levels of

antisociality, but had similar levels of borderline/dependent traits to the family only type.

When compared to men in the other types, they also had the highest levels of substance use and abuse, the greatest amount of criminal involvement and the highest psychopathy scores.

A psychologically distressed cluster, resembling the dysphoric/ borderline type, reported significantly higher levels of fear of abandonment than all other types, but was not significantly different from the GVA type on antisocial traits (Holtzworth-Munroe et al., 2000). Men in this type appeared to be the most psychologically distressed as they scored higher than the other types on MCMI-III scales not used in the cluster analysis such as depressive, passive-aggressive, self-defeating, PTSD, anxiety and thought disorder (Holtzworth-Munroe et al., 2000). An additional cluster, labelled Low Level Antisocial (LLA) was also identified that scored similarly to the GVA and DB types on antisociality and reported moderate levels of fear of abandonment.

In a similar study, Waltz et al (2000) found subtypes that resembled those proposed by Holtzworth-Munroe and Stuart (1994). Similar to Holtzworth-Munroe et al., (2000), married couples were recruited from the community, and subtypes of men who had been physically violent toward their wives in the past year were examined (Waltz et al., 2000). To examine the subtypes, a mixture analysis was conducted using the wives' report of husband violence on the Revised Conflict Tactics Scale, a general assaults score based on the husbands' self-reported violence toward people other than their spouse, and the MCMI-II antisocial, dysthymia and borderline scales.

The mixture analysis produced three groups, one of which resembled the family only type in that they reported the lowest levels of psychopathology on the MCMI-II scales. Two clusters that resembled the dysphoric/borderline and generally violent/antisocial types were also produced, but did not differ as predicted on psychopathology. In contrast to predictions, the DB group was higher in antisocial traits than the GVA type. Although both the DB and

GVA type were higher in borderline traits than the FO type, they were not significantly different from one another. Lastly, the three types did not differ on dysthymia.

When the GVA and DB men were compared on other MCMI-III scales not used in the cluster analysis, the DB men were also significantly higher on the narcissistic and aggressive-sadistic scales. However, GVA and DB men were not significantly different on alcohol dependence, drug dependence, and schizotypal personality, but were significantly higher than FO men on these scales. Therefore, offenders who engage in more severe partner violence have not consistently been distinguished based on personality (Waltz et al., 2000).

Similarly, in a sample of men referred to domestic violence treatment, Tweed and Dutton (1998) identified two clusters of men which resembled the GVA and DB types, but were not significantly different on antisocial traits (Tweed & Dutton, 1998). The men's self-reports on the severe physical abuse subscale of the Conflict Tactics Scale and on four MCMI-II scales (schizoid, borderline, antisocial and depression), were cluster analyzed. The resulting clusters were then compared on other MCMI-II scales, and on the severity and frequency of partner violence.

An instrumental type (similar to the GVA type) was identified that was significantly lower than the impulsive type on all of the MCMI-II scales used in the cluster analysis, except for the antisocial scale. Men in this type were similar to men in the impulsive cluster in that they were both equally clinically elevated on the antisocial, aggressive and drug dependence scales. However, the instrumental men were significantly higher in histrionic and narcissistic traits than the impulsive men. Across the majority of the other MCMI-II scales, the instrumental men were not highly elevated.

Compared to the 'instrumental' type, the 'impulsive' cluster reported more extensive psychopathology (Tweed & Dutton, 1998). These men were not only clinically elevated on

the antisocial and aggressive scales, but also scored significantly higher than the instrumental cluster on the borderline, avoidant, self-defeating, dysthymia and depression scales.

However, unlike the instrumental cluster, they were not elevated to a clinical level on the histrionic or narcissistic scales.

A recent study examined partner violent subtypes in a clinical sample of men in outpatient treatment for intimate partner violence or other violent criminal behaviours (Weber & Bouman, 2017). Using patient file information, the men in the sample were scored on their use of severe physical violence against an intimate partner (i.e. violence that resulted in physical injury) using an item from the Brief Spousal Assault Form for the Evaluation of Risk (B-SAFER). In contrast to prior studies, this was scored not only for past year violence, but also for violence across the patients' lifespan.

To measure the generality of violence dimension, the criminal history item from the Level of Service Case Management Inventory (LS/CMI) was also scored for all of the men. Lastly, two psychopathology variables were used. The first variable included the alcohol/drug problems and antisocial pattern scales from the LS/CMI and the second variable included personality disorder diagnoses made by clinicians.

These measures were cluster analysed, and a four-cluster solution was identified that resembled the offender types predicted by the Holtzworth-Munroe and Stuart (1994) model. The GVA type scored the highest on the antisocial pattern item, followed by the LLA and BD, with the least antisocial behaviour found in the FO men. The GVA men were also significantly higher than FO and DB men on substance abuse, whereas the FO and DB men were not significantly different from one another.

The percentage of men within each cluster that had been diagnosed with personality disorders were compared. A much larger percentage of the GVA, BD and LLA men had been

diagnosed with antisocial personality disorder than FO men, with the highest percentage found among the GVA men (Weber & Bouman, 2017). A larger percentage of the BD group had been diagnosed with borderline and narcissistic personality disorder than the other clusters, although the within-cluster sample sizes were too small to statistically compare these percentages.

However this study used a very narrow measure of psychopathology (substance abuse and antisocial behaviour) for the cluster analysis and did not measure the types of psychopathology theoretically related to the BD type such as dysphoria or anxiety. The within-cluster sample sizes were also very small when comparing the percentages of men within each cluster with personality diagnoses, which raises issues about the reliability of these results.

Overall, although this research indicates that there may be subtypes of offenders that differ in terms of personality and psychopathology, the cluster analyses that produced these profiles may have confounded violence measures and psychopathology. Because these cluster analyses entered severity of violence, generality of violence and psychopathology into one analysis, it is not clear if these personality and psychopathology profiles exist independently of differences in violent behaviour.

One study with partner violent men conducted a cluster analysis using only the personality/psychopathology dimension (Hamberger et al., 1996). In this study a sample of 833 men who were court-referred to a domestic violence counselling programme self-reported on the personality scales of the MCMI, which were then cluster-analysed. Three clusters were produced that largely resembled the FO, GVA and DB types proposed by Holtzworth-Munroe et al., (1994). A non-pathological type (similar to the FO type) included men that were not clinically elevated on any of the MCMI scales including the clinical syndrome scales. These men also reported the lowest levels of depression and anger, less

severe/frequent partner violent, less violence outside of the family and had fewer official police records (Hamberger et al., 1996).

A 'negativistic-dependent' type (similar to the DB type) included men that reported the most extensive psychopathology (Hamberger et al., 1996). Men in this type reported high levels of borderline, dependent, avoidant and passive-aggressive traits. They were also elevated on anxiety, alcohol abuse, drug abuse and paranoid personality, and reported significantly higher levels of depressive symptoms on the Beck Depression Inventory than the other clusters. Compared to men in the non-pathological cluster, they reported more severe and frequent partner violence.

Finally an 'antisocial' type (similar to the GVA type) was identified that reported less extensive psychopathology than the negativistic-dependent type, but were elevated on the antisocial, narcissistic and histrionic scales. Men in this type reported little psychopathology on the clinical syndrome scales with the exception of drug abuse and some paranoid traits. This cluster had more extensive police records, and although they engaged in higher levels of partner violence than the nonpathological cluster, they were not significantly different from the negativistic-dependent type in terms of violence.

Therefore when subtypes of men are examined using only the personality and psychopathology dimension, it does appear that similar subtypes emerge to when subtypes are created using psychopathology and violence measures combined. However research examining purely psychopathological profiles is limited, and this particular study examined only personality traits, not general psychopathology.

Overall, the research literature indicates that there may be subtypes of intimate partner violent offenders that differ in terms of their personality traits and general psychopathology.

A non-psychopathological type has generally been identified that is low in partner and

general violence. A type with extensive psychopathology including both emotional disturbance and externalising psychopathology has also been identified that engages in moderately high levels of partner and general violence. Lastly, an antisocial type that is high in antisocial traits but has less extensive psychopathology than the psychologically distressed type has been identified. However, the more violent groups have not always been able to be distinguished based on personality traits and psychopathology such as antisocial or borderline traits and dysthymia (Hamberger et al., 1996; Tweed & Dutton, 1998), and in some cases the psychologically distressed type are higher than the antisocial type on antisocial traits (Waltz et al., 2000).

One of the limitations of prior research is that most studies used only a selection of personality traits hypothesised to distinguish between types of partner violent offenders when conducting cluster analyses. Therefore it remains unclear whether other differences might emerge when a broad measure of clinical personality traits and general psychopathology is used. Similarly, each study used different measures of psychopathology or personality traits in the cluster analyses, which may have influenced the particular profiles found.

Also most of the research has involved community samples or men court-referred to treatment programmes, so it is not clear whether a high risk prison sample will show similar or different psychopathology profiles. Lastly, men who are violent only outside of relationships have not been well studied, as the focus of most research has been on men violent mainly within relationships (FO men) and men who are violent inside and outside of relationships (GVA men). Therefore it remains unclear how men violent within and outside of relationships are different to men violent only outside of relationships.

Intimate partner violence subtypes, treatment outcomes and recidivism

Further research has found that these subtypes of maritally violent men are not only descriptive, but predict some differences in treatment attendance and recidivism (Eckhardt, Holtzworth-Munroe, Norlander, Sibley, & Cahill, 2008; Huss & Ralston, 2008). In a sample of men in the United States who were attending domestic violence treatment or anger control programmes, scores on the borderline, depressive and antisocial scales of the MCMI-III and measures of partner violence and violence towards others derived from the Conflict Tactics Scale were entered into a cluster analysis (Huss & Ralston, 2008). The clusters that emerged were largely consistent with the Holtzworth-Munroe and Stuart (1994) typology (Huss & Ralston, 2008).

A cluster that resembled the FO type, reported the lowest levels of borderline, depressive and antisocial traits. The other two types included a cluster high in borderline and depressive traits (similar to dysphoric/borderline type) and a cluster high in antisocial traits (similar to the GVA type). On average, the FO type attended significantly more treatment sessions than the other two types, which did not differ from each other. In terms of treatment completion, significantly fewer of the generally violent/antisocial cluster completed treatment (50%) compared to the dysphoric borderline (59%) and family only (78%).

To compare the types on recidivism, post treatment official domestic violence-related convictions were examined over a 24-54 month period post-treatment. A significantly greater proportion of the GVA group reoffended (39.1%); followed by the dysphoric borderline (29.3%) and the family only cluster (10.6%). A survival analysis also revealed that GVA men re-offended post-treatment more quickly than FO and DB men.

Eckhardt (2008) also found that these intimate partner violence subtypes differ on treatment completion, re-arrest post-treatment and pre-treatment stage of change (Eckhardt

2008). Men court-ordered to attend a Batterer Intervention Programme (BIP) self-reported at treatment intake on the MCMI-III antisocial, borderline and dependent scales and reported on physical violence toward an intimate partner in the past year on the Revised Conflict Tactics Scale (CTS2). They were also interviewed regarding their general use of violence in the past year, and a total general violence score was calculated. These three measures were cluster analysed, and four offender subtypes were identified that resembled the FO, LLA, BD and GVA types identified by Holtzworth-Munroe et al (2000)

These subtypes differed in the proportion that completed treatment, with a higher proportion of GVA (90.9%) and BD (61.5%) not completing treatment compared to FO men (23%). On examination of recidivism data held by probation, a significantly larger percentage of men in the generally violent antisocial cluster (45.5%) and the borderline/dysphoric clusters (37.5%) were re-arrested for any offence than the family only cluster (Eckhardt et al., 2008).

Therefore it appears that subtypes of partner violent men with more antisocial traits and with more extensive psychopathology are less likely to complete treatment, more likely to re-offend and to do so more quickly, when compared to partner violent men low in psychopathology.

Personality and psychopathology profiles of mixed samples of violent offenders

While some research has focused specifically on intimate partner violent men, other research has sampled men based on their violent behaviour without investigating whether this violence was directed toward an intimate partner or toward others (Blackburn, 1986). Therefore these samples may contain men who are exclusively violent toward an intimate partner or only toward others, and men who are violent towards both. Therefore it is not clear whether the psychopathology profiles identified in this research are unique to a particular

violent group or whether they are shared by different groups of violent offenders. However, because much of this research has been conducted with high risk offenders or clinical samples, the profiles identified may inform the profiles that emerge in the current study. For this reason, the personality/psychopathology profiles of violent samples of men will be reviewed.

Early research found that violent offenders can be differentiated based on their degree of antisocial traits and social withdrawal (Blackburn, 1986). Men held in forensic psychiatric hospitals due to violent behaviour, completed the Special Hospitals Assessment of Personality and Socialization (S.H.A.P.S), a measure of socialization and personality traits. Scores on an Antisocial Aggression factor (aggressiveness, impulsiveness and hostility), and a Withdrawal factor (shyness, anxiety and vulnerability to mood disorders) were cluster analysed, and four clusters were identified (Blackburn, 1986).

A *primary psychopathy* type was identified that included men with high Antisocial Aggression and low Withdrawal. The second type labelled *secondary psychopathy* had comparable levels of Antisocial Aggression to the primary psychopathy type, but also had high levels of Withdrawal, indicating greater anxiety, social withdrawal and dysphoric mood. An *inhibited* type scored high on Withdrawal, but in contrast to the first two clusters was low on Antisocial Aggression. Finally, a *controlled* type scored low on both factors and showed little personality dysfunction. These violent offender types have also been found among mentally disorder offenders using the MCMI (Blackburn, 1996).

Cluster analysis of personality disorder traits, as conceptualized in the third version of the Diagnostic and Statistical Manual of Mental Disorders(DSM III) , has also identified groups of violent offenders with different combinations of personality disorder traits (Blackburn & Coid, 1999). Violent offenders held in prison special units and a maximum security hospital completed clinical diagnostic interviews and were scored on the eleven

DSM-III Axis II (personality) disorders. A cluster analysis of these standardized trait scores produced six clusters, three of which received their first conviction at a younger age, had more extensive criminal histories, and greatest risk of reoffending than the other clusters (Blackburn & Coid, 1999).

The first cluster scored relatively high on antisocial, narcissistic, histrionic, passive-aggressive and antisocial traits, and low on other personality traits such as avoidant, dependent, borderline, and schizoid. Similar to the first cluster, the second cluster also scored high on antisocial and narcissistic traits, but was also socially detached and interpersonally mistrustful as indicated by their high scores on schizoid, schizotypal and paranoid traits (Blackburn & Coid, 1999). Compared to the first cluster, a significantly greater proportion had been diagnosed with a psychotic disorder at some stage in their lifetime.

The third cluster was the most pathological and scored the highest on the majority of the personality disorder traits (Blackburn & Coid, 1999). Similar to the other cluster, they also had prominent antisocial, narcissistic and histrionic traits, although to a greater degree. They also scored particularly high on avoidant, borderline, passive-aggressive and dependent traits (Blackburn & Coid, 1999). Compared to the other clusters, they were the lowest in schizoid and compulsive traits. Compared to the first cluster a significantly higher proportion of this cluster had at some stage in their lifetime, been diagnosed with an affective or anxiety disorder, and a higher proportion also had co-morbid diagnoses.

However this research was conducted with violent offenders with serious mental illness, and as such it is not clear whether these subtypes would be found in non-psychiatric, criminal populations. Also, these cluster analyses were limited to personality traits, and so if a general measure of psychopathology was included, it is not clear whether different subtypes would emerge.

Research has examined variation in personality and psychopathology among offenders who score highly on psychopathy (Skeem, Johansson, Andershed, Kerr, & Loudon, 2007). In a review of early theoretical and empirical work, Skeem et al., (2003) proposed that primary and secondary variants of psychopathy could be identified and differentiated on a number of dimensions.

