

CRIMINAL HISTORIES AND RATES OF RECIDIVISM AMONG TWO SUBTYPES OF PSYCHOPATHIC INDIVIDUALS

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Although it is well established that individuals with psychopathic traits are a high-risk group for criminal recidivism, there is considerable evidence that psychopathy is a heterogeneous personality disorder comprised of two subtypes who differ on levels of negative affect (NA). However, few studies have examined differences in criminal histories, and fewer still have investigated differences in recidivism among subtypes of psychopathy. The current study compared criminal histories and recidivism rates between psychopathy subtypes differing in NA (high-NA vs. low-NA) within a sample of adult males incarcerated in state prisons. The high-NA and low-NA psychopathy subtypes did not differ on histories of total, nonviolent, or violent crime, and did not differ on rates of total, nonviolent, or violent recidivism. This finding highlights equally high levels of criminal risk associated with both subtypes of psychopathic individuals. Intervention strategies should be prioritized for both subgroups to effectively reduce the criminal costs associated with psychopathy.

Keywords: psychopathy; subtypes; recidivism; criminal history; negative affect

INTRODUCTION

Incarceration is a costly system in the United States, with a total of approximately US\$43 billion spent annually on state prisons across the country (Henrichson & Delaney, 2012). Unfortunately, rates of recidivism remain very high, with an estimated 83% of incarcerated individuals in the United States being rearrested at least once after their release from prison

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or jail (Alper et al., 2018). High rates of recidivism have led to research dedicated to understanding factors that may influence individuals' risk for reoffense (Andrews et al., 2006); however, evidence-based, effective interventions to reduce recidivism are still needed.

Antisocial personality characteristics have consistently been documented as predictors of recidivism (Andrews et al., 2006). In particular, individuals with high levels of psychopathy, a personality disorder characterized by callous and impulsive antisocial behavior, constitute a particularly high-risk group for recidivism. Individuals high in psychopathy are 3 times more likely to reoffend generally and 4 times more likely to reoffend violently than nonpsychopathic individuals (Hemphill et al., 1998). In fact, the Psychopathy Checklist–Revised (PCL-R), the most widely used assessment of psychopathy in forensic settings, although not a risk assessment tool itself, has become increasingly commonly used in the assessment of risk (DeMatteo & Edens, 2006). Factor analyses indicate PCL-R can be divided into two distinct factors of personality traits, one factor capturing Interpersonal and Affective traits (Factor 1) and the other capturing Lifestyle and Antisocial traits (Factor 2; Hare et al., 1990). Item response theory (IRT) suggests that the two factors can be divided into four separate Facets, which correspond to the Interpersonal, Affective, Lifestyle, and Antisocial traits (Hare, 2003).

Although psychopathy is typically understood as a dimensional construct (Edens et al., 2006; Miller et al., 2001), identifying discrete groups of highly psychopathic individuals may be informative from a clinical perspective because it has been well documented that there may be different paths to clinical levels of psychopathy. Importantly, research shows there may be unique genetic contributions to different facets of psychopathy and subtypes of highly psychopathic individuals (Ireland et al., 2020; Sadeh et al., 2013), which could inform unique treatment targets. Most studies that have examined subtypes in psychopathy have done so using a discrete cutoff (e.g., PCL-R score ≥ 30), rather than continuous PCL-R scores, and have identified two subtypes of highly psychopathic individuals who differ on levels of negative affect (NA; Blackburn et al., 2008; Claes et al., 2014; Dargis & Koenigs, 2018a, 2018b; Gill & Stickle, 2016; Hicks et al., 2004; Kimonis et al., 2012, 2013; Mokros et al., 2015; Newman et al., 2005; Newman & Schmitt, 1998; Olver et al., 2015; Skeem et al., 2003, 2007; Tatar et al., 2012). Identifying discrete subgroups of highly psychopathic individuals who differ on clinically relevant variables (e.g., experience of internalizing vs. externalizing psychopathology) may better inform individualized targets for treatment and intervention (see Dargis & Koenigs, 2018a, for discussion on primary/secondary subtypes related to NA and anxiety). These clinical differences, in combination with high rates of recidivism, make it necessary to focus research and treatment among this high-risk group of highly psychopathic individuals.

Although there are widespread differences in study methodology to derive subtypes, a two-subtype model has consistently been demonstrated. For example, Mokros et al. (2015) utilized latent class analysis to differentiate a Manipulative group (high Facet 1) and an Antisocial group (high Facet 4). Other studies have shown differences in NA among two clusters of psychopathic individuals when clustered based on personality inventories and not PCL-R scores (e.g., Multidimensional Personality Questionnaire [MPQ], NEO Five-Factor Inventory [NEO-FFI]; Claes et al., 2014; Dargis & Koenigs, 2018a, 2018b; Gill & Stickle, 2016). Hicks and Drislane (2018) summarize a number of studies finding two clusters of psychopathic individuals, and studies finding more than two clusters commonly describe one with higher levels of anxiety, childhood trauma, and Factor 2 scores, and another showing higher Factor 1 scores, lower anxiety, and fewer psychiatric concerns. In

addition, a review by Yildirim and Derksen (2015) found a two-cluster solution to be most common, and although each cluster can be understood as existing on its own continuum, these subtypes consistently differ on personality and psychopathic traits.

Furthermore, studies have documented additional behavioral, psychological, cognitive, and developmental differences between groups, including differences in emotional intelligence (Vidal et al., 2010), avoidance learning and skin conductance responses to positive and negative stimuli (Verona et al., 2004), go/no-go response perseverations and lexical decision-making tasks (Newman & Schmitt, 1998), reactive aggression and impulsivity (Dargis & Koenigs, 2018a), measures of anxiety (Poythress et al., 2010; Skeem et al., 2007), and history of trauma (Dargis & Koenigs, 2018a, 2018b; Kimonis et al., 2012, 2013; Poythress et al., 2010). These results suggest that psychopathic individuals with high levels of anxiety/NA (high-NA) tend to be more impulsive, have more severe substance use histories, and have greater experiences of trauma, whereas psychopathic individuals with low anxiety/NA (low-NA) tend to be less reactive to anxiety-provoking stimuli. Notably, there is also recent evidence that psychopathic variants may have differential responses to treatment (Klein Haneveld et al., 2018).

Given these substantial differences between subgroups, it is possible that the high-NA and low-NA psychopathy subtypes have different levels of risk for criminal recidivism. However, few studies to date have examined differences in recidivism between these subtypes (Lehmann et al., 2019; Olver et al., 2015; Poythress et al., 2010). Among the few studies that have examined differences in criminal history, data are mixed. For instance, Kimonis et al. (2013) reported that individuals high in psychopathy and with higher levels of anxiety/NA (high-NA) tend to be more reactively aggressive and violent than the psychopathy subtype with low levels of anxiety/NA (low-NA). However, other studies reported no differences in reoffending among primary and secondary psychopathy subtypes (clustered based on PCL-R Facets; Olver et al., 2015; Poythress et al., 2010). Another study reported no differences among psychopathy subtypes in risk for reoffense (measured with a risk assessment) but found (nonsignificant) differences in sexual recidivism (Lehmann et al., 2019). Therefore, clarifying the criminal risk levels of subgroups of psychopathy is an important step for linking the psychological literature on psychopathy subtypes to real-world criminal justice outcomes.

Accordingly, the current study aims to compare criminal history and recidivism among high-NA and low-NA psychopathy subtypes. Using a sample of highly psychopathic incarcerated individuals divided into subtypes based on broad-range personality traits, we compare rates of recidivism (general, violent, and nonviolent) and criminal histories (total, violent, and nonviolent) between psychopathy subtypes. Recidivism rates among these psychopathy subtypes were also compared with intermediate and nonpsychopathic individuals to examine rates of recidivism of these psychopathy subtypes in relation to incarcerated individuals with varying levels of psychopathic traits.

METHOD

PARTICIPANTS

Participants included adult males incarcerated at medium security prisons between 2007 and 2019. Participants were eligible for study participation if they met the following criteria: between the ages of 18 and 55, no documented diagnosis of a psychotic or bipolar

disorder, above a fourth-grade reading level, an intelligence quotient (IQ) estimate ≥ 70 (measured by the Wechsler Abbreviated Scale of Intelligence–Second Edition [WASI-II] or Wechsler Adult Intelligence Scale–Third Edition [WAIS-III]; Wechsler, 1981, 1999), and available PCL-R and past crime data. All participants provided written and oral consent before participation in any study procedures. All study procedures were approved by the institutional review board. Each participant first completed two interview sessions and a packet of questionnaires that assessed personality, substance use, intelligence, criminal history, and psychological functioning. Participants were reminded at the beginning of each session that their participation was voluntary and completed all study procedures to determine eligibility prior to the current analyses. A total of 4,813 participants had PCL-R and past crime data available and were eligible for study participation.

Individuals were divided into groups based on PCL-R Total Scores based on published guidelines (Hare, 2003). Individuals with a PCL-R total score ≥ 30 were classified as High psychopathy ($n = 1,115$). Individuals with a PCL-R total score < 30 and > 20 were classified as Intermediate ($n = 2,159$). Individuals with a PCL-R total score ≤ 20 were classified as Nonpsychopathic ($n = 1,539$). Because the main aim of this study was to investigate psychopathy subtypes, individuals in the High psychopathy group were only included in analyses if they had completed Multidimensional Personality Questionnaire–Brief Form (MPQ-BF) information ($n = 697$). Therefore, a total of 4,389 participants were included in crime analyses. Demographic information for the crime sample and each group is presented in Tables 1 and 2, respectively. Comparisons between groups are presented in Supplemental Table S1 (available in the online version of this article).

A subset of the participants with PCL-R and past crime data were released from prison after study participation between 2007 and 2019 and had available recidivism data ($n = 1,221$). Six of these individuals did not have available recidivism crime data available (i.e., details of the crime committed after release could not be found); therefore, the final recidivism sample consisted of 1,215 participants. Comparisons between the full sample and the recidivism sample are presented in Table 1. Again, individuals included in recidivism analyses were divided into Nonpsychopathic ($n = 316$), Intermediate ($n = 654$), and High psychopathy ($n = 245$) groups based on PCL-R total scores. All individuals in the High psychopathy group had complete MPQ-BF data. Demographic information for the recidivism sample and each group is presented in Table 1 and Supplemental Table S2 (available in the online version of this article), respectively. Comparisons between groups in the recidivism sample are presented in Supplemental Table S3 (available in the online version of this article).

MEASURES

PCL-R

The PCL-R is a 20-item measure of psychopathic traits that consists of a semi-structured interview and a file review (Hare, 2003). Each trait is scored on a scale of 0 (*not present*) to 2 (*present*) (Hare, 2003). Total scores range from a minimum of 0 to a maximum of 40 points, with a cutoff score of 30 indicating the classification of psychopathy (Hare, 2003). The PCL-R is divided into two overarching factors, the Interpersonal/Affective Factor (Factor 1) and the Lifestyle/Antisocial Factor (Factor 2). These two factors can be divided

TABLE 1: Demographic Information for Both the Full Sample and Recidivism Sample

Measure	Full sample (<i>N</i> = 4,389)	Recidivism sample (<i>N</i> = 1,215)	<i>t</i>	<i>d</i>	<i>p</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)			
Age	30.86 (7.74)	31.14 (7.59)	-1.1	.04	.27
Race (%)					
White	58.5	43.8	—		—
Black	36.9	37.8	—		—
Other	4.4	8.2	—		—
IQ	95.37 (13.23)	96.72 (12.62)	-3.05	.10	<.001
PCL-R total	22.79 (6.76)	24.1 (6.04)	-6.09	.20	<.001
Factor 1 score	8.54 (3.22)	8.98 (2.81)	-4.36	.14	<.001
Facet 1	3.17 (2.02)	3.02 (1.91)	2.32	.08	.02
Facet 2	5.37 (1.90)	5.96 (1.59)	-9.94	.32	<.001
Factor 2 score	10.93 (3.61)	11.63 (3.34)	-7.66	.25	<.001
Facet 3	6.23 (2.14)	6.95 (1.86)	-10.46	.35	<.001
Facet 4	5.85 (2.66)	5.84 (2.61)	-0.98	.03	.33
MPQ NA	47.61 (19.23)	47.7 (18.67)	-0.13	.01	.90
Stress reaction	4.89 (3.38)	4.88 (3.32)	0.11	<.01	.91
Alienation	4.71 (3.09)	4.63 (2.99)	0.69	.02	.49
Aggression	4.46 (3.58)	4.56 (3.54)	-0.81	.03	.42
MPQ PA	66.67 (14.80)	67.45 (14.39)	-1.5	.03	.13
Well-being	7.61 (2.95)	7.74 (2.91)	-1.23	.04	.22
Social potency	5.38 (3.10)	5.54 (3.03)	-1.52	.05	.13
Achievement	7.66 (3.00)	7.66 (2.95)	-0.05	<.01	.96
Social closeness	6.73 (3.40)	6.87 (3.35)	-1.18	.04	.24
MPQ constraint	77.02 (15.69)	77.02 (15.66)	0	<.01	1.00
Control	7.66 (3.26)	7.65 (3.28)	0.13	.01	.89
Harm avoidance	7.38 (3.04)	7.51 (3.00)	-1.28	.05	.20
Traditionalism	7.21 (2.37)	7.06 (2.32)	1.82	.06	.07
MPQ absorption	5.96 (2.90)	5.84 (2.89)	1.15	.04	.25