Primary psychopaths were suggested to have greater affective deficits, such as lack of empathy and remorselessness and to be less impulsive and socially deviant than secondary psychopaths. They also proposed that secondary psychopaths would show greater psychopathology, such as higher levels of anxiety and borderline personality traits. The two variants were also argued to vary on the type of narcissism (Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). Primary psychopaths were suggested to show an overt narcissistic style characterised by self-assurance and a sense of superiority. In contrast, secondary psychopaths were argued to show covert narcissism, characterised by stress vulnerability and narcissistic fury (Skeem et al., 2003; Yildirim & Derksen, 2015). Since this review, further empirical research has supported the distinction between primary and secondary psychopathy (Skeem et al., 2007; Swogger & Kosson, 2007). In a sub-sample of prisoners serving long sentences for violent offences, and who scored within the top third of the original sample on the PCL-R, Skeem et al., (2007) examined personality and psychopathology differences between primary and secondary variants of psychopathy. A model based cluster analysis of the PCL-R and trait anxiety scores produced two subtypes which scored differently on both the PCL-R facets, and on psychopathology and personality traits (Skeem et al., 2007).

A primary psychopathy cluster was identified that was similar to the secondary psychopathy cluster on antisocial behaviour, but was lower in anxiety. The 'secondary psychopathy' cluster were distinguished from the primary cluster by their greater emotional

disturbance, as evidenced by higher levels of current major mental illness, substance abuse, borderline traits and poorer overall functioning (Skeem et al., 2007). The secondary psychopathy cluster also appeared to be more socially impaired as indicated by higher scores on avoidant and dependent personality traits, lower levels of assertiveness, and higher levels of social withdrawal.

In a similar study, the heterogeneity in personality traits among male criminal offenders scoring 30 or more on the PCL-R was examined (Hicks, Markon, Patrick, Krueger, & Newman, 2004). Participants' scores on the Multidimensional Personality Questionnaire (MPQ), which measures a range of basic personality traits, were entered into a model-based cluster analysis.

The results revealed two clusters; *emotionally stable* and *aggressive*. The emotionally stable cluster resembled the primary psychopathy profile. This cluster scored particularly low on stress reaction, indicating a resilience to the effects of negative events, and showed high levels of behavioural control. This cluster was also socially dominant, but was low in social closeness.

In contrast, the aggressive cluster resembled the secondary psychopathy profile. This cluster scored highly on scales relating to negative emotionality, indicating that they were highly reactive to stress, tended to act aggressively and were alienated. They also scored lower than the emotionally stable cluster and the normative sample on constraint suggesting they were impulsive and sensation-seekers. They were socially impaired, as indicated by their low scores on social closeness.

In an external validation of the clusters, the aggressive cluster was found to have engaged in more aggressive behaviour, including fights as a child and adult, and had an earlier age of onset of criminal behaviour (Hicks et al., 2004). The aggressive cluster were

also found to score significantly higher on anxiety as measured on the Welsh Anxiety Scale, a finding that is consistent with the distinction between primary and secondary psychopathy.

In addition to the primary and secondary psychopathy subtypes, further research has identified two additional subtypes (Blackburn, Logan, Donnelly, & Renwick, 2008). A subsample of male forensic psychiatric patients categorised as psychopathic (PCL-R total score >20) completed the Antisocial Personality Questionnaire (APQ), a self-report measure of personality traits. Scores on two factors derived from the APQ were entered into a cluster analysis. These factors included impulsivity (hostility, aggression and non-compliance) and withdrawal (social withdrawal, anxiety and submissiveness). Four clusters were identified that varied on these two factors, as well as on a range of other external criterion.

The primary psychopathy cluster was low on withdrawal and high on impulsivity. Men in this cluster were high on extraversion, low in neuroticism and had low levels of personality disorder traits, with the exception of antisocial traits. Compared to other clusters, such as the secondary psychopathy cluster, a smaller proportion of individuals had been diagnosed with an Axis I disorder at some point in their lifetime.

The secondary psychopathy type, like the primary psychopathy cluster, was high in impulsivity, but was much higher on withdrawal. This cluster was high on introversion, low in agreeableness and was the highest of all clusters on neuroticism. At some stage in their lifetime, the majority in this cluster had been diagnosed with an anxiety disorder (69%) or PTSD (75%). Like the primary psychopathy cluster, this cluster was also high in antisocial traits, however they also had higher levels of many other personality disorder traits including paranoid, schizoid, schizotypal, borderline and narcissistic, suggesting greater dysfunction.

A controlled cluster was also identified that was suggested to be a variant of primary psychopathy (Blackburn et al., 2008). This cluster scored lower than the primary psychopathy

cluster on withdrawal and impulsivity. Across the majority of personality disorder traits, this cluster scored low, with the exception of the narcissistic and histrionic scales. This cluster was low in neuroticism, high in extraversion and was agreeable and conscientious.

The final cluster, the inhibited type, scored similarly to the controlled cluster on impulsivity, but was higher on withdrawal. Similar to the secondary psychopathy cluster, the majority had been diagnosed with anxiety or PTSD at some point in their lifetime. This cluster showed primarily antisocial, borderline, dependent and histrionic traits. This cluster was higher than the controlled cluster on neuroticism, was more introverted and was less conscientious.

These findings suggest that there may be violent offender types that can be distinguished based on their degree of emotional disturbance, social dominance and social closeness. However, this research has been conducted in sub-samples of prisoners who scored particularly highly on psychopathy. Therefore, the degree to which these types might be found in a high-risk sample of violent prisoners, some of which may score highly on psychopathy, and some which may not, is not clear.

Other research conducted in New Zealand has examined subtypes of high risk violent prisoners (Sissons, 2013). In this study, psychopathology factors derived from the pre-treatment scores on the MCMI-III, a self-report measure of personality dysfunction and clinical psychopathology were cluster analysed. The results showed that the psychopathology profiles could be organized into three clusters.

The *low psychopathology* cluster, showed no clinical elevations on any of the MCMI-III scales. In contrast, the *high psychopathology* cluster had multiple scale elevations including scales measuring externalizing psychopathology (such as antisocial personality, drug and alcohol abuse), internalizing psychopathology (anxiety, depressive and self-

defeating personality) and social withdrawal characteristics including avoidant and paranoid personality. The third, *antisocial/narcissistic* cluster had peaks on the antisocial personality, narcissistic personality and drug and alcohol abuse scales. In contrast to the *high psychopathology* cluster, they did not evidence internalizing psychopathology.

The three clusters were then compared on various measures of criminal risk (Sissons, 2013). Of the three clusters, the high psychopathology cluster had the highest mean number of prior convictions. The high psychopathology and antisocial/narcissistic clusters also had higher scores than the low psychopathology cluster on a self-report measure of risk and on the RoC*RoI, an automated static risk tool that estimates the likelihood of returning to prison over a five year period,

On the clinician-rated, Violence Risk Scale (VRS), the antisocial/narcissistic cluster obtained a significantly higher total score than the low psychopathology cluster, whereas the total score for the high psychopathology group did not differ from the other two clusters. On the VRS static scale, the high psychopathology and antisocial/narcissistic clusters scored significantly higher than the low psychopathology cluster. On the dynamic scale, only the antisocial/narcissistic cluster scored significantly higher than the low psychopathology cluster (Sissons, 2013).

Over an average of five years post-release, the clusters were also compared on their rates of reconviction (Sissons, 2013). When controlling for covariates such as age, number of previous convictions and risk, the high psychopathology and the antisocial/narcissistic clusters continued to have significantly higher rates of reconviction than the low psychopathology cluster. A survival analysis also showed that the antisocial/narcissistic and the high psychopathology clusters were more likely to be reconvicted, and more quickly than the low psychopathology cluster. A similar pattern of results was also found for violent

reconvictions and re-imprisonment, however the antisocial/narcissistic cluster was only marginally more likely to have a violent reconviction than the low psychopathology cluster.

Cluster differences in treatment responsivity, specifically treatment engagement and treatment change were also examined, and few differences were found (Sissons, 2013). The three clusters did not differ in their ability to form a therapeutic alliance (working relationship with the therapist). On average, the three clusters were also rated at a similar stage of change on the VRS before and after treatment.

Over the course of treatment, the high psychopathology and antisocial/narcissistic clusters showed decreases in self-reported psychopathology on the majority of MCMI-III scales, whereas the low psychopathology cluster showed little change (Sissons, 2013). Similar results were found for self-report measures of criminal risk and antisocial attitudes. However, the three clusters were found to make similar change on the VRS dynamic factors that were identified by the clinician as treatment targets. No differences were found between clusters on treatment non-completion.

Because this sample was selected based on their high risk status, the sample most likely included men with a history of intimate partner violence, although this was not a focus of the research. Therefore, the current study aims to extend this research to examine whether there are any similarities or differences in the psychopathology and personality profiles of high risk violent men with and without a history of intimate partner violence.

In summary, studies examining the psychopathology of violent offenders have been largely limited to violent offenders high in psychopathic traits, or violent offenders held in forensic psychiatric institutions. Therefore, because both these samples are high in psychopathology, the psychopathology profiles found in these studies may not generalise to violent men in prison who are at a high risk of reoffending.

Research that has looked at a high risk sample of violent offenders (Sissons, 2013), has not compared the profiles of men with a history of partner violence to men without a history of partner violence, and so it is unknown what the similarities and differences might be in terms of personality traits and psychopathology. Similarly, research on intimate partner violent subtypes has not compared the profiles found to profiles for men who are only violent outside of relationships and so it is not clear whether these profiles are unique to partner violent men, or might also be found in men who are violent towards others.

Introduction to the current study

In the current study I aimed to explore the similarities and differences in dysfunctional personality traits and psychopathology of high-risk violent prisoners with and without a known history of intimate partner violence perpetration. To do this I reviewed archival file information for the combined high-risk sample and developed a categorization scheme for classifying the sample into generally violent men (men with an identified history of intimate partner violence and violence towards individuals outside of their intimate relationships) and externally violent only men (men with no recorded history of intimate partner violence, but who had convictions for violence toward individuals other than their intimate partners).

Clinician rated Violence Risk Scale evidence recording sheets, and other available reports were reviewed, and men with recorded evidence of at least one act of physical violence against an intimate partner within their lifetime were classified as generally violent. Men with no reported physical intimate partner violence were classified as externally violent only.

The first research question for this study was: What are the differences and similarities in dysfunctional personality traits and psychopathology between generally violent

men and externally violent only men? This research also aimed to explore any other differences between men with a history of partner violence and men without a history of partner violence such as on criminal history, clinician rated violence risk at pre and post treatment, estimated risk of re-imprisonment on release from custody and age at release.

The second research question was: Are there similar or different subtypes of personality dysfunction and psychopathology among generally violent men and externally violent only men? Equally, this research aimed to explore whether these psychopathology subtypes were externally meaningful, by examining whether they were associated with differences in criminal history, estimated risk of re-imprisonment at release, and the amount of change in dynamic risk made throughout treatment.

Lastly this research aimed to explore whether men with a history of partner violence have a greater likelihood of reconviction within 1 year of release from prison than men without a history of partner violence.

Method

Sample

This research combined two subsamples of high risk, violent male prisoners that attended rehabilitation programmes at one of the four High Risk Special Treatment Units (HRSTU's) in New Zealand. These programmes address violent offending among prisoners with a high estimated likelihood of re-imprisonment, as assessed through a static risk tool, the RoC*RoI. The combined sample comprised 232 male prisoners.

The first subsample ($n=85$) comprised of men who undertook treatment between 2005 and 2009 at Rimutaka Prison in Te Whare Manaakitanga (TWM). This was the first prison-based high -risk special treatment unit (HRSTU) to be opened in New Zealand in 1998. Between 2007 and 2008 three additional HRSTU's were opened around the country including

Puna Tatari (Springhill Prison), Karaka (Waikeria Prison) and Matapuna, (Christchurch Prison). The second subsample was a selection of men ($n=146$) who undertook treatment at one of the four HRSTU's and were recruited into the New Zealand Parole Project between 2009 and 2014, just prior to release into the community.

The majority of the combined sample were Māori ($N=141$, 60.8%), and over one quarter were European ($n=67$, 28.9%). A small proportion were Pasifika ($n=21$, 9.1%) with around 1.3% ($n=3$) classified as other. Around 15% of the sample ($n=35$) were serving indeterminate sentences, including 32 (13.8%) on life sentences and three (1.3%) on preventive detention. For those serving determinate sentences ($n=197$), the average number of days sentenced to imprisonment was 1853.7 ($SD=1219.1$ days) or 5.1 years, and ranged from 365 days to 7665 days.

On average men in the combined sample had a large total number of criminal convictions ($M=61.9$, $SD=48.80$), and had obtained their first conviction during mid adolescence ($M=15.91$ years, $SD=2.23$ years). The majority of the sample ($N=222$, 95.7%) had prior violent convictions, although every male in the sample had identified violence related treatment needs, which are required for entry into the HRSTU's. On average, participants had multiple violent convictions ($M=6.3$, $SD=5.40$), and had received their first violent conviction during adolescence ($M=18.6$ years, $SD=3.69$ years).

Within the combined sample, 213 men (91.8%) were released from custody during the course of the study, and had served an average of 1874.99 days ($SD=1679.13$ days), or around 5.14 years. At the time of release men were on average 33.2 years of age ($SD=8.4$ years), and were at a high risk of reconviction resulting in re-imprisonment, as indicated by a mean RoC*RoI score of .73 ($SD=.14$). This score indicates individuals in the sample had an estimated likelihood of returning to prison within 5 years of 73%.

Ethics

Ethical consent was obtained from the Victoria University Human Ethics Committee to conduct this research. Research agreement was also obtained from the New Zealand Department of Corrections to use the archival data collected as part of the New Zealand Parole Project study for the purposes of this research.

Data/measures

The current study used archival file information and electronic data that was available as part of the New Zealand Parole Project study.

Violence Risk Scale (VRS; Wong & Gordon, 2000) and evidence recording sheets

One of the measures used in this study was the Violence Risk Scale that had been completed by clinicians early in treatment. The sample members VRS's used in this study had previously been cross-checked by a qualified research team that prepared the archival information, and only the assessments that met quality control standards were used.

The VRS is a measure used to assess factors that are related to violent recidivism and includes 6 static risk factors (unchangeable through treatment and mainly consist of criminal history factors) and 20 dynamic risk factors (changeable through treatment). The Static risk scale assesses a number of historical risk factors such as age at first violent conviction and the number of juvenile convictions (Wong & Gordon, 2000). The Dynamic scale includes various factors related to lifestyle, antisocial attitudes and behaviours (such as substance use and aggression), and social support in the community (Wong & Gordon, 2000). Each dynamic item is rated on a scale from 0 to 3 to measure the degree to which that factor is related to violent behaviour. Items which receive a rating of 2 or 3 are considered suitable treatment targets as they are more strongly associated with violent behaviour (Wong & Gordon, 2000). VRS evidence recording sheets were also used in this study. When rating

items of the VRS, clinicians recorded evidence to support the ratings given for each item onto these sheets.

Millon Clinical Multiaxial Inventory III (MCMI-III; Millon, Davis & Millon, 1997)

Within the archival database, self-report MCMI-III measures were available that had been completed by men in the sample prior to entering the treatment programmes. The MCMI-III is a standardized, self-report measure of clinical personality patterns and clinical syndromes that was developed through criterion-based referencing in adult psychiatric populations (Groth-Marnat, 2009). The MCMI-III is the second revision of the Millon Clinical Multiaxial Inventory, and some of the items and scale content closely align with criteria in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV). The MCMI-III contains 175 true-false items, and includes 24 clinical scales divided into four categories; Clinical Personality Patterns, Severe Personality Patterns, Clinical Syndromes and Severe Clinical Syndromes.

The Clinical Personality Patterns scale assesses 11 basic personality patterns that largely correspond with DSM-IV Axis II personality disorders including schizoid, avoidant, depressive, dependent, histrionic, narcissistic, antisocial, compulsive and negativistic/passive aggressive. It also includes two personality patterns that are not included in the DSM-IV including sadistic/aggressive personality and masochistic/self defeating. The Severe Personality Pathology scales measure more advanced stages of personality pathology and include schizotypal, borderline and paranoid personality.

The Clinical Syndromes scales, according to Millons' theory, measure psychopathology that is transient, varies over time and is an extension of an individual's personality style (Millon et al., 1997). These seven scales include anxiety, somatoform, bipolar: manic, dysthymia, alcohol dependence, drug dependence and post-traumatic stress

disorder. Finally, the Severe Clinical Syndrome scale comprises a distinct group of syndromes with marked severity and includes thought disorder, major depression and delusional disorder.

Raw scores on these scales are converted to base rate scores which adjust for the actual prevalence of characteristics in the psychiatric population. The MCMI-III uses base rate clinical cut off scores where a score of 75 or above indicates the presence of a particular trait or syndrome and a score of 85 or above indicates a high probability that a disorder is present.

The MCMI-III also includes three Modifying indices which measure different manners of responding, and can be used to make a number of adjustments to base rate scores (Groth-Marnat, 2009). The Disclosure Index measures the extent to which the client responded openly compared to in a defensive or secretive manner. The Desirability Index indicates the extent to which the client responded in a socially desirable manner, and presented themselves as interpersonally attractive. Finally the Debasement Index reflects the extent to which, through their responses the client reflected themselves in a negative manner.

Lastly, the MCMI-III includes a Validity Index that measures random responding and if two or more items are endorsed as true, the profile is considered invalid. In this study only MCMI-III profiles that were deemed valid based on this index were used.

The MCMI-III has demonstrated good construct validity through its correlations with theoretically similar measures (Groth-Marnat, 2009) and has demonstrated good diagnostic validity through the relationship of the base rate scores with clinical ratings (Jankowski, 2002). The MCMI-III has demonstrated good internal consistency, and the alpha coefficients for 20 of the 26 scales exceeded .80.

Procedure

Original data collection

The data used in this research was originally collected from 232 men who undertook assessment between 1998 and 2012 at the HRSTU's run by the New Zealand Department of Corrections (Sissons, 2013). These men completed psychometric assessments at the beginning and end of the treatment programmes, including a clinical measure of personality traits and psychopathology (the MCMI-III) and a measure of violence risk (the Violence Risk Scale).

The men self-reported on the MCMI-III, and only the pre-treatment profiles were used in this research. The sample members were also assessed and scored on the Violence Risk Scale (VRS) by trained clinicians at pre and post treatment. Both pre and post treatment VRS's were used in this research. Descriptive data and criminal history information (e.g. total number of convictions, age at first conviction and total violent convictions) were also collected as a routine part of the assessment phase of treatment (Sissons, 2013).

The men that were released from custody were scored on the RoC*RoI at the time of release. The RoC*RoI is an automated static risk tool used to estimate the risk of reconviction leading to imprisonment over a 5 year period (Bakker & O'Malley, 1999). Also for the men released from custody, official post-release conviction data was originally collected. This data had been coded dichotomously (yes/no) for convictions obtained between the time of release from custody until the date when the conviction history was obtained (Sissons, 2013). For the purposes of this study, a dichotomous measure of reconviction within 1 year of release from custody was used, as this was available for both sub-samples. Reconviction, violent reconviction and reimprisonment were examined.

Data preparation

Prior to analysis, the sample members were categorized into two groups. To classify the sample into these groups, clinician rated pre-treatment Violence Risk Scales and evidence recording sheets were examined for any recorded evidence of physical violence against a current or former intimate partner. The VRS was used because it contains items where physical violence within intimate relationships is often identified, such as the stability of relationships with significant others, violent lifestyle and interpersonal aggression. For some cases, psychological reports and parole assessment reports were also available and so these were reviewed for any additional information if there was no evidence of physical intimate partner violence on the VRS. Cases without a pre-treatment VRS measure or evidence recording sheet available and where there was insufficient information on relationships in the parole assessment or psychological reports were excluded from the sample ($n=3$).

Generally Violent. To be categorized into this group, the men had to have recorded evidence of at least one act of physical violence against a current or former intimate partner at any point within their lifetime. For the purposes of this study, an intimate partner included a female current or former partner or spouse.

This group was labelled generally violent as some individuals had recorded evidence of violence against individuals who were not their intimate partners, indicating some individuals were not exclusively partner violent. For some individuals, it was unknown whether they had been violent to individuals outside of their relationships. However, research has shown that there is a strong association between partner violence and violent convictions against people other than partners (Moffitt et al., 2000; Piquero, Theobald, & Farrington, 2014), and that those that engage in more frequent, and chronic offending are

more likely to have engaged in intimate partner violence. Therefore, it is likely that most individuals in this group had engaged in both types of violence.

Men with any violent convictions, whether historical or current where the victim was an intimate partner were included in this group. Men with a Male Assaults Female conviction were only classified into this group if the victim was recorded as an intimate partner, because this conviction can include violence against any female, not exclusively toward an intimate partner.

Men were also classified as generally violent if they had self-reported physical violence toward an intimate partner in any of their reports, regardless of whether this resulted in official conviction. Cases where there was only evidence of non-physical forms of intimate partner violence such as verbal abuse, controlling behaviour, emotional abuse and property damage were not included in this group, and were classified into the externally violent only group.

Externally violent only group. Men were classified as externally violent only if there was no recorded evidence of physical violence against an intimate partner on the VRS or in any of the other reports. As mentioned above, men who only had evidence of non-physical forms of intimate partner violence were included in this group.

Categorization procedure. The categorization of cases was completed by two different coders. The first coder classified 154 cases from the New Zealand Parole Project sub-sample, 3 of which were unable to be reliably classified due to insufficient file information and were excluded from the sample. These cases did not have Violence Risk Scale evidence recording sheets on file, which was the main source of information on relationship history used to classify cases. Four cases from this sub-sample did not have any MCMI-III data available, or the data was invalid and so they were excluded from the sample

as this information was required for further analyses. This brought the final size of this sub-sample to 147.

The second coder classified 88 cases, however 3 of these cases were excluded from the sample as they had missing or invalid MCMI-III data which was required for later analyses. Therefore the final size of this sub-sample was 85.

To assess the degree to which the two raters were classifying men as generally violent and externally violent only in a similar manner, the second rater independently coded a small proportion of the first raters sample ($n=30$). The two coders agreed on classification for 90% of cases ($n=27$). The remaining three cases were resolved through discussion, resulting in 134 men classified as generally violent (57.8%) and 98 men classified as externally violent only (42.2%).

MCMI-III psychopathology factors

To reduce and simplify the psychopathology data for analysis, scores on four factors previously derived from the MCMI-III scales were calculated. In prior research, a principal components analysis was conducted on the self-reports of a large sample of high risk violent prisoners on the MCMI-III clinical (i.e. not the validity) scales (Sissons, 2013). This prior research found four factors which accounted for around 68.6% of the variance in the MCMI-III scale scores (Sissons, 2013)

As shown in Appendix A, these factors included internalizing psychopathology (distress and negative mood including depression and anxiety) externalizing psychopathology (aggressiveness, hostility and impulsivity), admiration seeking (narcissistic and histrionic qualities such as self-centeredness and attention seeking) and social withdrawal/eccentricity (odd/eccentric thoughts and interpersonal mistrust).

The internalising factor was found to account for the largest proportion of variance (47.69%) and the externalising psychopathology factor accounted for an additional 10.12% of the variance (Sissons, 2013). For the admiration seeking factor, only the narcissistic and histrionic scales loaded onto this factor, which accounted for 6.37% of the variance. Lastly the social withdrawal/eccentricity factor accounted for an additional 4.46% of the variance.

In this prior analysis, all of the factors were significantly correlated, with the exception of admiration seeking and externalising psychopathology (Sissons, 2013). Admiration seeking was negatively correlated with the other two factors; internalising ($r=-.27$) and social withdrawal ($r=-.09$). The internalising factor and the social withdrawal/eccentricity factors were found to be strongly positively correlated ($r=.60$). Lastly, externalising psychopathology was found to be moderately, positively correlated with both internalising psychopathology ($r=.43$) and social withdrawal/eccentricity ($r=.42$).

In the current research, the four factor scores were calculated by summing the base rate scores for the subscales that loaded onto each factor in the prior principal components analysis (see Appendix A for which scales are contained within each factor). These factor total scores were then standardized for some analyses to allow comparison between factors with different numbers of scales.

Data Analysis Strategy

Comparative analyses. Once the entire sample had been classified into the generally violent and the externally violent only groups, a number of comparative tests were conducted.

To compare the generally violent and externally violent only groups on dysfunctional personality traits and psychopathology, a one-way between-subjects multivariate analysis of variance (MANOVA) was performed on the four psychopathology factors mentioned above.

To explore other differences between generally violent and externally violent only men a number of independent samples *t*-tests with Bonferonni adjustments were conducted to compare these two groups on criminal history, clinician-rated dynamic risk at pre and post treatment, estimated risk at release and age at release.

Latent profile analysis. In order to identify homogenous sub-groups within our high risk, violent sample with similar response patterns on the MCMI-III, latent profile analyses were conducted using *MPlus* software. Latent profile analysis belongs to a group of statistical techniques known as finite mixture modelling, which model population heterogeneity by identifying sub-groups within the data based on similar response scores (Peugh & Fan, 2013). Therefore latent profile analysis identifies unobserved (latent) sub-groups within a population, which are assumed to be independent and where the mean of each dependent variable can vary across classes (Muthén, 2001; Vaughn, DeLisi, Beaver, & Howard, 2008).

Latent profile analysis has a number of advantages over traditional cluster-analytic techniques. In comparison to k-means and hierarchical cluster analysis, latent profile analysis uses maximum likelihood estimation to identify the number of sub-groups, rather than arbitrary distance measures (Turner, Miller, & Henderson, 2008; Vaughn et al., 2008). Latent profile analysis also estimates the probability that an individual belongs to each of the latent classes based on their response pattern (Peugh & Fan, 2013).

Latent profile analysis has previously been used to examine heterogeneity in offender populations, including identifying female sexual offender subtypes based on clinical psychopathology traits (Turner et al., 2008) and variants of psychopathy among adult male offenders (Mokros et al., 2015).

In the current study latent profile analysis was used to identify sub-groups of high-risk violent offenders based on their pre-treatment MCMI-III profiles. Because empirical

research has not identified how entering a large number of variables into a latent profile analysis influences the statistical power to detect the correct number of latent classes (or subtypes), the four MCMI-III psychopathology factors were used for this analysis, rather than the 24 individual MCMI-III subscales (Tein, Coxe, & Cham, 2013).

Results

First, I will compare the generally violent men and externally violent only men on a number of demographic and criminal risk related variables, such as criminal history, age at release and RoC*RoI at release. Next, I will compare the generally violent men and externally violent only men on the four MCMI-III psychopathology factors and on the MCMI-III clinical scales.

Following this, I will present the psychopathology profiles identified through the latent profile analysis, and will compare the proportions of generally violent and externally violent only men within each of these subtypes. The external meaningfulness of these psychopathology profiles will then be explored by comparing men in each of the subtypes on criminal history, estimated risk of re-imprisonment at release and change in dynamic risk over the course of treatment.

Lastly, I will compare generally violent and externally violent only men on the likelihood of recidivism within 1 year of release from prison. I will compare these two groups on any reconviction (including breaches), violent reconviction and re-imprisonment.

Generally violent and externally violent only groups: Demographic and criminal risk comparisons

To investigate differences between generally violent and externally violent only men on criminal history, Violence Risk Scale ratings at pre and post treatment, RoC*RoI and age

at release, independent samples *t*-tests were conducted. A Bonferonni adjustment for multiple comparisons was applied ($p < .005$).

As shown in Table 1 below, few significant differences were found between generally violent and externally violent only men. Generally violent and externally violent only men were not significantly different on their age at first conviction, with both groups obtaining their first conviction at around 16 years. Externally violent only men obtained their first violent conviction at a younger age than generally violent men; however this difference was no longer significant when a Bonferonni adjustment was applied.

For the comparison on prior convictions, one outlier was identified within the externally violent only group with 442 prior convictions. When this outlier was removed from the analysis, generally violent men had a significantly greater number of prior convictions than externally violent only men, with on average about 16 more convictions. Similarly, for age at first violent conviction, when four outliers were removed who received their first violent conviction at age 29 or greater, generally violent men had a significantly greater number of violent convictions than externally violent only men. When these outliers were included, there was no significant difference between the two groups on the age at first violent conviction, $t(220) = -1.09$, $p = .28$, 95%CI [-1.5, 0.4].

Generally violent and externally violent only men were not significantly different on the VRS total or dynamic scale scores at pre or post treatment. At pre-treatment, they were also not significantly different on static risk.

For the 213 men that were released from custody during the time of the study, generally violent men were significantly older at the time of release than externally violent only men. However, there was no significant difference between generally violent and externally violent only men on estimated risk at release as assessed by the RoC*RoI.

Table 1

Comparison of Generally Violent and Externally Violent Only Men on Criminal History, Violence Risk, Age at Release and Static Risk at Release

Criminal history	Generally Violent		Externally Violent Only		<i>t</i>	Sig. (<i>p</i>)	95% CI for difference	<i>d</i>
	<i>n</i>	<i>M(SD)</i>	<i>n</i>	<i>M(SD)</i>				
Age at first conviction	134	15.9 (2.3)	98	15.9 (2.1)	.092	.927	[-.61, .56]	-
Age at first violent conviction	129	18.7 (3.1)	89	17.9 (3.0)	2.01	.046*	[-1.7, -.02]	0.26
Prior convictions	134	67.0 (39.8)	97	51.1 (43.3)	2.89	.004	[-26.8, -5.1]	0.38
Prior violent convictions	134	7.6 (6.1)	98	4.6 (3.7)	4.55	<.001	[-4.2, -1.7]	0.59
Violence Risk Scale								
Total pre	120	56.6 (7.8)	85	55.6 (8.5)	.877	.382	[-3.3, 1.3]	-
Total post	109	52.3 (8.0)	78	50.9 (8.5)	1.11	.268	[-3.8, 1.1]	-
Dynamic pre	120	43.7 (6.6)	85	43.0 (7.5)	.747	.456	[-2.7, 1.2]	-
Dynamic post	109	39.5 (6.8)	78	38.3 (7.6)	1.14	.258	[-3.3, .89]	-
Static pre	120	12.9 (2.6)	85	12.7 (2.7)	.365	.715	[-0.9, 0.6]	-
Release								
RoC*RoI at release	121	.72 (.15)	92	.73 (.13)	.715	.476	[-.02, .05]	-
Age at release	121	35.1 (8.2)	92	30.8 (8.0)	3.84	<.001	[-6.6, -2.1]	0.53

Note. * $p < .05$, 95% CI=95% confidence interval for the mean difference

Comparison of self-reported pre-treatment psychopathology among generally violent and externally violent only men

To compare generally violent and externally violent only men on dysfunctional personality traits and psychopathology, a one-way between groups multivariate analysis of

variance (MANOVA) was performed on the four psychopathology factors (internalising, externalising, social withdrawal/eccentricity and admiration seeking), previously derived from the MCMI-III clinical scales (i.e. personality and clinical syndrome scales).

The total scores for generally violent and externally violent only men on these psychopathology factors are presented in Table 2 below. The factor total scores were then standardized using a Z-transformation prior to the MANOVA to allow comparison.

Table 2

Raw Means and Standard Deviation Scores on Four MCMI-III Psychopathology Factors for Generally Violent and Externally Violent Only Men

MCMI-III factors	Generally Violent (<i>n</i> =134)		Externally Violent Only (<i>n</i> =98)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Internalizing	486.79	205.72	444.11	216.74
Externalizing	384.49	60.82	365.06	63.85
Social withdrawal/eccentricity	326.5	120.83	303.02	134.45
Admiration seeking	102.73	25.3	106.39	26.47

Note: Raw scores shown here are for comparing across groups and not factors, as each of the factors is comprised of a different number of MCMI-III scales

Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices and multicollinearity. For the externalizing psychopathology and admiration seeking factors, a total of twelve univariate outliers were identified across the generally violent and the externally violent only groups. To examine the influence of these outliers on the results, a second MANOVA was conducted in which these twelve outliers were removed from the analysis. There were no multivariate outliers in this data as assessed by Mahalanobis distances.

The dependent variables were found to be non-normally distributed in the two violent groups, as assessed by the Shapiro-Wilk normality test and the z-test. However, the data was not transformed as simulation studies have shown that analysis of variance is robust to non-normal distributions (Schmider, Ziegler, Danay, Beyer, & Bühner, 2010).