Note. Means and standard deviations for all demographic, PCL-R, and personality information. *T* values, *d* values, and *p* values are presented from *t* tests comparing group means. IQ = intelligence quotient; PCL-R = Psychopathy Checklist-Revised; MPQ = Multidimensional Personality Questionnaire; NA = negative affect; PA = positive affect. The values in bold indicate significant values below .0083.

into four facets: Interpersonal (Facet 1), Affective (Facet 2), Lifestyle (Facet 3), and Antisocial (Facet 4). Trained undergraduate students, graduate students, and professional staff conducted all PCL-R interviews and were supervised by advanced graduate students in psychology. Reliability information was available from 519 participants. Interrater reliability was high for PCL-R Total Scores (intraclass correlation coefficient [ICC] = .91), Factor scores (Factor 1 = .97; Factor 2 = .96), and Facet scores (Facet 1 = .96; Facet 2 = .95; Facet 3 = .98; Facet 4 = .96).

MPQ-BF

The MPQ-BF is a 155-question, self-report measure of personality traits (Patrick et al., 2002). The MPQ-BF primary scales are highly correlated with the full MPQ and are consistent with its higher-order factors (Patrick et al., 2002). The MPQ-BF consists of 11 primary

TABLE 2: Demographic Information for Each Psychopathic Group in the Full Sample ($N = 4,389$)

Measure	High-NA psychopathy ($n = 366$)	Low-NA psychopathy ($n = 325$)	Intermediate ($n = 2,159$)	Nonpsychopathic ($n = 1,539$)
	M (SD)	M (SD)	M (SD)	M (SD)
Age	29.83 (7.29)	33.95 (7.79)	30.38 (7.56)	31.13 (7.90)
Race (%)				
White	63.66	52.31	55.16	63.35
Black	29.78	40.92	40.02	33.27
Other	6.28	6.46	4.68	3.05
IQ	98.24 (12.45)	98.19 (11.43)	94.16 (13.23)	95.63 (13.56)
PCL-R total	32.61 (2.19)	32.21 (2.13)	25.03 (2.52)	15.33 (3.88)
Factor 1 score	12.41 (1.82)	12.65 (1.86)	9.30 (2.18)	5.67 (2.29)
Facet 1	5.29 (1.60)	5.52 (1.64)	3.44 (1.71)	1.78 (1.43)
Facet 2	7.1 (0.95)	7.14 (1.00)	5.86 (1.44)	3.90 (1.76)
Factor 2 score	15.57 (1.69)	14.76 (1.89)	12.04 (2.13)	7.43 (2.75)
Facet 3	8.53 (1.04)	8.16 (1.25)	6.78 (1.59)	4.50 (1.86)
Facet 4	8.43 (1.50)	8.04 (1.64)	6.61 (1.95)	3.62 (2.27)
MPQ NA	59.93 (6.71)	44.96 (6.32)	50.76 (9.77)	46.49 (9.38)
Stress reaction	55.88 (8.51)	45.31 (7.99)	50.53 (9.93)	48.47 (10.10)
Alienation	55.80 (8.88)	45.38 (7.58)	50.60 (9.76)	48.39 (10.35)
Aggression	61.32 (7.65)	46.99 (6.91)	50.62 (9.77)	45.31 (7.96)
MPQ PA	50.27 (9.89)	52.02 (9.96)	49.99 (9.68)	49.12 (10.41)
Well-being	49.49 (10.51)	51.69 (9.69)	49.82 (9.78)	49.83 (10.16)
Social potency	55.67 (9.06)	51.79 (9.45)	50.27 (9.64)	46.44 (9.72)
Achievement	48.1 (10.91)	51.86 (9.04)	49.51 (9.85)	50.74 (10.00)
Social closeness	46.33 (9.29)	51.18 (9.82)	50.18 (10.04)	50.88 (9.96)
MPQ constraint	43.63 (9.68)	53.59 (7.84)	49.36 (10.01)	52.33 (9.43)
Control	43.57 (9.77)	53.73 (7.73)	49.26 (9.96)	52.44 (9.43)
Harm avoidance	46.04 (10.86)	52.47 (8.94)	49.75 (9.93)	51.14 (9.57)
Traditionalism	46.51 (10.03)	50.60 (10.01)	49.72 (9.67)	51.70 (10.06)
MPQ absorption	52.98 (9.48)	48.60 (10.08)	49.67 (10.07)	49.73 (9.86)

Note. Means and standard deviations for all demographic, PCL-R, and personality information. MPQ variable scores are presented in T -scores. NA = negative affect; PCL-R = Psychopathy Checklist-Revised; MPQ = Multidimensional Personality Questionnaire; PA = positive affect.

trait scales: Well-being, Social Potency, Achievement, Social Closeness, Stress Reaction, Aggression, Alienation, Control, Harm Avoidance, Traditionalism, and Absorption. The subscales can be combined into three higher-order factors: NA, Positive Affect (PA), and Constraint. An additional trait scale, Absorption, does not load highly on any of the three higher-order factors and therefore is not utilized in their creation (Patrick et al., 2002). The MPQ-BF was chosen for the cluster analysis based on its breadth of personality characteristics and consistency with previous research (Dargis & Koenigs, 2018a, 2018b; Hicks et al., 2004). In addition, because the primary outcomes variables in this study were crime variables derived from the PCL-R and recidivism information, alternative methods of clustering that have been both empirically and theoretically supported, but utilize PCL-R information for clustering (e.g., entering PCL-R Facets into the cluster analysis; see Mokros et al., 2015) were not chosen. PCL-R Facet 4 directly assesses criminality (e.g., criminal versatility, juvenile delinquency) and therefore was not suitable to be used as a predictor of criminal history or recidivism outcomes.