The social withdrawal/eccentricity and internalizing psychopathology factors were found to be highly correlated ($r=.81$, $n=232$, $p < .001$). To test if there was an issue of multicollinearity, two separate MANOVAs were conducted with one analysis excluding social withdrawal/eccentricity and the other excluding internalizing psychopathology. Box's test was non-significant ($p=.93$) and so the assumption of homogeneity of variance-covariance matrices was met.

The MANOVA of the total sample (including univariate outliers) showed that overall, the differences between the partner violent and non-partner violent men on the combined dependent variables was not statistically significant, $F(4,227)= 1.525$, $p=.196$; Wilks' $\Lambda =.97$, partial $\eta^2=.026$.

Similarly a MANOVA in which the twelve univariate outliers were removed found no significant difference between partner violent and non-partner violent men on the dependent variables, $F(4,215)= 1.305$, Wilks' $\Lambda=.98$, $p=.27$, partial $\eta^2=.024$. Non-significant results were also found when the social withdrawal/eccentricity and internalizing psychopathology factors were alternatively included in the MANOVA.

These results suggest that prior to treatment, men who have a history of intimate partner violence show similar levels of psychopathology to men who are violent only towards individuals outside of their intimate relationships.

Comparison of individual MCMI-III subscales

Differences between generally violent and externally violent only men on psychopathology were further explored by comparing the base rate scores of the individual MCMI-III scales using independent samples *t*-tests.

As shown in Table 3, the results of these analyses generally confirm the results of the multivariate analysis of variance. The only subscales on which generally violent and externally violent only men were significantly different were the histrionic and dysthymia scales. Generally violent men were significantly lower on histrionic traits, and higher in dysthymia than externally violent only men. When a Bonferonni adjustment for multiple comparisons was applied ($p < .002$), these differences were no longer statistically significant.

Table 3
Comparison of Generally Violent and Externally Violent Only Men on Average MCMI-III Clinical Scale Base Rate Scores

	Generally Violent	Externally Violent Only				
	<i>M(SD)</i>	<i>M(SD)</i>	<i>t</i>	Sig	95% CI	Cohen's <i>d</i>
Major Depression	35.4 (26.6)	28.7 (28.0)	1.85	.066	[-13.8, .43]	-
PTSD	45.2 (27.7)	38.7 (28.9)	1.74	.084	[-13.9, .88]	-
Somatoform	37.2 (27.1)	32.1 (28.5)	1.39	.165	[-12.4, 2.12]	-
Anxiety	54.5 (34.2)	52.5 (34.0)	.438	.662	[-10.9, 6.9]	-
Dysthymia	49.2 (27.9)	40.7 (31.1)	2.14	.034*	[-16.3, -.66]	0.29
Depressive	60.4 (25.4)	55.8 (29.5)	1.24	.216	[-11.9, 2.7]	-
Dependent	47.3 (27.3)	45.5 (25.0)	.515	.607	[-8.7, 5.1]	-
Thought Disorder	44.4 (25.2)	41.9 (26.6)	.714	.476	[-9.2, 4.3]	-
Self-Defeating	56.6 (27.3)	52.1 (29.3)	1.20	.232	[-11.9, 2.9]	-
Bipolar Manic	56.5 (19.6)	55.9 (20.2)	.217	.828	[-5.8, 4.6]	-
Antisocial	76.8 (12.1)	73.7 (16.5)	1.57	.118	[-7.0, .79]	-
Drug	74.4 (16.4)	70.5 (15.0)	1.86	.064	[-8.1, .23]	-
Alcohol	73.0 (17.3)	68.9 (18.2)	1.75	.081	[-8.8, .52]	-
Sadistic	59.8 (18.2)	55.4 (17.4)	1.85	.065	[-9.1, .28]	-
Compulsive	45.5 (12.5)	45.6 (13.7)	.078	.938	[-3.3, 3.5]	-
Borderline	55.1(22.0)	51.0 (22.1)	1.38	.170	[-9.8,1.7]	-
Narcissistic	58.7 (15.5)	58.2 (15.7)	.231	.817	[-4.6, 3.6]	-
Histrionic	44.0 (14.3)	48.1 (14.7)	2.15	.033*	[.35, 7.9]	-0.28
Delusional	48.0 (25.7)	44.8 (27.8)	.906	.366	[-10.2, 3.8]	-
Paranoid	56.4 (23.8)	52.7 (27.7)	1.06	.289	[-10.5, 3.2]	-
Schizoid	59.9 (20.0)	56.8 (21.8)	1.12	.265	[-8.5, 2.4]	-
Avoidant	54.2 (25.9)	51.0 (26.5)	.920	.358	[-10.0, 3.7]	-
Passive Aggressive	55.4 (29.9)	49.7 (29.4)	1.45	.150	[-13.5, 2.1]	-
Schizotypal	52.5 (25.4)	47.9 (29.1)	1.25	.212	[-11.8, 2.6]	-

Note. Values in bold are significant at $p < .05$

MCMI-III response styles of generally violent and externally violent only men

To compare the response styles of generally violent and externally violent only men on the MCMI-III, a one-way between groups MANOVA was conducted on the base rate scores of the three modifying indices (Disclosure, Debasement and Desirability).

During preliminary assumption testing, a number of violations to the assumptions of the MANOVA were identified. These violations included univariate outliers, one multivariate outlier identified through Mahalanobis Distances, and possible multicollinearity due to a high correlation between Disclosure and Debasement ($r=.84, p<.001$). The Shapiro-Wilk test for normality also revealed that each of the dependent variables were non-normally distributed within both violent groups.

Four univariate outliers that were identified on the disclosure and desirability scales were removed from the analysis. When these four cases were removed, there were no longer any multivariate outliers, as identified by Mahalanobis distances. An additional 26 cases that scored zero on Debasement were identified as outliers through boxplots. However these cases remained in the analysis, as both generally violent and externally violent only men had a group of cases with this response pattern, and removing this large number of cases might have influenced the results. When a MANOVA was conducted on the remaining 228 cases, a significant difference between generally violent and externally violent only men was found on the modifying indices, $F(3, 224) = 3.02, p = .031$, Wilk's $\Lambda = .961$, partial $\eta^2 = .039$.

This significant result was then followed up with univariate one-way ANOVAs for each of the dependent variables. Significant group differences were found for Disclosure, $F(1, 226) = 8.466, p = .004$, partial $\eta^2 = .036$ and Debasement, $F(1, 226) = 7.956, p = .005$, partial $\eta^2 = .034$. There was no significant group difference on the Desirability scale $F(1, 226) = 1.177, p = .279$, partial $\eta^2 = .005$.

As shown in Table 4 below, pairwise comparisons revealed that generally violent men were significantly higher in Disclosure and Debasement than externally violent only men.

Table 4

Comparison of MCMI-III Response Styles for Generally Violent and Externally Violent Only Men

	Generally Violent (<i>n</i> =133)	Externally Violent Only (<i>n</i> =95)			
	<i>M (SD)</i>	<i>M (SD)</i>	Mean diff.	Sig.	95% CI
Disclosure	65.9 (17.6)	59.0 (17.8)	6.9	.004	[2.2, 11.6]
Debasement	51.4 (19.7)	43.5 (22.7)	8.0	.005	[2.4, 13.5]

This suggests that generally violent men were slightly more self-revealing in their responses on the MCMI-III than externally violent only men and reported greater psychological symptoms. However, both generally violent and externally violent only men scored within the range that suggests average levels of disclosure, suggesting that they were not generally defensive or overly self-revealing in their responding (Jankowski, 2002). Similarly as the base rate scores of the generally violent and externally violent only groups were below 75 on the Debasement scale, this suggests that they were not exaggerating their psychological symptoms or attempting to present themselves in an overly unfavourable light (Jankowski, 2002).

A MANOVA was also conducted including the univariate outliers to examine whether excluding these cases was influencing the results. One multivariate outlier was identified and this was removed from the analysis, bringing the sample size for this analysis to 231. In this analysis, there was no significant difference between generally violent and externally violent only men on the modifying indices, $F(3,227) = 2.47, p = .063$, Wilks' $\Lambda = .968$, partial $\eta^2 = .032$.

Latent profile analysis (LPA)

To examine subtypes of personality and psychopathology, a series of two to five class models were tested using LPA. All latent profile analyses were conducted using *MPlus* software. Because the sample size for the generally violent group was relatively small ($n=134$), the latent profile analysis was conducted for the entire sample ($n=232$). This is because it is unknown how sample sizes smaller than 200 relate to the statistical power to identify the correct number of classes in LPA (Nylund, Asparouhov, & Muthén, 2007; Tein et al., 2013). Therefore we may not have been able to reliably identify the correct number of sub-groups within the generally violent group if only that group had been used.

Although simulation studies have begun to inform the best approach to identifying the correct number of classes in an LPA, there is currently no common standard for doing so (Nylund et al., 2007; Tein et al., 2013). Most researchers tend to use a combination of fit indices and likelihood ratio tests to decide on the optimum number of classes (Tein et al., 2013). Therefore in the current study the models were compared on their goodness of fit, interpretability, parsimony and external validity.

One of the fit indices used in the current study was the Bayesian Information Criteria (BIC). The BIC has been shown to outperform other information-theoretic methods such as the Akaike Information Criteria (AIC) in selecting the model with the correct number of classes (Nylund et al., 2007; Tein et al., 2013). Across models, smaller BIC values indicate a better fit to the observed data, and a difference of 10 indicates that the model with the smaller BIC is a better fit (Isler, Liu, Sibley, & Fletcher, 2016).

As shown in Table 5, the BIC values continued to decrease with each additional class, up to the five class model. The BIC value increased from the five class to the six class model, indicating that the six class model was a poorer fit to the data.

Likelihood ratio tests, including the Lo-Mendell Rubin Test (LMRT) and the Bootstrap Likelihood Ratio Test (BLRT) were also used to compare the relative fit of each of the models. These tests compare the model with the number of classes being estimated (k) to an alternative model with one less class ($k-1$). A significant result indicates that the model with the greater number of classes is a better fit to the data, whereas a non-significant result indicates that the model with fewer classes is a better fit.

As shown in Table 5, the BLRT produced significant results ($p<.001$) for each additional class, indicating that each additional class provided a better fit to the data. For the LMRT all of the models tested indicated that the model with the greater number of classes was a better fit, with the exception of the five class model, which was not a significantly better fit than the four class ($p=.10$). Therefore, based on the LMRT, it appears that the four class model may be the best fit to the observed data.

Table 5
Fit Statistics for Latent Profile Models

	AIC	BIC	Entropy	LMRT	BLRT
2 subtype	10479.314	10524.122	0.870	$p=0.0001$	$p=0.0000$
3 subtype	10341.115	10403.156	0.897	$p=0.0018$	$p=0.0000$
4 subtype	10296.911	10376.186	0.894	$p=0.0109$	$p=0.0000$
5 subtype	10261.166	10357.674	0.845	$p=0.1004$	$p=0.0000$
6 subtype	10245.512	10359.254	0.856	$p=0.0389$	$p=0.0000$

For each solution we also considered the strength of classification through the average posterior probabilities. In latent profile analysis, each case is assigned a probability of belonging to each of the classes based on their response pattern. The average posterior probability represents how well on average cases converged onto that class, and can range from 0, indicating no fit, to 1, indicating a perfect fit (Isler et al., 2016).

As shown in Table 6, the average posterior probabilities for each of the classes were at or above 0.9, indicating that there was a high certainty of classification in each of the latent classes. However for the five class model, Class 5 had a lower average posterior probability of 0.83.

Table 6
Average Posterior Probabilities for Latent Profile Models with 2, 3, 4 and 5 Subtypes

	Subtype 1	Subtype 2	Subtype 3	Subtype 4	Subtype 5	Entropy
2 subtype	0.952	0.965	-	-	-	0.870
3 subtype	0.979	0.963	0.915	-	-	0.897
4 subtype	0.974	0.960	0.923	0.905	-	0.894
5 subtype	0.955	0.912	0.927	0.909	0.832	0.845

Entropy was also considered, which provides an overall measure of classification certainty based on the average posterior probabilities of class membership (Isler et al., 2016; Tein et al., 2013). The *Mplus* output provides a measure of relative entropy, measured on a scale from 0-1, with higher values indicating less overlap in membership and greater discrimination between classes. For the current study, entropy that was greater than or equal to 0.8 was considered an indicator of a good level of classification (Tein et al., 2013).

As shown in Table 6, entropy was high ($>.80$) for each of the models, indicating that the subtypes were highly discriminating. The three and four class models had the highest level of discrimination between classes (0.897 and 0.894 respectively) and the five class model had the lowest entropy, although this model still demonstrated high entropy (0.83). Due to the lack of clarity based on the fit statistics regarding which model is a better fit to the data, the theoretical interpretability of the three and four class models, and their external validity were further compared.

In order to describe the psychopathology profiles produced through the LPA, the mean scores on the psychopathology factors were calculated for men in each of the subtypes for the three and the four subtype models. The mean levels of psychopathology were then compared between the subtypes using one-way ANOVAs.

Figures 1a and 1b show the psychopathology profiles for the three subtype and four subtype models. In both models, a subtype that reported high levels of internalising psychopathology, externalising psychopathology and social withdrawal/eccentricity, and low levels of admiration seeking was identified. Also in both models, a subtype emerged with the opposite pattern of psychopathology, in that they reported low levels of internalising, externalising and social withdrawal/eccentricity, but high levels of admiration seeking.

In the three subtype model, a subtype with moderate levels of internalising, externalising and social withdrawal/eccentricity also emerged (Subtype 2). This subtype reported on average, similar levels of admiration seeking to the subtype that was lowest in the other psychopathology factors (Subtype 3). In the four subtype model, this subtype also emerged, but demonstrated some changes. In the four subtype model two subtypes reported moderate levels of internalising and externalising psychopathology, and high levels of admiration seeking, however they differed from each other on social withdrawal/eccentricity. One of the profiles (Subtype 2b) reported lower levels of social withdrawal/eccentricity, whereas the other profile (Subtype 2a) reported higher levels of social withdrawal/eccentricity.

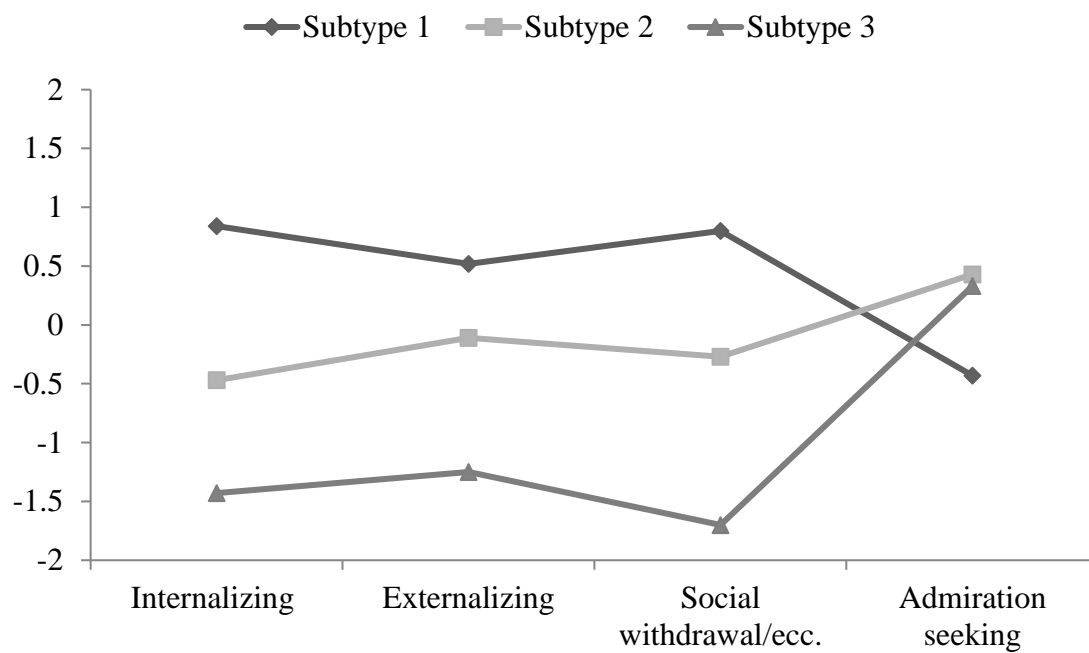
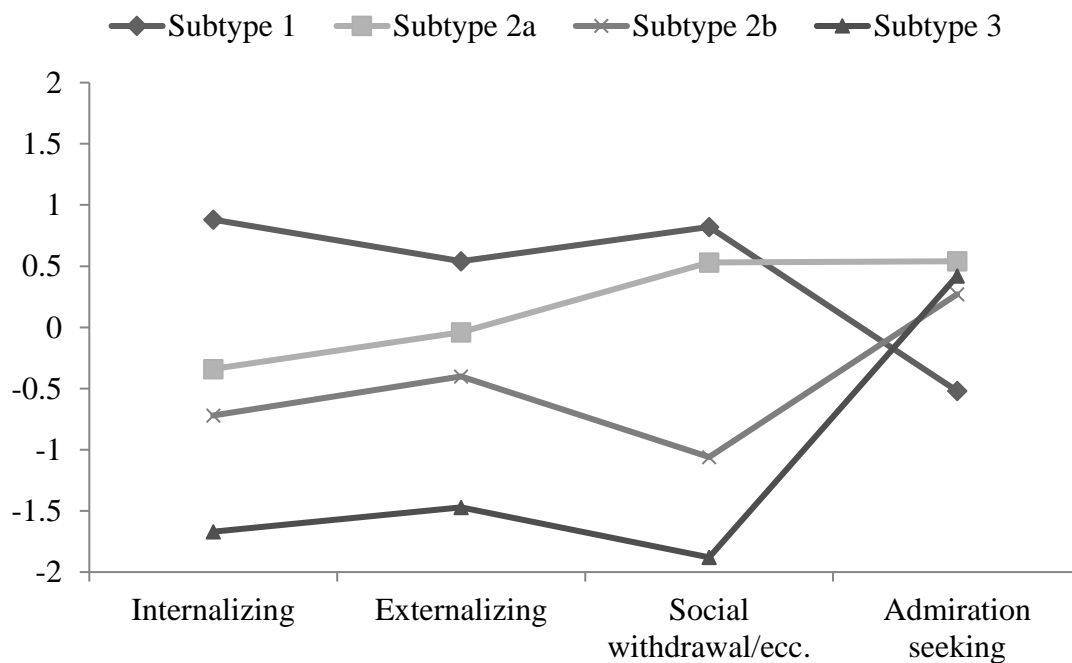
a)**b)**

Figure 1. Mean levels of psychopathology among sub-groups of men for a) a three subtype model and b) a four subtype model

The percentage of the total sample that was assigned to each of the subtypes was then examined. In order to allow sufficient within-subtype sample size for comparisons and external validation, subtypes containing less than 10% of the sample were considered unsuitable.

Table 7
Percentage (%) of Total Sample Within Each Subtype for the Three Subtype and Four Subtype Models

3 subtype	Subtype 1	48.3	Subtype 2	34.5	-	-	Subtype 3	17.2
4 subtype	Subtype 1	45.7	Subtype 2a	26.7	Subtype 2b	15.9	Subtype 3	11.6

As shown in Table 7 above, all of the subtypes contained more than 10% of the sample, with the smallest proportion being 11.6%. Therefore both the three and four subtype models contained sufficient within-subtype sample sizes for conducting further analyses.

Subtype comparisons

The mean levels of psychopathology were then compared across subtypes for the three and the four subtype models. As shown in Table 8 for the three subtype model, the one-way ANOVAs revealed significant differences between the subtypes on each of the psychopathology factors. Games-Howell post hoc tests were then used to identify which of the subtypes were significantly different from one another. As shown in Table 8a, the average levels of psychopathology in each of the subtypes were significantly different, with the exception of Subtype 2 and Subtype 3 which were not significantly different on admiration seeking

Table 8

Comparisons Between Class 1, Class 2, and Class 3 on MCM-III Factor Totals for the Three Profile Model

MCM-III factor	Class 1 (n=112)		Class 2 (n=80)		Class 3 (n=40)		<i>Welch's</i> <i>F</i>	η^2
	<i>M (SD)</i>	95% CI	<i>M (SD)</i>	95% CI	<i>M (SD)</i>	95% CI		
Internalising	647.0(90.6)	[630.1, 664.0]	370.4 (109.9)	[345.9, 394.8]	166.5(105.5)	[132.7, 200.2]	400.34*	0.78
Externalising	409.1(31.9)	[403.1, 415.0]	369.5(57.5)	[356.7, 382.3]	298.2 (65.2)	[277.3, 319.0]	62.32*	0.41
Admiration seeking	93.2(29.4)	[87.7, 98.7]	115.5 (17.9)	[111.5, 119.5]	112.8 (12.7)	[108.7, 116.8]	22.86*	0.17
Social withdrawal/ecc.	418.3 (36.3)	[411.5, 425.1]	282.3(67.8)	[267.2, 297.4]	100.3 (48.6)	[84.7, 115.8]	759.24*	0.84

Note. CI=confidence interval. η^2 =partial eta squared * $p < .00$, ecc.=eccentricity

Table 9

Mean Differences and Post-hoc Comparison Tests Between Class 1, Class 2 and Class 3 on MCM-III Factors for the Three Profile Model

MCM-III factor	1 vs. 2			1 vs. 3			2 vs. 3		
	Mean diff.	95% CI	<i>d</i>	Mean diff.	95% CI	<i>d</i>	Mean diff.	95% CI	<i>d</i>
Internalising	276.7*	[241.2, 312.1]	2.75	480.6*	[435.5, 525.6]	4.89	203.9*	[154.4, 253.4]	1.89
Externalising	39.6*	[22.7, 56.5]	0.85	110.9*	[84.9, 136.9]	2.16	71.3*	[42.2, 100.4]	1.16
Social withdrawal/ecc.	136.0*	[116.2, 155.7]	2.50	318.1*	[297.8, 338.3]	7.41	182.1*	[156.4, 207.8]	3.09
Admiration seeking	-22.3*	[-30.3, -14.2]	-0.92	-19.5*	[-27.7, -11.4]	-0.86	2.71	[-4.0, 9.5]	0.17

Note. CI=confidence interval. η^2 =partial eta squared * $p < .001$, ecc.=eccentricity, Mean diff= mean difference

For the four subtype model, significant differences were found between men in each of the profiles on all of the psychopathology factors as shown in Tables 10 and 11. Games-Howell post-hoc tests were conducted to examine which of the profiles were significantly different from one another.

As shown in Table 12, significant differences were found between each of the subtypes on all of the psychopathology factors, with some exceptions. On the externalising psychopathology factor, Subtype 2a and 2b were not significantly different from one another. On the admiration seeking factor, Subtype 2a, 2b and 3 were not significantly different from one another, although they were all significantly higher than Subtype 1 on this factor. All other between-subtype comparisons were significant

Table 10

Means, Standard Deviations and 95% Confidence Intervals for Four Subtypes on Psychopathology Factors

	Subtype 1 (<i>n</i> =106)		Subtype 2a (<i>n</i> =62)		Subtype 2b (<i>n</i> =37)		Subtype 3 (<i>n</i> =27)	
	<i>M</i> (<i>SD</i>)	95% CI	<i>M</i> (<i>SD</i>)	95% CI	<i>M</i> (<i>SD</i>)	95% CI	<i>M</i> (<i>SD</i>)	95% CI
Internalising	654.1 (87.5)	[637.3, 671.0]	396.0 (114.9)	[366.8, 425.2]	316.9 (103.4)	[282.5, 351.4]	116.2 (66.6)	[89.8, 142.5]
Externalising	410.1 (32.2)	[403.9, 416.3]	373.6 (58.1)	[358.9, 388.4]	351.2 (51.1)	[334.2, 368.3]	284.0 (69.4)	[256.5, 311.5]
Admiration seeking	91.0 (28.0)	[85.6, 96.4]	118.2 (19.3)	[113.3, 123.1]	111.2 (15.0)	[106.2, 116.2]	115.1 (13.4)	[109.8, 120.4]
Social withdrawal/ eccentricity	420.6 (35.6)	[413.7, 427.4]	323.3 (47.6)	[311.2, 335.4]	182.1 (37.0)	[169.7, 194.4]	77.2 (39.3)	[61.7, 92.7]

Table 11

Comparison of Four Subtypes on MCMI-III Psychopathology Factors

	<i>Welch's F</i>	η^2
Internalising	436.27*	0.80
Externalising	41.79*	0.41
Admiration seeking	21.06*	0.23
Social withdrawal/ eccentricity	784.27*	0.90

Note. **p*<.001

Table 12

Mean Differences and Post-hoc Comparison Tests between Subtype 1, Subtype 2a, Subtype 2b and Subtype 3 on MCMI-III factors

MCMI-III factor	1 vs. 2a			1 vs. 2b			1 vs. 3			2a vs. 2b		
	Mean diff.	95% CI	<i>d</i>	Mean diff.	95% CI	<i>d</i>	Mean diff.	95% CI	<i>d</i>	Mean diff.	95% CI	<i>d</i>
Internalising	258.1**	[214.0, 302.2,]	2.53	337.2**	[286.9, 387.5]	3.52	537.9**	[497.1, 578.8]	6.92	79.1*	[20.4, 137.8]	0.72
Externalising	36.4**	[15.4, 57.4]	0.78	58.8**	[34.9, 82.7]	1.38	126.1**	[88.7, 163.5]	2.33	22.4	[-6.9, 51.7]	0.41
Social withdrawal/ecc	97.2**	[79.0, 115.4]	2.31	238.5**	[220.0, 257.0]	6.57	343.4**	[321.0, 365.7]	9.16	141.2**	[118.8, 163.7]	3.31
Admiration seeking	-27.2**	[-36.7, -17.7]	-1.13	-20.3**	[-29.8, -10.7]	-0.90	-24.1**	[-34.0, -14.3]	-1.10	7.0	[-2.2, 16.1]	0.40

Note. CI=confidence interval. * $p < .05$, ** $p < .001$, d =Cohen's d for effect size

Table 12 cont.

	3 vs. 2a			3 vs. 2b		
	Mean diff.	95% CI	<i>d</i>	Mean diff.	95% CI	<i>d</i>
Internalising	-279.8**	[-330.8, -228.8]	-2.98	-200.7**	[-257.0, -144.5]	-2.31
Externalising	-89.6**	[-130.5, -48.8]	-1.40	-67.2*	[-109.3, -25.2]	-1.10
Social withdrawal/ecc.	-246.1**	[-271.7, -220.6]	-5.64	-104.9**	[-130.6, -79.2]	-2.75
Admiration seeking	-3.1	[-12.4, 6.3]	-0.18	3.9	[-5.5, 13.3]	0.27

The degree of overlap in participant distribution across profiles for the three subtype and four subtype models was examined. As shown in Table 13, almost all (94.6%) of the participants allocated to Subtype 1 in the three subtype solution were allocated to Subtype 1 in the four subtype model. This suggests that a profile characterised by high levels of psychopathology, but low levels of admiration seeking replicated well in both models.

Also shown in Table 13, cases from Subtype 2 in the three class model were re-allocated into Subtypes 2a (70%) and 2b (30%) in the four subtype model. The configuration in mean scores for Subtypes 2a and 2b (see Figures 1a and 1b above) suggest that Subtype 2 from the three subtype model may have split into two profiles in the four subtype model which were distinguishable based on their levels of social withdrawal/eccentricity. Therefore it appears that those that were moderate in psychopathology in the three class solution split into profiles which differed in the level of social withdrawal/eccentricity.

The low psychopathology group (Subtype 3) from the three subtype model largely overlapped with Subtype 3 in the four subtype model, although almost a third (32.5%) of participants were allocated to Subtype 2b in the four subtype model. The configuration in mean scores for Subtype 3 from the three subtype model, and Subtype 3 from the four subtype (see Figures 1a and 1b), shows that despite the splitting of some individuals into Subtype 2b, this subtype changed little across the two models.

However it appears that some individuals from Subtype 3 in the three subtype model may have been re-allocated to Subtype 2b in the four subtype model, possibly due to slightly higher scores on the internalising, externalising and social withdrawal/eccentricity than Subtype 3 from the three subtype model.

Table 13

Percentage (%) of Overlap in Participant Distribution for a 3 and 4 Subtype Model

3-subtype model	4-subtype model			
	Subtype 1	Subtype 2a	Subtype 2b	Subtype 3
Profile 1	94.6	5.4	0	0
Profile 2	0	70.0	30.0	0
Profile 3	0	0	32.5	67.5

Note: Table shows the re-allocation of cases from the three subtype model to the four subtype model

External Validity of Latent Classes

Within-subtype comparison of proportions of generally violent and externally violent men

In order to examine whether any of the subtype in the three and four subtype models contained a significantly higher proportion of generally violent men than externally violent only men, chi-square analyses were performed. The purpose of these analyses was to assess whether any of the MCMI-III profiles may be more applicable to men who have engaged in intimate partner violence.

For the three subtype model a 2x3 Pearson chi-square analysis was conducted between violence group (generally violent and externally violent only) and subtype. As shown in Table 14, the results showed that there was not a significant association between violence group and subtype membership, $\chi^2(2) = 2.085, p = .352$.

Table 14

Percentage of Generally Violent and Externally Violent Men Within Each Subtype of the Three Subtype Model

	Generally Violent		Externally Violent Only	
	<i>n</i>	%	<i>n</i>	%
Subtype 1	67	59.8	45	40.2
Subtype 2	48	60.0	32	40.0
Subtype 3	19	47.5	21	52.5

For the four subtype model a 2x4 Pearson chi square analysis was conducted between violence group and subtype membership. The results are shown in Table 15. There was not a significant association between violence group and subtype membership, $\chi^2(3) = 2.306$, $p = .511$.

Table 15

Percentage of Generally Violent and Externally Violent Men Within Each Subtype of the Four Subtype Model

	Generally Violent		Externally Violent Only	
	<i>n</i>	%	<i>n</i>	%
Subtype 1	64	60.4	42	39.6
Subtype 2a	36	58.1	26	41.9
Subtype 2b	22	59.5	15	40.5
Subtype 3	12	44.4	15	55.6

These results indicate that within each of the subtype in the three and four subtype models, there were similar proportions of men with a history of intimate partner violence, and men without a history of intimate partner violence. On the MCMI-III profiles, partner violent and non-partner violent could not be distinguished.

Subtype comparisons on static risk and criminal history

To establish whether these psychopathology subtypes are externally meaningful, we compared the criminal histories and static risk at release of men within each subtype. One-way ANOVAs were conducted on RoC*RoI at release, age at first conviction, age at first violent conviction, prior convictions and prior violent convictions.

As shown in Tables 16 and 17 below, the sample size within each subtype did not represent all men allocated to that subtype for some of the analyses (RoC*RoI at release and age at first violent conviction). This is because during the course of the study, 19 individuals were not released from custody and so an estimated static risk score (RoC*RoI) at release

was not available. For violent convictions, 10 men did not have any violent convictions, and so data for their age at first violent conviction was not applicable.

As shown in Table 16 below, the only variable on which there was a significant difference between subtypes in the three subtype model was the average number of prior convictions. Tukey post hoc tests showed that only Subtype 1 and Subtype 3 were significantly different from one another, where Subtype 1 had a significantly greater number of prior convictions than Subtype 3 ($M_{diff} = 23.0$, $p = .028$, $95\%CI = [2.0, 44.0]$). Men in each of the subtypes were not significantly different on their average age at first conviction, average age at first violent conviction, RoC*RoI at release and number of violent convictions.

To examine whether any of the between subtype comparisons were influenced by extreme outliers, the one-way ANOVAs were repeated for each of the variables with these extreme outliers removed. When one extreme outlier within Subtype 1 with 442 convictions was removed from the comparison on prior convictions, there remained a significant difference between the subtypes on the number of prior convictions, $F(2, 228) = 3.513$, $p = .031$, partial $\eta^2 = .030$. Tukey post hoc tests showed that again, Subtype 1 ($M = 64.2$, $SD = 44.8$) had a significantly greater number of convictions than Subtype 3 ($M = 44.5$, $SD = 30.1$), $95\% CI$ for $M_{diff} = [1.6, 37.7]$, $p = .030$, $d = .052$. All other comparisons between subtypes on prior convictions were non-significant. For the comparison on RoC*RoI at release, when extreme outliers scoring .47 or below were removed from the analysis, there remained no significant difference between the three subtypes on their average RoC*RoI at release $F(2, 197) = 1.673$, $p = .190$.