Childhood Trauma Questionnaire (CTQ)

The CTQ is a self-report questionnaire consisting of 28 items measuring experiences of abuse and neglect during childhood (Bernstein et al., 1994). In addition to a total score reflecting the total experience of trauma, the CTQ assesses five domains of traumatic experiences: physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse. Items are rated from 1 (*never true*) to 5 (*very often true*), with higher scores reflecting greater instances of abuse and/or neglect.

Spielberger State-Trait Anxiety Inventory (STAI)

The STAI is a 40-item self-report questionnaire assessing both state (i.e., how anxious a person feels at that moment) and trait (i.e., how anxious a person generally feels) anxiety (Spielberger, 1983). Each scale (state and trait) is made up of 20 items, with higher scores on each scale indicating higher levels of anxiety.

Criminal History

The total number of past (i.e., prior to the PCL-R assessment), violent, and nonviolent charges and convictions were based on both self-report and legal documentation in institutional files. Total charges/convictions were a total of all past charges and convictions. Violent charges/convictions included assault/battery, sex offenses, robbery, weapon-related offenses, homicide, and kidnapping. Nonviolent charges/convictions included theft, drug offenses, fraud, obstruction of justice, breach of bail, driving offenses, and other miscellaneous charges (e.g., disorderly conduct, criminal damage to property).

Recidivism was defined as a new criminal conviction following release (i.e., time to reoffense after the PCL-R assessment). Recidivism data are from 2011–2019. Individuals who had terms of extended supervision revoked due to probation violations (e.g., missing curfew) were not classified as recidivists.

DATA ANALYSIS

K-means cluster analysis was performed using the 11 MPQ-BF primary scales to classify High psychopathy individuals (PCL-R total score ≥ 30) into two subtypes. No other variables were entered into the cluster analysis. *K*-means cluster analysis allows the number of groups to be determined a priori (i.e., *k*-number of groups). *K*-means clustering is recommended when the number of clusters that exist within a sample are already known, or there is substantial theoretical rationale for determining the number of groups a priori (Wagstaff et al., 2001). In this case, $k = 2$ was used based on previous literature citing two psychopathy subtypes. Next, per the standard Hartigan–Wong method (Hartigan & Wong, 1979), cluster assignment was refined using an iterative process in which each data point is assigned to its closest cluster (i.e., Euclidean distance from the cluster center is minimized). Finally, each cluster center becomes the mean of the data points of each variable that now comprise it (Wagstaff et al., 2001). Cluster analysis was performed using the *k*-means function from the stats package in the statistical language R-version 3 (R Core Team, 2019). Cluster analysis was performed in the full sample of psychopathic individuals with MPQ-BF data ($n = 697$). In addition, validation of the resulting clusters was performed using relevant external

variables that have been consistently shown to differentiate psychopathy subtypes (i.e., PCL-R Factor 2, measures of anxiety and childhood trauma; Dargis & Koenigs, 2018a, 2018b; Kimonis et al., 2012, 2013; Poythress et al., 2010). Six individuals included in the cluster analysis did not have available crime data, resulting in a final sample of 691 psychopathic individuals with cluster assignments in the full crime sample. Cluster assignments derived from the full sample were then carried over to the recidivism sample; therefore, individuals' cluster assignment did not change if they were included in the full and recidivism samples.

After establishing subtypes within the psychopathic group, multiple regression analyses with nonorthogonal contrasts were made to examine differences in criminal history (i.e., total, violent, nonviolent) between all four groups (nonpsychopathic, intermediate, and both psychopathy subtypes). Age was included as a covariate in all regression analyses, given the strong association between age and criminal behavior (Hoffman & Beck, 1984). Responses were assessed for undue influence on each model (total, violent, and nonviolent) separately and removed for undue influence. Three participants were excluded from total crime analyses, one participant was excluded from nonviolent crime analyses, and two participants were removed from violent crime analyses. To adjust for multiple comparisons, we divided the traditional p value of .05 by the total number of tests, resulting in a threshold of .0083 for all regression analyses.

Next, because participants in this sample were released from prison at different time points and had different periods of follow-up, Cox proportional hazard regression was chosen to examine group differences in time to reoffense, as it corrects for differences in the length of follow-up period (Fox & Weisberg, 2002). Group differences in time to reoffense were examined between all four groups (nonpsychopathic, intermediate, and both psychopathy subtypes). Cox proportional hazard regression analyses were conducted using the `coxph` and `Surv` functions in the survival package in the statistical language R Version 3 (Therneau, 2015; Therneau & Grambsch, 2000). Age and past criminal history were included as covariates in all Cox proportional hazard regression models, given the strong relationship between age, past criminal history, and future reoffense (Bonta et al., 1998; Hoffman & Beck, 1984). Because all three models (examining general, violent, and nonviolent recidivism) were planned a priori, a p value cutoff of .05 was set for all Cox Proportional Hazard regression models.

RESULTS

Comparisons between the full sample and recidivism sample are presented in Table 1. Individuals in the recidivism sample showed significantly higher IQ, PCL-R Total, Factor 1, Facet 2, Factor 2, and Facet 3 scores. Importantly, the samples did not differ on Facet 4, indicating similar rates of antisocial behavior.

CLUSTER ANALYSIS OF PSYCHOPATHIC INDIVIDUALS ($K = 2$)

Of the 691 psychopathic individuals included in k -means cluster analysis, 366 were classified into Cluster 1 and 325 were classified into Cluster 2. Cluster 1 consisted of individuals with significantly higher levels of NA, $t(689) = 30.1$, $p < .001$, and significantly lower levels of PA, $t(689) = -2.3$, $p = .02$, and Constraint, $t(689) = -14.7$, $p < .001$. Therefore, Cluster 1 will be referred to as the "high-NA" psychopathy subtype, whereas Cluster 2 will