Similarly when two outliers for which the age at first conviction was 27 were removed from the analysis, there was no significant difference between the subtypes on their

average age at first conviction, $F(2, 227) = .592, p = .554$. Lastly, when four extreme outliers were removed from Subtype 1 and 2 for age at first violent conviction, there remained no significant difference between men in each of the profiles on their average age at first violent conviction, $F(2, 215) = 2.124, p = .122$. For number of prior violent convictions, two extreme outliers were identified within Subtype 1 with 28 or more violent convictions. When these two outliers were removed from the analysis, there was no significant difference between the subtypes on the number of violent convictions, $F(2, 227) = 2.218, p = .111$.

Table 16

Means, Standard Deviations and 95% Confidence Intervals for Three Psychopathology Profiles on Criminal History and Static Risk at Release

	Subtype 1			Subtype 2			Subtype 3			<i>F</i>	η^2
	<i>n</i>	<i>M (SD)</i>	<i>95% CI</i>	<i>n</i>	<i>M (SD)</i>	<i>95% CI</i>	<i>n</i>	<i>M (SD)</i>	<i>95% CI</i>		
RoC *RoI at release	104	.72 (.13)	[.70,.75]	73	.74 (.14)	[.71, .77]	36	.71 (.17)	[.65, .77]	.728	-
Age at first conviction	112	15.8 (2.1)	[15.3, 16.2]	80	15.9 (2.0)	[15.4, 16.3]	40	16.4 (2.9)	[15.5, 17.3]	1.184	-
Age at first violent conviction	106	19.2 (4.1)	[18.4, 20.0]	77	18.0 (2.8)	[17.4, 18.7]	39	18.4 (3.9)	[17.1, 20.0]	2.198	-
Prior convictions	112	67.5 (57.1)	[56.8, 78.2]	80	62.8 (41.7)	[53.6, 72.1]	40	44.5 (30.1)	[34.9, 54.1]	3.361*	.029
Prior violent convictions	112	6.0 (5.9)	[4.9, 7.1]	80	6.9 (5.3)	[5.8, 8.1]	40	5.9 (4.1)	[4.6, 7.2]	.804	-

Note. **p*<.05,

Table 17

Means, Standard Deviations and 95% Confidence Intervals for Four Psychopathology Profiles on Criminal History and Static Risk at Release

	Subtype 1			Subtype 2a			Subtype 2b			Subtype 3			<i>F</i>	Sig(<i>p</i>).
	<i>n</i>	<i>M (SD)</i>	<i>95% CI</i>	<i>n</i>	<i>M (SD)</i>	<i>95% CI</i>	<i>n</i>	<i>M (SD)</i>	<i>95% CI</i>	<i>n</i>	<i>M (SD)</i>	<i>95% CI</i>		
RoC *RoI at release	99	.73 (.12)	[.70, .75]	57	.73 (.15)	[.69, .77]	33	.71 (.18)	[.65, .78]	24	.72 (.15)	[.65, .78]	.18	.91
Age at first conviction	106	15.7 (2.0)	[15.3, 16.1]	62	16.1 (1.9)	[15.6, 16.6]	37	15.7 (2.5)	[14.8, 16.5]	27	16.7 (3.3)	[15.4, 18.0]	1.59	.19
Age at first violent conviction	100	19.2 (4.1)	[18.4, 20.0]	59	18.2 (3.0)	[17.5, 19.0]	37	17.9 (3.2)	[16.9, 19.0]	26	18.5 (3.8)	[16.9, 20.0]	1.50	.22
Prior convictions	106	68.8 (57.5)	[57.8, 79.9]	62	58.3 (40.3)	[48.1, 68.5]	37	60.9 (43.6)	[46.3, 75.4]	27	44.7 (28.9)	[33.3, 56.2]	2.00	.12
Prior violent convictions	106	6.0 (5.9)	[4.8, 7.1]	62	6.7 (5.6)	[5.3, 8.1]	37	7.1 (4.1)	[5.8, 8.5]	27	5.7 (4.3)	[3.9, 7.4]	.66	.58

Note: 95 % CI= 95% confidence interval

The results for the four subtype model, shown in Table 17, revealed no significant differences between the subtypes on any of the variables. One way ANOVAs were also conducted removing any extreme outliers from the comparisons to examine how these influenced the subtype comparisons. For RoC*RoI at release, there were extreme outliers within each of the subtypes with very low risk scores ($n=11$). When these outliers were removed from the analysis there remained no significant difference between the subtypes on estimated risk at release, $F(3,198)=.801, p=.495$.

When two outliers whose age at first conviction was 27 years were removed from the analysis, there remained no significant difference between the four subtypes for the average age at first conviction, $F(3,226)=1.566, p=.198$. Four extreme outliers were identified through box plots for age at first violent conviction. These included two cases in Subtype 1 where the age of first violent conviction was 36 years or older, two cases in Subtype 2a where the age of first violent conviction was 26 years, and one case in Subtype 3 whose age at first violent conviction was 30 years. When these outliers were excluded from the analysis, there remained no significant difference, $F(3, 213)=1.441, p=.232$.

For number of prior convictions, there was no significant difference between the subtypes when an extreme outlier with 442 prior convictions was excluded from the analysis, $F(3, 227)=1.795, p=.149$. For number of prior violent convictions, there were two extreme outliers with greater than 28 violent convictions. When these outliers were removed from the analysis, there was no significant difference between the four subtypes on the average number of violent convictions, $F(3,226)=1.76, p=.156$.

Therefore these results suggest that in the four subtype model, men in each of the subtypes did not differ in their criminal careers, such as the age at which they began offending, and the number of convictions obtained. Men with different psychopathology

profiles were also estimated at a similar risk of reoffending on release, as measured by the RoC*RoI.

Subtype comparison on change in dynamic risk

To investigate whether there were any differences in the effect of treatment on dynamic risk for men in the different psychopathology subtypes, two mixed analyses of variance were conducted; one for the three subtype model and one for the four subtype model.

Three subtype model

A two-way mixed ANOVA was conducted with Violence Risk Scale total dynamic risk as the within subjects variable (measured at pre and post treatment) and subtype membership as the between subjects variable. There was homogeneity of variances as assessed by Levene's test of homogeneity of variance ($p > .05$) and homogeneity of covariances, as assessed by Box's test of equality of covariance matrices ($p = .631$). The mean scores of each of the subtypes at pre and post treatment are presented in Table 18 below. There was no significant interaction between subtype membership and change in dynamic risk over treatment, $F(2, 184) = .181$, $p = .835$, partial $\eta^2 = .002$, indicating that the effect of treatment on dynamic risk did not differ between the three subtypes.

Table 18
Comparison of VRS Dynamic Risk at Pre and Post Treatment Within Three Psychopathology Profiles

	<i>n</i>	Pre <i>M(SD)</i>	95 % CI	Post <i>M(SD)</i>	95% CI
Class 1	90	43.8 (6.5)	[42.5, 45.2]	39.8 (7.0)	[38.3, 41.2]
Class 2	61	42.6 (7.2)	[40.7, 44.4]	38.6 (7.1)	[36.8, 40.4]
Class 3	36	41.9 (7.7)	[39.3, 44.5]	37.6 (7.6)	[35.0, 40.2]

A significant main effect of time was found, $F(1,184) = 446.334, p < .001$, partial $\eta^2 = .708$, indicating a difference in mean dynamic total risk scores at pre and post treatment. Bonferroni-adjusted pairwise comparisons showed that overall men in the sample made a significant reduction in their total dynamic risk scores from pre ($M = 42.8, SE = 0.55$) to post treatment ($M = 38.6, SE = 0.56$), a mean reduction of 4.1 (95% CI [3.8, 4.5], $p < .001$). However the between-subjects main effect of subtype was not statistically significant, $F(2,184) = 1.293, p = .277$, partial $\eta^2 = .014$, indicating that there was no overall difference between the three subtypes in dynamic risk. These results indicate that treatment had a similar effect on dynamic risk for men in each of the psychopathology subtypes, and on average dynamic risk reduced from pre to post treatment.

Four subtype model

A two-way mixed ANOVA was also conducted for the four subtype model. There was homogeneity of variances as assessed by Levene's test of homogeneity of variance ($p > .05$), and homogeneity of covariances as assessed by Box's test of equality of covariance matrices ($p = .76$). The results revealed a significant interaction between subtype and change in dynamic risk over treatment, $F(3,183) = 2.803, p = .041$, partial $\eta^2 = .044$, as a function of some variation in treatment change, as shown in Figure 2 below.

To further investigate this interaction, simple main effects were performed for each of the independent variables (i.e. time and subtype membership). The simple main effects of subtype membership showed that there was no significant difference between the four subtypes in total dynamic risk at pre-treatment, $F(3,201) = 1.433, p = .234$, partial $\eta^2 = .021$, or post-treatment, $F(3,183) = .493, p = .687$, partial $\eta^2 = .008$, indicating that men with different psychopathology profiles were rated similarly on dynamic risk at pre and post treatment.

Simple main effects of time were also performed to examine which of the subtypes made significant change in dynamic risk from pre to post treatment. This was conducted by performing repeated measures ANOVAs on the total VRS dynamic risk scores for each of the subtypes separately. The results showed that treatment had a significant effect on dynamic risk for each of the subtypes (Subtype 1, $F(1, 85)=258.09, p<.001$, partial $\eta^2=0.75$, Subtype 2a ; $F(1, 45)= 81.44, p<.001$, partial $\eta^2=0.64$, Subtype 2b, $F(1,30)= 118.87, p<.001$, partial $\eta^2=0.80$, Subtype 3; $F(1, 23)= 75.43, p<.001$, partial $\eta^2= 0.77$).

As shown in Table 19, pairwise comparisons with Bonferonni adjustments for multiple comparisons revealed that men in each of the psychopathology profiles made significant reductions in dynamic risk from pre to post treatment. Thus, the interaction found between subtype and change in dynamic risk over treatment is not directly interpretable, and the general conclusion is that all subtypes made reliable change in dynamic risk over the course of treatment.

Table 19
Comparison of VRS Dynamic Risk at Pre and Post Treatment Within Four Psychopathology Subtypes

	<i>n</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Mean difference	95% CI	<i>d</i>
Subtype 1	86	43.8 (6.6)	39.6 (7.0)	-4.17*	[-4.7, -3.7]	-0.62
Subtype 2a	46	41.6 (7.7)	38.3 (7.7)	-3.4*	[-4.1, -2.6]	-0.43
Subtype 2b	31	43.9 (6.1)	38.9 (6.0)	-5.0*	[-6.0, -4.1]	-0.83
Subtype 3	24	42.1 (7.9)	38.1 (8.3)	-4.1*	[-5.1, -3.1]	-0.49

Note. *= $p<.001$, CI= confidence interval

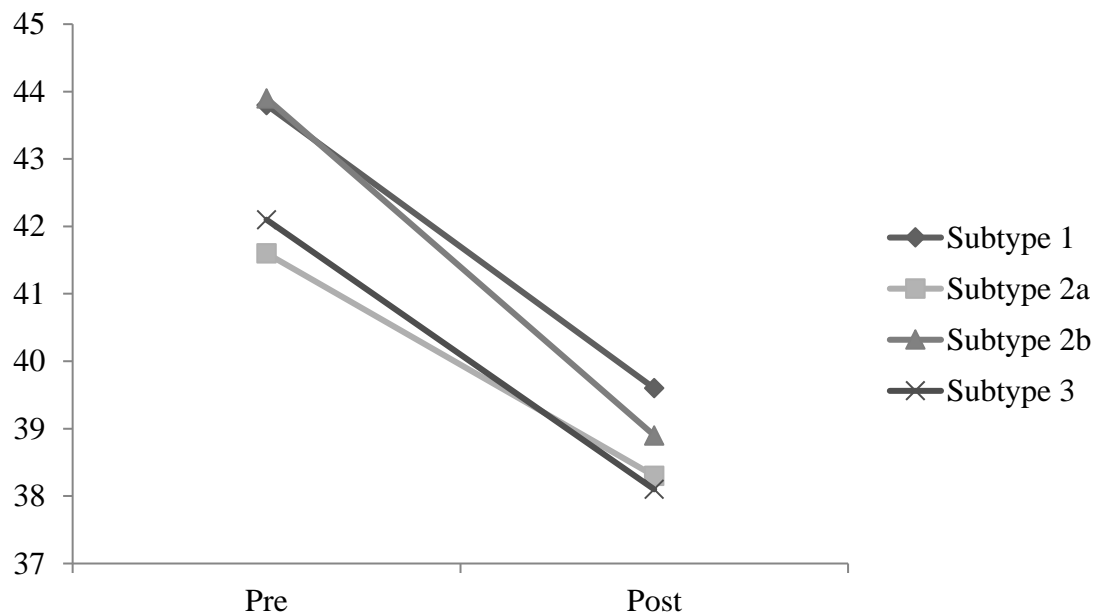


Figure 2. Mean total scores on the dynamic scale of the Violence Risk Scale for four psychopathology subtypes at pre and post treatment

Prediction of recidivism from intimate partner violence history

In order to examine whether there were any differences in the likelihood of recidivism within 1 year of release between generally violent and externally violent only men, a number of binary logistic regression analyses were conducted. The recidivism outcomes that were examined were any reconviction including breaches, violent reconviction and re-imprisonment, all within 1 year of release from custody. For each of these outcomes, variables that were found to be significantly different between generally violent and externally violent only men in the prior comparisons (age at first violent convictions, total prior convictions, total prior violent convictions, age at release) were first entered into the model to control for any pre-existing differences between the two groups. Next, the categorical violence group (externally violent versus generally violent) variable was added to the model to examine whether there was a difference in the likelihood of recidivism between the two groups, while controlling for other differences.

As shown in Table 20 for any reconviction (including breaches) within 1 year of release, Model 1, where only the criminal history and demographic variables were entered, was statistically significant, $\chi^2(4)=9.573$, $p=.048$. This model explained between 5.5% (Cox and Snell R-square) and 7.5% (Nagelkerke R-square) of the variance in reconvictions within 1 year of release and correctly classified 63.5% of cases. Of all four predictors, only age at release was a significant predictor of reconviction at 1 year. The odds ratio of age at release of .93 was less than 1, indicating that men who were released from custody at an older age were less likely to be reconvicted within a year of release.

Also shown in Table 20 for Model 2, when violence group (externally violent vs. generally violent) was added to the model, it did not significantly improve the fit of the model from Model 1, $\chi^2(1)=1.355$, $p=.244$, and only age at release and total prior convictions were significant predictors of reconvictions within 1 year of release. Therefore this suggests that when controlling for pre-existing differences between generally violent and externally violent only men, having a history of physical intimate partner violence versus no history was not predictive of reconviction within 1 year of release.

To examine whether there was any difference between generally violent and externally violent only men for reconvictions within 1 year of release, without controlling for pre-existing differences, a logistic regression was also conducted where the only independent variable was violence group. The results showed that the model was not statistically significant, $\chi^2(1)=1.202$, $p=.273$, indicating that even when not controlling for demographic differences and criminal history, the likelihood of generally violent and externally violent only men being reconvicted within 1 year post-release was not significantly different.