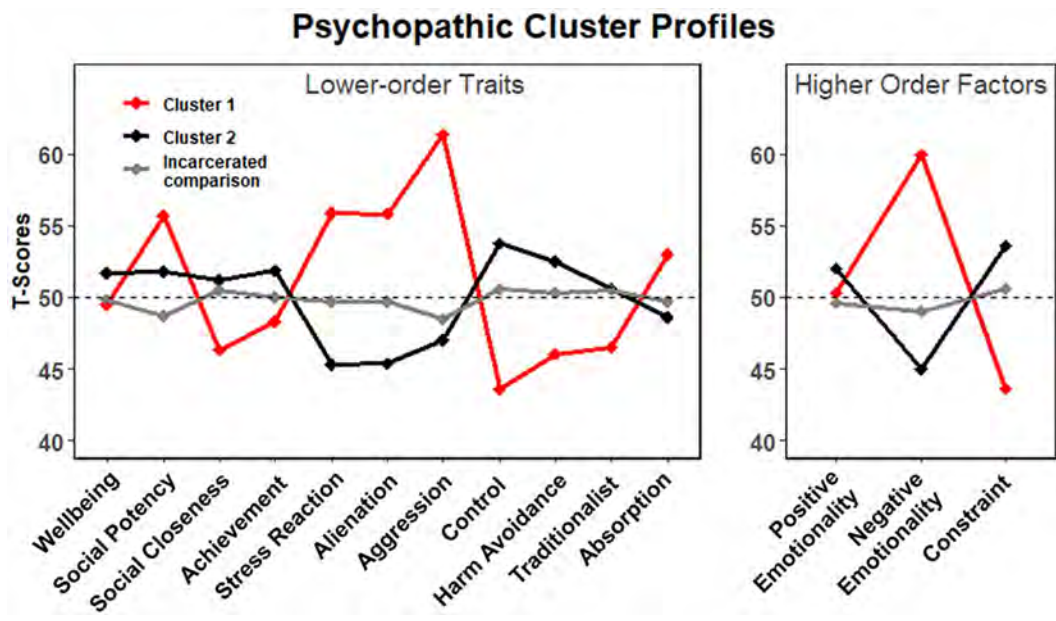


Figure 1: MPQ-BF Primary Scale and Higher-Order Factor *T*-Scores of Each Cluster of Highly Psychopathic Individuals

Note. Cluster 1 represents individuals with high levels of Negative Affect (high-NA), whereas Cluster 2 represents individuals with low levels of Negative Affect (low-NA). *T*-scores are calculated based on the full incarcerated sample ($N = 4,389$). All participants with PCL-R Total < 30 are included as the Incarcerated comparison sample. MPQ-BF = Multidimensional Personality Questionnaire–Brief Form; NA = negative affect; PCL-R = Psychopathy Checklist–Revised.

be referred to as the “low-NA” psychopathy subtype. The high-NA subtype was significantly higher than the low-NA subtype on PCL-R total score and Factor 2 score, but not on Factor 1 score. In addition to comparisons on PCL-R variables, psychopathy subtypes were compared on levels of both childhood trauma and anxiety. As predicted, the high-NA psychopathy subtype scored significantly higher on measures of childhood trauma, state anxiety, and trait anxiety than the low-NA psychopathy subtype. Figure 1 depicts the mean *T*-scores on all MPQ primary traits and higher-order factors for each cluster. All participants not included in the cluster analysis (intermediate and nonpsychopathic participants) were included as the “Incarcerated comparison” sample for reference. All results from analyses validating the psychopathy subtypes are presented in Table 3. All comparisons on demographic and MPQ variables between psychopathy subtypes are displayed in Table 2 and Supplemental Table S1. The low-NA psychopathy subtype was significantly older than the high-NA psychopathy subtype. The high-NA psychopathy subtype had significantly higher Factor 2, Facet 3, and Facet 4 scores than the low-NA psychopathy subtype.

CRIMINAL HISTORY

Total Charges/Convictions

Past crime information for both the full sample ($N = 4,389$) and recidivism sample ($N = 1,215$) is presented in Table 4 and Supplemental Table S4 (available in the

TABLE 3: Validation of Psychopathic Subtypes in Full Sample

Measure	High-NA psychopathy (<i>n</i> = 366)	Low-NA psychopathy (<i>n</i> = 325)	<i>t</i>	<i>d</i>	<i>p</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)			
PCL-R total	32.61 (2.19)	32.21 (2.13)	2.41	.18	.02
Factor 1 score	12.41 (1.82)	12.65 (1.86)	-1.76	.13	.08
Facet 1	5.30 (1.60)	5.52 (1.64)	-1.76	.13	.08
Facet 2	7.10 (0.95)	7.14 (1.00)	-0.43	.03	.67
Factor 2 score	15.57 (1.69)	14.76 (1.89)	6.27	.49	<.001
Facet 3	8.53 (1.04)	8.16 (1.25)	4.17	.33	<.001
Facet 4	8.43 (1.50)	8.04 (1.64)	3.25	.25	<.01
CTQ total score	55.4 (10.7)	50.1 (9.4)	4.00	.54	<.001
Physical abuse	56.3 (11.8)	51.3 (9.2)	3.63	.48	<.001
Physical neglect	54.1 (11.3)	50.8 (10.5)	2.32	.31	.02
Emotional abuse	55.0 (10.3)	49.2 (9.0)	4.51	.60	<.001
Emotional neglect	54.8 (10.2)	49.2 (9.5)	4.23	.57	<.001
Sexual abuse	50.8 (11.2)	50.2 (10.3)	0.47	.06	.64
STAI—Trait anxiety	54.2 (10.0)	46.7 (8.1)	7.77	.83	<.001
STAI—State anxiety	52.4 (9.6)	48.0 (8.7)	4.52	.48	<.001

Note. The values in bold indicate significance below .05. CTQ and STAI values are reported at *T*-scores. NA = negative affect; PCL-R = Psychopathy Checklist-Revised; CTQ = Childhood Trauma Questionnaire; STAI = State-Trait Anxiety Inventory.

TABLE 4: Past Crime Information for Participants in the Full Crime Sample

Group	Total crime			Violent crime			Nonviolent crime		
	<i>M</i> (<i>SD</i>)	Median	Range	<i>M</i> (<i>SD</i>)	Median	Range	<i>M</i> (<i>SD</i>)	Median	Range
Nonpsychopathic	10.7 (9.5)	8	1–116	2.8 (4.2)	2	0–106	7.9 (8.7)	6	0–111
Intermediate	17.5 (12.4)	15	1–136	4.2 (4.7)	3	0–123	13.2 (11.6)	10	0–128
Low-NA psychopathy	21.8 (14.2)	19	2–102	5.4 (3.9)	5	0–23	16.4 (13.3)	13	0–87
High-NA psychopathy	21.7 (14.0)	19	3–104	5.3 (5.8)	4	0–70	16.3 (13.1)	13	0–104

Note. Participants excluded for undue influence on regression analyses are not included. NA = negative affect.

online version of this article). The high-NA and low-NA psychopathy subtypes did not show significant differences in the total number of past charges/convictions. The high-NA psychopathy subtype had significantly more total charges/convictions than both the intermediate and the nonpsychopathic groups. The low-NA psychopathy subtype also had significantly more total charges/convictions than both the intermediate and nonpsychopathic groups. The intermediate group had significantly more total charges/convictions than the nonpsychopathic group. All group comparisons on total criminal history are displayed in Table 5 and Figure 2.

Nonviolent Charges/Convictions

The high-NA and low-NA psychopathy subtypes did not differ on the number of past nonviolent charges/convictions. The high-NA psychopathy subtype had significantly more past nonviolent charges/convictions than the intermediate and nonpsychopathic groups. The low-NA psychopathy subtype also had significantly more nonviolent charges/

TABLE 5: Group Comparisons of Criminal History Information for Participants in the Full Crime Sample

Effect	Total crime					Nonviolent crime					Violent crime				
	β	SE	t	η^2_p	p	β	SE	t	η^2_p	p	β	SE	t	η^2_p	p
Intermediate vs. nonpsychopathic	6.93	.39	17.81	.18	<.001	5.46	.36	15.02	.13	<.001	1.46	0.15	9.62	.06	<.001
High-NA psychopathy vs. nonpsychopathic	11.27	.68	16.61	.16	<.001	8.63	.63	13.62	.11	<.001	2.63	0.26	9.93	.06	<.001
Low-NA psychopathy vs. nonpsychopathic	10.46	.72	14.63	.13	<.001	8.03	.67	12.02	.09	<.001	2.42	0.28	8.66	.05	<.001
High-NA psychopathy vs. intermediate	4.34	.66	6.58	.03	<.001	3.17	.62	5.15	.02	<.001	1.17	0.26	4.54	.01	.004
Low-NA psychopathy vs. intermediate	3.53	.70	5.05	.02	<.001	2.57	.65	3.93	.01	<.001	0.96	0.27	3.51	.01	.04
High-NA psychopathy vs. low-NA psychopathy	.81	.89	.91	<.001	.37	.60	.84	.72	<.001	.47	0.21	0.35	0.61	<.001	.54
Age	.21	.02	8.98	.02	<.001	.14	.02	6.74	.01	<.001	.06	.01	5.03	.01	<.001

Note. The values in bold indicate significant values below .0083. NA = negative affect.

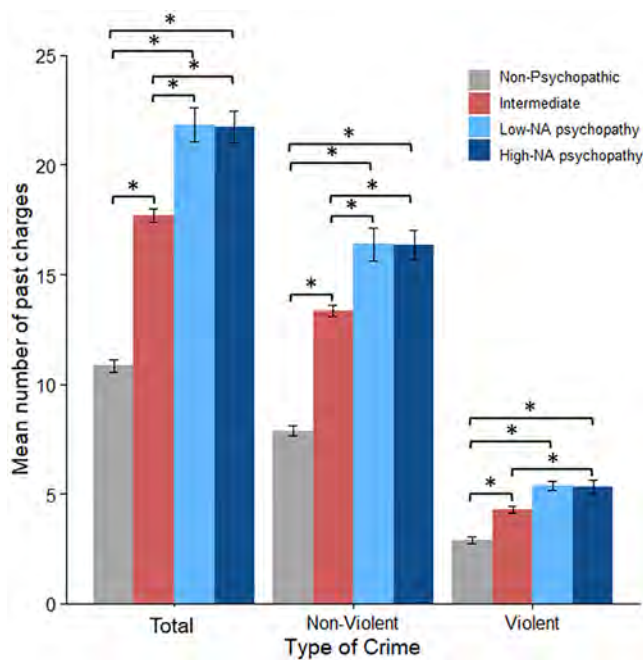


Figure 2: Mean Total, Nonviolent, and Violent Past Charges/Convictions for Four Groups of Incarcerated Individuals

Note. Error bars represent standard errors of the mean for each group. NA = negative affect. * = significant difference between groups.

convictions than both the intermediate and nonpsychopathic groups. The intermediate group also had significantly more nonviolent charges/convictions than the nonpsychopathic group. All group comparisons on past nonviolent charges/convictions are displayed in Table 5 and Figure 2.

Violent Charges/Convictions

The high-NA psychopathy subtype did not differ from the low-NA psychopathy subtype on past violent charges/convictions. The high-NA psychopathy subtype had significantly more past violent charges/convictions than both the intermediate group and the nonpsychopathic group. The low-NA psychopathy subtype did not differ from the intermediate group on past violent charges/convictions using a corrected p value, but did have significantly more past violent charges/convictions than the nonpsychopathic group. The intermediate group had more past violent charges/convictions than the nonpsychopathic group. All group comparisons on past violent charges/convictions are displayed in Table 5 and Figure 2.

RECIDIVISM

General Recidivism

A total of 142 individuals from the high-NA psychopathy subtype and 103 individuals from the low-NA psychopathy subtype had available recidivism data. The high-NA and low-NA psychopathy subtypes did not differ on general recidivism (i.e., any type of new

offense). The high-NA psychopathy subtype reoffended at a faster rate than both the intermediate and the nonpsychopathic groups. The low-NA psychopathy subtype did not significantly differ from the intermediate group, but reoffended at a faster rate than the nonpsychopathic group. The intermediate group reoffended at a faster rate than the nonpsychopathic group. Results from Cox proportional hazard regression analyses for total recidivism are presented in Table 6 and Figure 3A.

Nonviolent Recidivism

The high-NA and low-NA psychopathy subtypes did not differ on nonviolent recidivism. The high-NA psychopathy subtype reoffended at a faster rate than both the intermediate and the nonpsychopathic groups. The low-NA psychopathy subtype did not reoffend nonviolently at a faster rate than the intermediate group, but did reoffend nonviolently at a faster rate than the nonpsychopathic group. The intermediate group reoffended nonviolently at a faster rate than the nonpsychopathic group. Results from Cox proportional hazard regression analyses for nonviolent recidivism are presented in Table 6 and Figure 3B.