Table 20

Logistic Regression Predicting the Likelihood of Reconviction (including breaches) Within 1 Year of Release from Custody

Variables	Model 1			Model 2			Model 3		
	β	SE	Exp. β	β	SE	Exp. β	β	SE	Exp. β
Constant	.81	.98	2.24	.83	.99	2.29	-.28	.23	.76
Age at first violent conviction	.04	.06	1.04	.04	.06	1.04	-	-	-
Total prior convictions	.00	.01	1.00	.00	.01	1.00	-	-	-
Total prior violent convictions	.06	.04	1.07	.07	.04	1.07	-	-	-
Age at release	-.08	.03	.93	-.07*	.03	.93	-	-	-
Violence group (externally violent/generally violent)	-	-	-	-.41	.35	.67	-.34	.31	.71
-2 Log likelihood	214.58			213.22			237.47		
Nagelkere R	.075			.085			.009		
N	170			170			179		

Note * $p < .05$

These analyses were then repeated for two other recidivism outcomes; violent reconviction within 1 year post-release and re-imprisonment within 1 year post-release. As shown in Table 21 for violent reconvictions at 1 year post-release, the model with only the demographic and criminal history variables was statistically significant $\chi^2(4)=15.74$, $p=.003$ and explained between 8.8% (Cox and Snell R-square) and 15.9% (Nagelkerke R-square) of the variance in violent reconvictions at 1 year post-release. This model correctly classified 85.9% of cases. Out of the four predictors only the total number of prior violent convictions and age at release were significant predictors of violent reconviction. As the odds ratio for prior violent convictions was greater than 1, this indicates that for each prior violent

conviction, individuals were 1.15 times more likely to be reconvicted for a violent offence within 1 year of release. For age at release, as the odds ratio was below 1, this indicates that individuals that were older at the time of release from custody were less likely to be reconvicted for a violent offence within 1 year of release.

When violence group (externally violent vs. generally violent) was added to the model in the second block (Model 2), this did not significantly improve the fit of the model $\chi^2(1)=1.419, p=.234$, and violence group did not contribute significantly to the model.

When violence group was entered into a separate model without any other predictors (Model 3), the model was not significant, $\chi^2(1)=2.252, p=.133$, indicating that even when not controlling for other variables, having a history of intimate partner violence does not significantly predict being reconvicted for a violent offence.

Table 21

Logistic Regression Predicting the Likelihood of Violent Reconviction Within 1 Year of Release from custody

Variables	Model 1			Model 2			Model 3		
	β	SE	Exp. β	β	SE	Exp. β	β	SE	Exp. β
Constant	.26	1.50	1.30	.27	1.50	.03	-1.45	.29	.23
Age at first violent conviction	.10	.09	1.11	.10	.10	.29	-	-	-
Total prior convictions	-.00	.01	.94	.00	.01	.94	-	-	-
Total prior violent convictions	.14	.05	1.15*	.15*	.05	1.16	-	-	-
Age at release	-.16	.06	.86*	-.15*	.06	.86	-	-	-
Violence group (externally violent/generally violent)	-	-	-	-.60	.51	.55	-.64	.43	.53
-2 Log likelihood	122.67			121.25			146.10		
Nagelkere R	.159			.172			.022		
N	170			170			179		

Note * $p<.05$

As shown in Table 22 for re-imprisonment within 1 year of release when the demographic/criminal history variables were entered into the model it was statistically significant $\chi^2(4)=13.086$, $p=.011$ and explained between 7.4% (Cox and Snell R-square) and 10.5% (Nagelkerke R-square) of the variance in re-imprisonment at 1 year post-release. This model correctly classified 67.7% of cases. Out of the four predictors, only age at release and the total number of prior convictions significantly predicted re-imprisonment within 1 year of release. An older age at release was associated with a lower likelihood of returning to prison within 1 year of release, and for every additional prior conviction, individuals were 1.02 times more likely to return to prison within a year of being released. When violence group was added to the model, it did not significantly improve the fit of the model $\chi^2(1)=.015$, $p=.904$, suggesting that violence group did not improve the prediction of re-imprisonment over and above the other variables.

When only violence group was entered into a separate model (Model 3), the model was not statistically significant, $\chi^2(1)=.146$, $p=.702$, and violence group did not significantly contribute to the model.

Therefore, there was no significant difference between generally violent and externally violent only men for any reconviction, violent reconviction and re-imprisonment within 1 year of release, either when controlling for pre-existing differences and not controlling for these differences.

Table 22

Logistic Regression Predicting the Likelihood of Re-Imprisonment Within 1 Year of Release from Custody

Variables	Model 1			Model 2			Model 3		
	β	SE	Exp. β	β	SE	Exp. β	β	SE	Exp. β
Constant	.80	1.12	2.23	.80	1.13	2.23	-.77	.24	.46
Age at first violent conviction	.02	.06	1.02	.02	.06	1.02	-	-	-
Total prior convictions	.02*	.01	1.02	.02*	.01	1.02	-	-	-
Total prior violent convictions	.00	.04	1.00	.00	.04	1.00	-	-	-
Age at release	-.10*	.04	.91	-.10*	.04	.91	-	-	-
Violence group (externally violent/generally violent)	-	-	-	.05	.37	1.05	-.13	.33	.88
-2 Log likelihood		194.61			194.59			219.05	
Nagelkere R		.105			.105			.001	
N		170			170			179	

Note * $p < .05$

Discussion

This research was exploratory and aimed to examine the similarities and differences between high risk violent male prisoners with and without a reported history of intimate partner violence. In particular this research compared these two groups on criminal history, clinician-rated risk of violence at pre and post treatment, and estimated risk at release. This study also compared the two groups on dysfunctional personality traits and psychopathology and examined whether similar or different subtypes of personality traits and psychopathology exist in these two groups. Equally, this research examined whether these psychopathology subtypes are externally meaningful, such as being associated with differences in criminal

history and the amount of change made in dynamic risk from pre to post treatment. Lastly, this research examined whether men with a history of intimate partner violence were more likely than violent men without a history of intimate partner violence to be reconvicted or reimprisoned within 1 year of release from custody.

Summary of research findings

Research question one examined similarities and differences between high risk men with and without a history of intimate partner violence on criminal history, criminal risk and demographics, using independent samples *t*-tests. The results showed that there was no significant difference between the two groups for the age at which they obtained their first conviction, with both groups of men receiving their first conviction in mid adolescence. However men with a history of partner violence received their first *violent* conviction at a later age than men without a history of partner violence and this difference was significant. Men with a history of partner violence also had significantly more convictions overall, and violent convictions specifically (which included convictions that involved violence against a partner) than men without an identified history of partner violence, but who had other violent convictions.

The two groups were also compared on the VRS to examine any differences in clinician-rated risk of violence. At pre and post treatment, there was no significant difference in overall risk of violence, or in dynamic risk between men with and without a history of partner violence. At pre-treatment, men with and without a history of intimate partner violence were also not significantly different on static risk.

Similarly, when the scores on an automated static risk tool, the RoC*RoI were compared between the two groups at the time of release from custody, there was no significant difference, indicating that they were estimated at a similar risk of returning to

prison within 5 years of being released. Men with a history of intimate partner violence were older at the time of release and also had a greater number of convictions, which we may have expected to have resulted in a higher RoC*RoI, however this was not the case.

To compare high risk violent men with and without a history of partner violence on clinical personality traits and psychopathology, a multivariate analysis of variance was conducted on four psychopathology factors previously derived from the MCMI-III psychopathology scales. These factors included internalising psychopathology (anxiety, distress), externalising psychopathology (impulsivity, interpersonal hostility) social withdrawal/eccentricity (interpersonal mistrust and eccentric thought) and admiration seeking (self-centredness and attention seeking). The results showed that men with and without a history of intimate partner violence were not significantly different on these psychopathology factors.

Similarly, when independent samples *t*-tests were conducted on the individual psychopathology scales of the MCMI-III, very few significant differences were found. Significant, but small differences were found only on the dysthymia and histrionic scales; men who had engaged in intimate partner violence were significantly higher in dysthymia and significantly lower in histrionic traits than men who had not engaged in intimate partner violence. However on both of these scales, on average the two groups scored well below the range that indicates that these are prominent traits or characteristics. Also, when a Bonferonni adjustment was applied to these comparisons, they were no longer significant.

To examine whether there were similar or different subtypes of psychopathology among men with and without a history of intimate partner violence, a latent profile analysis was conducted on the four psychopathology factors previously derived from the MCMI-III

and the proportions of men with and without a history of intimate partner violence within each subtype were compared.

The results showed that a model with three subtypes and a model with four subtypes were both a good fit to the data. The subtypes largely replicated those found by Sissons (2013), which was expected due to some overlap in the participants used in this study. In both models, a subtype was formed with men who had the most extensive psychopathology, including emotional distress, impulsivity, aggressiveness and social detachment. Men in this subtype scored the highest of all subtypes on internalising psychopathology, externalising psychopathology and social withdrawal/eccentricity, but were the lowest on admiration seeking. On average, men in this subtype had the highest scores of all the subtypes on the majority of the MCMI-III scales, and scored within the range that suggests prominent dysfunctional traits or characteristics on a number of scales such as depressive, antisocial, drug dependence, alcohol dependence and anxiety.

Similarly, in both the four and three subtype models, a subtype was produced with low psychopathology overall. This subtype had the lowest scores on each of the psychopathology factors except for the admiration seeking factor which they were higher than the high psychopathology group, and similar to the other subtypes on. In both models, the highest average scores for men in this profile were on the MCMI-III antisocial, drug, alcohol, compulsive, histrionic, and narcissitic scales although their scores on these scales were not elevated to the range that indicates that these were prominent traits or characteristics for these men.

In the three subtype model, the final subtype scored between the other psychopathology profiles on internalising psychopathology, externalising psychopathology and social withdrawal/eccentricity, but was similar to the subtype lower in psychopathology

on admiration seeking. The highest mean scores for this subtype were on the antisocial, drug, alcohol and narcissistic scales. However only their scores on the antisocial scale were elevated to a level that suggests these were prominent traits.

Interestingly, this third subtype appeared to split into two subtypes in the four subtype model, that differed in their levels of social withdrawal/eccentricity. In other words, these subtypes showed a similar pattern on the internalising psychopathology, externalising psychopathology and admiration seeking factors, but one was higher on social withdrawal/eccentricity.

In order to examine whether any of the subtypes from either model were more characteristic of men with a history of intimate partner violence than those without, the proportions of generally violent and externally-violent-only men within each of the subtypes were compared. The chi-square analysis showed that in both of the models, there were similar proportions of generally violent men and externally violent only men in each of the subtypes, indicating that these psychopathology subtypes cannot distinguish between men who have a history of partner violence and men who do not.

Although these psychopathology subtypes were identified, few differences were found between each subtype on external variables. Men in the different subtypes did not differ on their age at first conviction, age at first violent conviction, prior violent convictions or estimated risk at release. Men in the different types also made similar change in their dynamic risk over the course of treatment in the High Risk Special Treatment Unit. In the three subtype model, the subtype highest in psychopathology had more prior convictions than the subtype lowest in psychopathology but this pattern was not found for the corresponding subtypes in the four subtype model.

Lastly, binary logistic regression analyses were conducted to compare the likelihood of reconviction, violent reconviction and re-imprisonment within 1 year of release for men with and without a history of intimate partner violence. There was no difference in the likelihood of any of these recidivism outcomes between the two groups, either when controlling for pre-existing differences, or not controlling for these differences, indicating that a history of intimate partner violence in this population is not a good predictor of recidivism.

Theoretical and practical implications

Although both generally violent and externally violent only men were chronic offenders, as indicated by their large number of prior convictions, partner violent men had significantly more criminal convictions. The higher mean number of criminal convictions found among men who had engaged in partner violence (and likely violence against others) indicates that they could be more frequent or diverse offenders than men who are only violent outside of relationships. This finding extends prior research that has found that partner violence and violent convictions that are not against a partner are more likely among offenders with chronic offending trajectories (Piquero et al., 2014). Our research indicates that when both of these forms of violence are present, there is an even higher frequency or diversity of offending than when violence is used exclusively outside of relationships. A greater likelihood of conviction has previously been found among men who were partner violent and had convictions for violence against others, than among men who were not partner violent, but had violent convictions against others (Theobald et al., 2016). However this has only been found within a community sample, and our study extends this finding to a high risk sample of male prisoners. It also supports prior research that has identified domestically violent men as diverse offenders who prior to a physical assault on their partner, are likely to have previously engaged in non-violent offences (Hilton & Eke, 2016).

The similar total scores on the VRS between the two groups indicate that men with and without a history of partner violence may not be distinguishable on clinical tools designed to predict violence. These two groups also scored similarly on the dynamic scale of the VRS at pre and post treatment, indicating that clinicians judge these two groups as having a similar level of dynamic risk and treatment need. Although both groups of men obtained similar total dynamic risk scores, it is possible that they may have obtained these total scores in different ways. Men who engaged in intimate partner violence may have obtained higher ratings on some of the dynamic risk factors of the VRS than men who had not engaged in intimate partner violence. Therefore future research could investigate whether particular dynamic risk factors are rated higher for men who have engaged in partner violence than for violent men who have not.

Although both groups of men scored similarly on the dynamic risk items of the Violence Risk Scale, the dynamic risk factors in this measure are linked to violence generally, and are not specific to intimate partner violence. Although some of the risk factors for general violence overlap with the risk factors for intimate partner violence, such as substance abuse, emotional control and violent attitudes, it is possible that there are some risk factors that might distinguish partner violent men such as attachment style, jealousy and relationship communication styles, however these are not included in the VRS (Stewart, Flight, & Slavin-Stewart, 2013). In addition to assessing high risk men in the High Risk Special Treatment Units on general violence risk factors, it may also be worthwhile assessing other factors that are more specific to intimate partner violence and that may need to be addressed in treatment.

Research has found that in terms of predicting physical assault on a partner, tools specifically designed for predicting partner violence have similar predictive ability to tools designed to predict general recidivism or violent recidivism (Hanson, Helmus, & Bourgon,

2007). However predictive validity studies of intimate partner violence risk assessments show more methodological flaws indicating that their predictive validity has not been well established (Nicholls, Pritchard, Reeves, & Hilterman, 2013). Therefore men in the HRSTU's could be assessed on partner violence risk assessments in order to identify men at greater risk of future violence against a partner and to identify treatment targets or scenarios where future partner violence may be likely.

The lack of differences found on the psychopathology factors and on the MCMI-III scales indicate that when entering treatment for violence, high risk men who have engaged in intimate partner violence may not be distinguishable from men who have not on dysfunctional personality traits or general psychopathology. However this study measured dysfunctional personality traits, but did not measure more positive aspects of personality. Perhaps men who are not violent in their relationships possess traits that are protective against intimate partner violence as they allow more healthy interactions in relationships.

Although we found that men who had engaged in partner violence and men who had not were not distinguishable on dysfunctional personality traits and general psychopathology, our research was exploratory and did not allow for combinations or interactions between factors when distinguishing between these two groups. In this study, we only explored the male perpetrators' characteristics, however other contextual factors may better distinguish between men who have engaged in partner violence (and likely other violence) and men who have only used violence outside of relationships. Prior research has found that characteristics of female intimate partners, such as negative emotionality and borderline personality traits also contribute to the likelihood of male-to-female violence in relationships (Maneta, Cohen, Schulz, & Waldinger, 2013; Moffitt, Robins, & Caspi, 2001). Therefore if we had explored factors such as traits of the mens' intimate partners, we may have found that men who had

engaged in partner violence were distinguishable from men who had only used violence outside of relationships.

Another possibility is that because we compared men who had engaged in partner violence as a single group to men who were only violent outside of relationships, variation among the partner violent men might have influenced the level of psychopathology found for this group. Prior research has found that partner violent men are heterogenous, and men who engage in severe or frequent partner violence have higher levels of psychopathology than those that engage in less serious violence (Dixon & Browne, 2003; Holtzworth-Munroe et al., 2000; Waltz et al., 2000). However in our study we did not distinguish between partner violent men based on the severity of their partner violence, and if we had done so, we may have found that men who engage in severe partner violence (as opposed to any physical violence) may have been different from men who used violence only outside of relationships.

This research contributes to the literature on intimate partner violence by providing some knowledge around how men who engage in intimate partner violence and violence outside of relationships are unique from, or similar to men who use violence exclusively outside of relationships. To date most research has compared intimate partner violent men to non-violent men and very little research has compared men who engage in both partner violence, and violence against others to men only violent outside of relationships. As a result of studies comparing non-violent men to partner violent men, a number of characteristics have been identified as relevant for understanding partner violence as they are higher among partner violent men, such as antisocial traits, dependent traits, borderline traits, substance abuse, depression and mood disturbance (Holtzworth-Munroe et al., 1997, 2000). However this research compared some of these characteristics deemed relevant to partner violence between men who have and have not engaged in such violence, and found no difference between these two groups. Therefore this suggests that some characteristics may be shared

between men violent inside and outside of intimate relationships and men violent only outside of relationships.