Violent Recidivism

The high-NA and low-NA psychopathy subtypes did not differ in their rate of violent recidivism. The high-NA psychopathy subtype reoffended violently at a faster rate than both the intermediate and the nonpsychopathic groups. The low-NA psychopathy subtype also reoffended violently at a faster rate than the intermediate group and the nonpsychopathic group. There was no difference in the rate of violent recidivism between the intermediate and nonpsychopathic group. Results from Cox proportional hazard regression analyses for violent recidivism are presented in Table 6 and Figure 3C.

DISCUSSION

In this study, we examined criminal histories and rates of recidivism of psychopathy subtypes within a sample of incarcerated men. Consistent with prior research, we identified two distinct subtypes among highly psychopathic individuals, who differed on their level of NA, anxiety, and childhood trauma. Across all measures of criminal activity (total, violent, or nonviolent past charges/convictions as well as general, violent, or nonviolent recidivism), there were no significant differences between psychopathy subtypes. These results indicate that, although psychopathy subtypes have been replicated and reliably differ on measures of personality, anxiety, and childhood trauma, these differences do not translate to differences in criminal history or engagement in criminal recidivism.

PSYCHOPATHY VARIANTS AND CRIME

These results have far-reaching implications. While prior research has suggested that juveniles with psychopathic traits and high levels of anxiety are more reactively aggressive and violent (Kimonis et al., 2013), the high-NA psychopathy subtype in the current study did not demonstrate a higher rate of violent crime. It is possible that the higher levels of anxiety, impulsivity, reactive aggression, and substance use documented among the high-NA psychopathy subtype (compared with the low-NA subtype) may contribute to both nonviolent *and* violent crime (Dargis & Koenigs, 2018b). For instance, more severe substance

TABLE 6: Group Results From Cox Proportional Hazards Model of General, Nonviolent, and Violent Recidivism Outcomes in the Recidivism Sample

Effect	General recidivism			Nonviolent recidivism			Violent recidivism					
	β	HR	95% CI	p	β	HR	95% CI	p	β	HR	95% CI	p
Intermediate vs. nonpsychopathic	.45	1.56	[0.13, 0.77]	.006	.37	1.44	[0.03, 0.70]	.035	.49	1.63	[-0.20, 1.17]	.164
High-NA psychopathy vs. nonpsychopathic	.89	2.43	[0.49, 1.2]	< .001	.72	2.06	[0.29, 1.15]	.001	1.40	4.04	[0.63, 2.16]	< .001
Low-NA psychopathy vs. nonpsychopathic	.79	2.20	[0.33, 1.25]	< .001	.69	1.99	[0.20, 1.18]	.006	1.49	4.44	[0.64, 2.34]	< .001
High-NA psychopathy vs. intermediate	.44	1.55	[0.14, 0.74]	.005	.36	1.43	[0.02, 0.70]	.040	.91	2.48	[0.35, 1.47]	.001
Low-NA psychopathy vs. intermediate	.34	1.41	[-0.04, 0.73]	.079	.32	1.38	[-0.09, 0.74]	.127	1.01	2.73	[0.34, 1.67]	.003
High-NA psychopathy vs. low-NA psychopathy	.10	1.10	[-0.34, 0.54]	.664	.03	1.03	[-0.45, 0.52]	.895	-.10	0.91	[-0.83, 0.64]	.799
Age	-.04	.96	[-0.06, -0.03]	< .001	-.04	.96	[-0.06, -0.02]	< .001	-.07	0.94	[-0.10, -0.03]	< .001
Past Total Charges	.01	1.01	[0.00, 0.02]	.002	.01	1.01	[0.00, 0.02]	.002	.00	1.00	[-0.01, 0.02]	.615

Note. The values in bold indicate significant values below .05. HR = hazard ratio; CI = confidence interval; NA = negative affect.

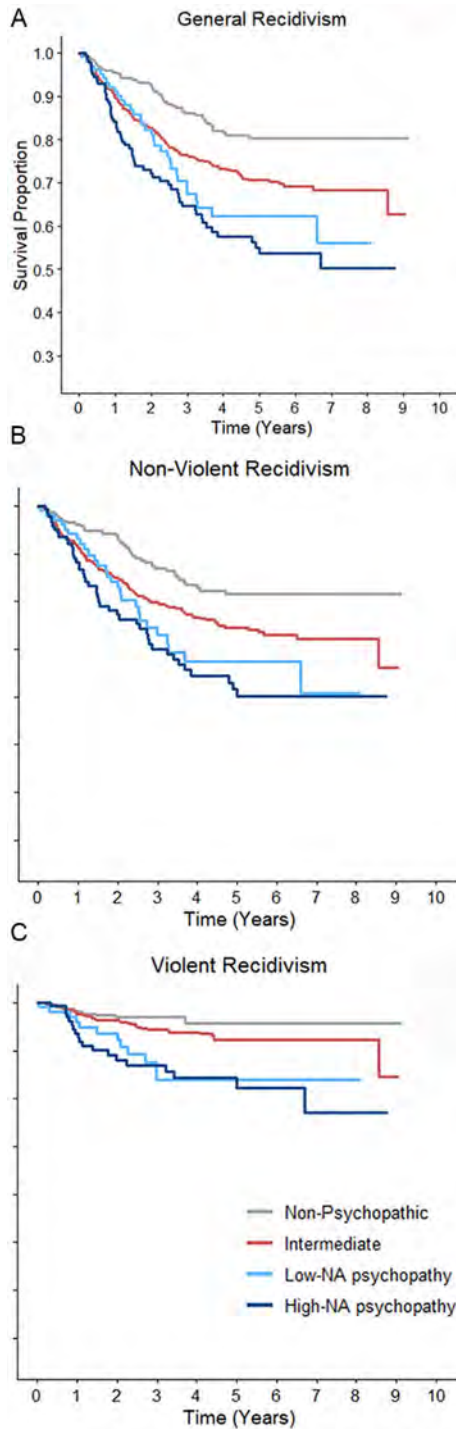


Figure 3: Survival curves plotting (A) general, (B) nonviolent, and (C) violent rates of recidivism for four groups of incarcerated individuals.

abuse could contribute to an increased number of drug-related offenses (e.g., thefts related to drug use, possession charges), contributing to a higher number of nonviolent crime charges, but not necessarily violent crime charges. High rates of impulsivity, too, could contribute to more nonviolent crimes, but could also be associated with more reckless and violent acts. For example, lack of premeditation and sensation seeking have been associated with reckless driving and driving under the influence within the past year (Luk et al., 2017). In contrast, low-NA psychopathy is associated with high agency, lack of remorse, low anxiety, more proactive forms of aggression, narcissistic traits, and social dominance (Blais et al., 2014; Morrison & Gilbert, 2001; Schoenleber et al., 2011; Swogger & Kosson, 2007), which may increase their likelihood of involvement in crimes involving more “forethought,” like burglaries or fraud, or person-involved crimes, like sexual crimes, assault, or cons. In short, both subtypes of highly psychopathic individuals are associated with a variety of personality and other traits that make them likely to commit many types of crime, and both appear to offend and reoffend at similar rates. However, the motives or personality traits that contribute to both nonviolent and violent crimes appear to be different for these subtypes and suggest more targeted programs are necessary to reduce recidivism.