The results of the latent profile analysis extend prior subtype research, as they indicate that there are similar psychopathology subtypes among men who have engaged in partner violence (and likely violence against others) and men who are only violent outside of relationships. Although similar subtypes have been found in research conducted separately for partner violent men and mixed violent offender samples (i.e. men whose violence may have been towards partners and/or others), the diversity of samples, methods and measures used for identifying these subtypes has limited the ability to compare these subtypes between the two groups. Similarly, the research in mixed violent samples did not identify whether men in their sample had engaged in partner violence, so it is unclear whether the subtypes reflected from this research are representative of partner violent men or not.

The current study produced subtypes that were similar to those identified previously in empirical research with samples of partner violent men and mixed violent samples which included men whose violence may have been towards partners and/or others. In the current study, subtypes 1 and 2a reported extensive psychopathology, including antisocial traits and behaviour, emotional distress and social withdrawal. Subtype 1 was the highest of all subtypes on social withdrawal/eccentricity, externalising psychopathology and internalising psychopathology indicating that they had antisocial/impulsive characteristics, were distressed, prone to negative mood and socially withdrawn. Similarly, men in subtype 2a were also high on the internalising, externalising and social withdrawal factors, although to a lesser degree than subtype 1.

These subtypes were similar to the secondary psychopathy type identified among men hospitalised due to serious violent behaviour, which included men high in antisocial

traits, shyness, and who were prone to anxiety, tension and dysphoric mood (Blackburn, 1986). Subtypes 1 and 2a, produced in this study, were also similar to the dysphoric/borderline type among partner violent men, characterised by antisociality, avoidant and dependent traits and psychological distress such as anxiety and depression (Hamberger et al., 1996; Waltz et al., 2000).

The latent profile analysis also produced a subtype that was similar to both the primary psychopathy type identified among violent offenders in a forensic hospital, and the generally violent/antisocial type identified among partner violent men. In the current study, subtype 2b was high in antisocial, drug and alcohol dependence and narcissistic traits, but were lower than profiles 1 and 2a in other psychopathology, such as social withdrawal and internalising psychopathology (e.g. dysthymia, anxiety and depressive traits). This subtype was similar to a primary psychopathy type found to be high in antisocial features (impulsivity, aggression and hostility), and low in anxiety and social withdrawal (Blackburn, 1986). Subtype 2b was also similar to the generally violent/antisocial type among partner violent men that has been found to have antisocial, impulsive and narcissistic traits, and little or no other psychopathology with the exception of substance abuse (Hamberger et al., 1996). Lastly, our research also produced a subtype that was similar to both the low psychopathology and controlled types identified among mixed violent offenders, and the family only type identified among partner violent men (Blackburn, 1986; Holtzworth-Munroe et al., 2000; Sissons, 2013). Research in mixed violent offender samples has found a subtype characterised by little or no psychopathology overall. Blackburn (1986) found a controlled type that was absent of antisocial traits or anxiety, and was extraverted. Sissons (2013) also found a low psychopathology subtype that was not clinically elevated on any of the MCMI-III scales. Among partner violent men, a family only subtype characterised by little or no psychopathology has also been identified, that has no psychopathology with the exception of

passive/dependent traits (Holtzworth-Munroe et al., 2000; Waltz et al., 2000). Profile 3 in the current study was similar to these prior subtypes in that men in this type were lower in internalising psychopathology, externalising psychopathology and social withdrawal than men in the other types. On average, men in this type had no clinical elevations on the MCMI-III, did not have prominent antisocial traits, were not prone to negative mood or anxiety, and were not socially withdrawn.

However the results of the current study are unique in that within each of the subtypes identified there were similar proportions of men with and without a history of partner violence, indicating that these subtypes are shared between high risk violent men with and without a history of intimate partner violence. Therefore future research could further examine heterogeneity of violent offenders in general, rather than looking exclusively at subtypes among men identified as partner violent.

The results of the latent profile analysis are also interesting as one of the profiles resembled the impulsive batterer described by Dutton (1998) as having an "abusive personality", however it was not specific to men with a history of partner violence. In his research Dutton identified similarities between the cyclical stages of borderline personality and the cycles of partner abuse, leading to empirical investigations into the link between borderline personality traits and partner violence (D. G. Dutton, 2007). This research found that men's reports of borderline personality organization (including a fragmented sense of self, primitive defenses such as a polarised view of others, and lapses in reality testing such as not knowing whether sensations come from within or outside) were positively correlated with their partners' reports of physical and psychological violence (D. G. Dutton & Starzomski, 1993).

Alongside borderline personality organization, other characteristics including anger and trauma symptoms which together comprise the "abusive personality", have been found to be higher among partner violent men in treatment, than in demographically matched controls (D. G. Dutton, Starzomski, & Ryan, 1996), and positively correlate with wives' reports of abuse by their husbands. On the MCMI-III, maritally violent men have also been found to show similar elevations on the passive-aggressive, borderline and post-traumatic stress disorder (PTSD) scales to men diagnosed with PTSD (D. G. Dutton, 1995), and this pattern has been linked to greater levels of partner violence.

In the current study, profile 1 was high in psychopathology overall, and had relatively high levels of PTSD, anxiety, avoidant, passive-aggressive and borderline traits. This profile comprised around half of the sample (45.7% in the three subtype model and 48.3% in the four subtype model). However because this subtype included both partner violent and non-partner violent men this indicates that features typically associated with an 'abusive personality' are not specific to men who use violence in relationships, and may also be found in men who use violence outside of relationships.

The comparisons between the psychopathology subtypes on external variables showed that there were few differences between the subtypes, indicating that these subtypes are limited in their external meaningfulness. These results were partially consistent with the results of Sissons (2013), which was expected as our sample included some of the same participants used in Sissons' (2013) research, and the same data for these participants (i.e. pre treatment MCMI-III profiles).

In comparison to Sissons (2013), limited differences were found between the subtypes on criminal history, with the only significant difference being on the number of prior convictions. However, in this study only the subtypes that were highest and lowest in

psychopathology were significantly different, with the former having a greater number of convictions. In contrast to Sissons (2013) who found that the profiles higher in psychopathology (high psychopathology and antisocial/narcissistic) were higher in estimated risk (RoC*RoI), we did not find any differences on the RoC*RoI at release between the subtypes. In line with the findings of Sissons (2013) we also found that the subtypes made similar amounts of change in dynamic risk from pre to post treatment.

The overall lack of differences between the subtypes suggests that differences in psychopathology are not robustly related to differences in criminal history, static risk or the amount of change made in treatment. Although some research has examined the relationship between offender sub-types and external variables such as treatment completion and re-arrest, these subtypes were based on both measures of violence and psychopathology (Eckhardt et al., 2008; Huss & Ralston, 2008). As a result these prior studies may have only found differences between psychopathology subtypes on treatment outcomes and recidivism due to differences in the severity and/or frequency of violent behaviour, rather than due to differences in psychopathology. This study used only a measure of dysfunctional personality traits and psychopathology to create the subtypes, and few differences in criminal history, risk, and treatment change were found between the subtypes. While this could indicate that psychopathology is independent of risk, research with a larger sample of high risk offenders found that subtypes with higher levels of psychopathology had higher levels of criminal risk and recidivism (Sissons, 2013). However, examining different psychopathology profiles among high risk men may still be important for other reasons, such as identifying men whose psychopathology may put them at greater risk of not completing treatment. Psychopathology subtypes may inform the best approach to supporting these men with completing treatment. Similarly, psychopathology profiles may also inform clinicians of the various needs within a

treatment group, and what these men may be like to work with, however their clinical usefulness requires further research,

Overall, similar subtypes were identified to Sissoons'(2013) subtypes, however they were not associated with meaningful differences, and did not distinguish between high risk men with and without a history of intimate partner violence. However, the limited sample size among generally violent men meant that we were unable to conduct latent profile analysis exclusively with this group. If we had a large enough sample size to examine heterogeneity in personality and psychopathology among this group, it is possible that different subtypes may have emerged to those in the externally violent only group.

It is also possible that we failed to find differences between the subtypes on external variables due to missing data and the consequent reduced sample size within the subtypes. Some men in the sample did not have any VRS dynamic pre and post data available, and some men only had pre-treatment data, therefore this reduced the sample size for analyses. Therefore the averages for men in each of the subtypes on dynamic risk may not have represented all men originally in these subtypes. Similarly, the comparisons on variables at release such as age at release and risk at release were only available for men who were released during the time of the study ($n=213$), resulting in some men being dropped from subtype comparisons.

The similar reconviction and re-imprisonment rates among high risk men with and without a history of intimate partner violence indicates that men who have perpetrated violence against a partner (and likely against others) are not more likely to be reconvicted than men who have not perpetrated partner violence. This extends prior research which has often concluded that generally violent men, who use violence inside and outside of relationships are more likely to re-offend than men who are exclusively partner violent. For

example, following treatment, generally violent men have been found to be more likely to be re-arrested for any offence than men who are only violent within relationships (Eckhardt et al., 2008). Other research has also found that generally violent men are more likely to be reconvicted for assaults on their partners post-treatment than men who are only violent within relationships (Huss & Ralston, 2008).

However this research has been conducted mainly with samples of partner violent men court-referred or self-referred to domestic violence programmes in the community, and generally violent men have not been compared to men who use violent exclusively outside of relationships on their risk of recidivism. However our research is unique in that it was conducted with men at a high risk of reconviction attending Special Treatment Unit Rehabilitation Programme for violence and we found that there were similar reconviction rates among men who engage in violence inside and outside of relationships, and those that are exclusively violent outside of relationships.

Overall, more than half of the high risk men in this sample (approximately 60%) had an identified history of intimate partner violence, and this is likely an underestimate due to the difficulties with identifying partner violence. This indicates that intimate partner violence is an important treatment consideration for the High Risk Special Treatment Units. However the similarity found between men with and without a history of intimate partner violence indicates that a separate treatment approach for partner violent men is likely not required. As men with and without a history of partner violence could not be distinguished on dynamic risk as assessed by the VRS, it might be useful to assess all high risk men on intimate partner violence risk assessments in order to identify other factors that are more specific to intimate partner violence and might be important to address in treatment.

Limitations and future directions

Although this study found no difference between high risk violent men with and without a history of intimate partner violence in clinical personality traits and psychopathology, the results may have been different if the psychopathology profiles were measured proximally to when violence against a partner occurred. For example, daily diary research with young dating couples has found that higher average daily levels of negative affect, such as hostile, irritated or mad affect increases the odds of physical violence against a partner (Shorey, McNulty, Moore, & Stuart, 2015). Similarly daily levels of anger, measured just prior to contact with a partner, have also been found to increase the odds of physical violence against a partner (Elkins, Moore, McNulty, Kivisto, & Handsel, 2013). Therefore as various types of psychopathology have been temporally linked to violence, it is possible that lower levels of psychopathology might be found if psychopathology is measured after physical violence, which was the case in our study.

In the current study personality and psychopathology were measured early in treatment, and information on when the most recent act of physical violence against a partner occurred was not available. It is possible that some of the men in the generally violent group may not have used physical violence against a partner for some time, but had engaged in partner violence in the past. This is important as research comparing men who desisted from partner violence (had been physically violent to a partner, but not in the past year) to men who persisted with partner violence (had been violent in the past year), presented with different levels of psychopathology (Walker et al., 2015). Men who had desisted from partner violence were found to have much lower levels of psychopathology than men who persisted. Therefore men who had engaged in partner violence in the past may have had higher levels of psychopathology or presented with different characteristics around the time when they used

violence against their partners than when entering the treatment programme. This may have influenced the level and nature of psychopathology reported among the partner violent men.

Another limitation of this research is the way in which the sample was classified as generally violent (i.e. a history of physical partner violence and other violence) or externally violent (i.e. no history of physical partner violence). This research did not have access to detailed criminal history information and relied on information in the clinician rated VRS or psychological reports regarding intimate partner violence. Some of the men may have been physically violent toward a partner but may not have been convicted for this, and even if they were convicted, we still relied on clinical information as there are no specific criminal convictions for partner violence. Men in the sample also may not have reported physical partner violence to the clinician for various reasons such as fear that disclosure would influence their likelihood of parole. In all cases, while it was known that men had prior violent convictions, we did not have information on whether the victim was an intimate partner or not unless the clinician had asked about details regarding the conviction, which was not always the case.

Therefore some of the men in the externally violent only group may have been violent towards a partner at some point in their lifetime, but this may not have been identified in this research. As a result, this may have affected the comparisons between generally violent and externally violent only men, and could explain why we failed to find many differences between these two groups, on psychopathology, criminal risk and criminal history .

This research relied on the male participants self-reports of their personality traits and psychopathology. Some of the men may have been motivated to present themselves in a more favourable way due to the knowledge that what they reported might influence the decision of the parole board or decisions regarding their treatment. In the current study around 33% of

the total sample scored within the range that suggests a tendency to present oneself in a favorable manner, or denial of psychological difficulties on the desirability index. Therefore some of the men may have underreported their psychopathology, which may have also influenced the subtypes found in the latent profile analysis. However the validity index of the MCMI-III allowed us to identify profiles where the responses were random, and any profiles where two or more of the validity items were endorsed as true were excluded from the sample.

Future research could sample men who have engaged in partner violence or violence against others recently, and examine whether when measured more proximally to violence, there are any differences in psychopathology between men who engage in violence inside and outside of relationships, and men who are exclusively violent outside of relationships. Research could also compare positive personality traits between men who have engaged in partner violence and men who have engaged in other violence, to see if there are traits that are protective against the use of violence in relationships.

Future typological research could also focus on variables within violent relationships, rather than exclusively on the individual traits of high risk offenders who have engaged in partner violence. It could be interesting to look at the combination of both partners personality traits and psychopathology, communication styles and whether reciprocal violence occurs. This may better identify different types of relationships, and their associated characteristics and these types may be better linked to external differences associated with violent males.

In this study we only explored variables that were available in the archival data, and we did not collect data specifically for the purposes of this research. Therefore future research could explore whether other factors may better distinguish between high risk men with and

without a history of intimate partner violence. For example information could be collected on factors more specific to partner violence such as jealousy, relationship satisfaction and psychopathology during childhood and adolescence (O’Leary, Tintle, & Bromet, 2014; Stewart et al., 2013). This may help with informing whether men with a history of partner violence have unique treatment needs, and whether they require a different treatment approach to men who have not engaged in intimate partner violence.

Future research could examine differences in individual dynamic risk factors between men with and without a history of intimate partner violence in the HRSTU's. This could include examining differences in both general violence risk factors, and factors more specific to intimate partner violence such as jealousy.

Conclusion

This research indicates that high risk men with and without a history of intimate partner violence share similar profiles in terms of dysfunctional personality traits and psychopathology. Future research efforts may be best directed toward identifying the variation among high risk violent offenders as a group, rather than examining this variation separately for men who direct some of their violence toward intimate partners. However a much greater understanding is required around how similar or different men who have engaged in partner violence are to violent men who have not, as this research looked only at individual traits at one point in time. Future research should explore a broader range of factors that may distinguish between men with and without a history of intimate partner violence, including other individual factors, such as attachment style and jealousy, as well as contextual factors such as relationship communication styles .

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Appendix

MCMI-III psychopathology factors and their associated scales obtained from Sissons (2013)

Table 2.2

Principal components analysis of MCMI-III psychopathology scales (N = 623)^a

Component		1	2	3	4
Internalising	CC Major Depression	.94			
	R PTSD	.87			
	H Somatoform	.86			
	A Anxiety	.76			
	D Dysthymia	.75			
	2B Depressive	.58			
	3 Dependent	.56			
	SS Thought Disorder	.53			
	8B Self Defeating	.51			
N Bipolar Manic					
Externalising	6A Antisocial		.94		
	T Drug		.84		
	B Alcohol		.74		
	6B Sadistic		.66		
	7 Compulsive		-.56		
	C Borderline	.45	.46		
Admiration-seeking	5 Narcissistic			.87	
	4 Histrionic			.71	-.48
Social withdrawal/ eccentricity	PP Delusional				.81
	P Paranoid				.77
	1 Schizoid				.74
	S Schizotypal				.62
	2A Avoidant				.56
	8A Passive Aggressive				.42