IMPLICATIONS FOR TREATMENT

To develop and provide effective interventions to reduce recidivism among high-psychopathy individuals, it is critical to consider etiological differences between these groups that may be underlying their high rates of reoffense. In other words, although high- and low-NA psychopathic individuals showed similar rates of recidivism, the factors that contribute to rates of recidivism may differ between groups. For example, prevalence of trauma, substance use, and psychopathology are higher among high-NA psychopathic individuals (Dargis & Koenigs, 2018a, 2018b) and have been associated with increased recidivism (Blonigen et al., 2011); therefore, these may be effective treatment targets for this group. Future research will need to develop and evaluate treatment programs aimed at reducing criminal risk among high-psychopathy individuals, and the consideration of subtypes when developing these programs will be crucial. In the meantime, targeting potential risk factors, such as history of trauma exposure, substance abuse, and other mental health conditions among high-NA psychopathic individuals, using currently available evidence-based treatments, may be beneficial. For instance, the aforementioned differences between subtypes suggest that the high-NA psychopathy subtype may experience greater emotion dysregulation than the low-NA subtype. Evidence-based treatments such as Dialectical Behavioral Therapy (DBT; Linehan, 2014) may be particularly effective in improving self-regulation strategies among high-NA psychopathic individuals, thus reducing criminal risk. Indeed, there is some evidence that DBT reduces problematic behavior among incarcerated youth and can be implemented in high-psychopathy populations (Galietta & Rosenfeld, 2012; Shelton et al., 2011). Overall, this subtype could be more responsive to existing evidence-based treatment options, which may influence future recidivism more than for other groups of incarcerated individuals.

There is also evidence that variants of psychopathy have different responses to treatment (Klein Haneveld et al., 2018). Klein Haneveld and colleagues (2018) found that PCL-R Total score was the best predictor of treatment dropout, and those in the “prototypical psychopath” group (most similar to the low-NA psychopathy subtype) dropped out of

treatment at a significantly higher rate than sociopathic (most similar to the high-NA psychopathy subtype) individuals. However, the authors note that when considering only treatment completers, prototypical psychopathic and sociopathic individuals appeared to complete the treatment similarly and showed similar rates of recidivism after release (Klein Haneveld et al., 2018). In addition, a two-component model of treatment for psychopathic individuals proposes a focus on Factor 1 traits as a marker of treatment responsiveness (i.e., retention, engagement in treatment), but Factor 2 traits as the focus of treatment outcome (e.g., violence reduction; Wong & Olver, 2015). Wong and Olver (2015) also highlight the importance of dynamic risk assessment tools to assess behavioral change and reductions in risk for violence. Because many psychopathic traits are historical in nature (e.g., revocation of conditional release, early behavioral problems), it is essential to assess dynamic changes that may reduce violence. Taken together, results indicate that for low-NA psychopathy, or those with high Factor 1 traits, the largest barrier to their treatment may be retention, whereas for high-NA psychopathy and those with high Factor 2 traits, treatments may not be targeting factors influencing their risk for recidivism, such as trauma history or psychiatric needs.

USE OF THE PCL-R AS AN ASSESSMENT OF RISK

Another interesting consequence of these results is the consideration of the use of Factor 2 scores in predicting recidivism. Although studies have shown that PCL-R Factor 2 scores are more strongly related to recidivism than Factor 1 scores (Olver & Wong, 2015; Walters, 2003), and these results were replicated in the current analyses, this was not reflected in differences in recidivism between the psychopathic subtypes. Specifically, despite significantly higher Factor 2 scores among the high-NA psychopathy subtype, the high-NA and low-NA psychopathy subtype did not differ on rates of recidivism (general, violent, or nonviolent). This suggests differences in Factor 2 scores between psychopathy subtypes may not alter rates of recidivism among individuals with already high rates of criminal recidivism. This is a relevant issue to consider when utilizing risk assessment tools with individuals high in psychopathic traits. Although the PCL-R is commonly used as an assessment of risk (Yang et al., 2010), it may not be reliable in assessing individuals who score near the maximum in Factor 2 traits (as was the case with both high-NA and low-NA psychopathy subtypes). These individuals may require more comprehensive risk assessments, potentially a combination of various tools, to capture different factors that may influence risk.

LIMITATIONS AND CONCLUSIONS

The current study has several limitations that should be noted. First, data were collected exclusively from incarcerated adult males, limiting our ability to generalize these findings to incarcerated women or juveniles. In addition, only new criminal convictions were coded as criminal recidivism, excluding new arrests (without a conviction) or rule violations. While this definition of recidivism may bias the sample in unpredictable ways (i.e., plea bargains may reduce charges from violent to nonviolent categories), previous studies have defined recidivism as a new conviction or new period of incarceration (Cochran et al., 2014; Lovell & Johnson, 2004; Martin et al., 2019).

In sum, this study investigated differences in rates of recidivism and criminal history among two subtypes of highly psychopathic individuals and found that there were no differences among these groups in general, nonviolent, or violent criminal history or recidivism. These results highlight two important considerations. First, highly psychopathic individuals are not a homogeneous group and differ on measures of NA, anxiety, and rates of childhood trauma. Many previous studies have called for the consideration of these subtypes when investigating highly psychopathic individuals, and this study supports how crucial that consideration is. Second, current treatments and interventions aimed at reducing recidivism have not adequately taken these group differences into consideration. Childhood trauma, anxiety, and NA have been both linked to risk for recidivism and effectively treated in incarcerated individuals, yet these factors have not been considered for treatment among highly psychopathic individuals. These findings thus indicate a novel treatment approach for reducing recidivism among highly psychopathic individuals.

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SUPPLEMENTAL MATERIAL

Supplemental Tables S1–S6 are available in the online version of this article at <http://journals.sagepub.com/home/cjb>

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