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Is PCL-R psychopathy associated with either type or severity of personality disorder?

ABSTRACT

The extent to which assessment of personality disorders (PDs), and trans-diagnostic measures of PD severity, can capture the variance in psychopathy measured by the Psychopathy Checklist-Revised (PCL-R) was examined in 100 forensic patients with a history of violent offending. Correlational and linear regression analyses were carried out to establish whether: (i) combinations of PDs would predict PCL-R scores for each of its two factors, interpersonal-affective (F1) and antisocial deviance (F2); (ii) 'Acting out', a putative measure of externalising maladjustment that transcends PD categories, would predict PCL-R scores. Results showed that narcissistic and avoidant PDs contributed significantly to the prediction of F1, but only antisocial PD contributed to the prediction of F2. 'Acting out' predicted both F1 and F2, suggesting that core features of PCL-R psychopathy are embedded within and across different PD diagnoses. Results are discussed in relation to different subtypes of psychopathy described in the literature.

INTRODUCTION

Psychopathy represents a constellation of interpersonal, affective, behavioural and antisocial features that include a narcissistic grandiosity and ability to manipulate others, a lack of emotional resonance and sincerity, a reckless and impulsive lifestyle, and a tendency to violate or ignore social conventions and mores (Hare & Neumann, 2008). These features are most commonly measured using the Psychopathy Checklist-Revised (PCL-R: Hare, 2003), derived from Cleckley's (1941/1976) set of defining criteria, in which a higher-order psychopathy factor bifurcates into two second-order factors: *interpersonal/affective* (Factor 1) and *unstable and antisocial lifestyle* (Factor 2). Factor 1 comprises an interpersonal facet (glibness-superficial charm, grandiose sense of self-worth, pathological lying, conning/manipulative) and an affective facet (lack of remorse or guilt, shallow affect, callous/lack of empathy, failure to accept responsibility for actions). Factor 2 comprises a lifestyle facet (need for stimulation/proneness to boredom, parasitic lifestyle, lack of realistic long-term goals, impulsivity, irresponsibility) and an antisocial facet (poor behavioural controls, early behaviour problems, juvenile delinquency, revocation of conditional release, criminal versatility). Some studies, including those by Newhill, Vaughn and DeLisi (2009) and Coid, Freestone and Ullrich (2011) discussed below, have used the shorter, screening version (PCL:SV: Hart, Cox & Hare, 1995) that is conceptually and empirically equivalent to the PCL-R.

While its status as a construct is currently under debate (see Lynam & Miller, 2015), psychopathy is increasingly acknowledged to be a heterogeneous construct, one that "...probably lacks validity as a true syndrome in nature with a single common etiology" (Crego & Widiger, 2014, p. 10). In a recent "deconstruction" of psychopathy, it was suggested that ".....whatever psychopathy is, it is a multifaceted organism. Psychopathy is a combination or configuration of traits drawn from multiple personality dimensions" (Lilienfeld, Watts, Smith, Berg & Latzman, 2015, p.30). The heterogeneous nature of PCL-defined psychopathy is supported by numerous studies that have described sub-types among high PCL scorers, both in incarcerated (e.g. Blackburn, 2009; Mokros, Hare, Neumann, Santtila, Habermeyer & Nitschke, 2015; Olver, Sewall, Sarty, Lewis & Wong, 2015) and in non-forensic populations (e.g. Coid et al., 2011; Newhill et al., 2009). Using latent profile analysis in a large sample of offenders, Mokros et al. (2015) were able to differentiate three sub-types

among high (≥ 27) PCL-R scorers, labelled ‘manipulative’, ‘aggressive’ and ‘sociopathic’ which bore a close similarity to subtypes identified in the general UK community by Coid et al. (2011) and in borderline personality disorder (PD) patients by Newhill et al. (2009). For example, Mokros et al.’s ‘manipulative psychopaths’ resembled both Coid et al.’s ‘successful psychopaths’ and Blackburn’s ‘controlled’ primary sub-type in having relatively high IQ and low antisociality, while Mokros et al.’s ‘aggressive psychopaths’, who showed raised scores across all PCL-R facets, resembled Coid et al.’s ‘criminal psychopath’ sub-type and Newhill et al.’s (2009) ‘psychopathic/antisocial’ sub-group of borderline patients.

These findings suggest that, rather than representing a homogeneous clinical entity, psychopathy in its various guises might run like a seam through, and across, the different categories of PD described in DSM-5 (American Psychiatric Association [APA], 2013). Both narcissistic and histrionic PDs, in particular, have been both conceptually and empirically linked to psychopathy (Blackburn, 2005). Blackburn and Coid (1998) reported that 6 of 11 DSM-III PDs – antisocial, paranoid, passive-aggressive, narcissistic, borderline and histrionic – were found to be associated with a high PCL-R score. The correlates of PCL-R Factor 1 (affective/interpersonal) and Factor 2 (antisocial and unstable lifestyle) were broadly similar, but Factor 1 correlated more strongly with narcissistic PD (positively) and avoidant and dependent PDs (negatively), while Factor 2 correlated more highly with antisocial PD and borderline PD. Coid et al.’s (2011) study describing psychopath sub-types in the UK national household survey reported that ‘criminal psychopaths’ showed the highest degree of PD comorbidity, with high scores on measures of antisocial, borderline, paranoid, histrionic and narcissistic PDs. Their ‘successful psychopaths’, in contrast, showed a high level of narcissistic and histrionic PD features. Like Coid et al.’s (2011) ‘criminal psychopaths’, Newhill et al.’s (2009) ‘psychopathic/antisocial’ sub-group of borderline patients showed a high degree of PD comorbidity, with - in addition to borderline PD - a high co-occurrence of antisocial (83%), paranoid (34%), narcissistic (37%) and sadistic (34%) PDs, as well as prominent early-onset childhood conduct disorder.

Recently there has been a shift of focus away from traditional diagnostic PD categories in favour of higher-order constructs thought to transcend PD categories trans-diagnostically, for example

externalising, internalising and overall PD severity (Blackburn, Logan, Renwick & Donnelly, 2005; Hopwood, Malone, Ansell, Sanislow, Grilo, McGlashan, Pinto, Markowitz, Shea, Akodol, Gunderson, Zanarini & Morey, 2011). In a study of Norwegian twins, an externalising spectrum, comprising mainly of substance use disorders and conduct disorder, but including antisocial PD, emerged as a distinct trans-diagnostic factor (Røysamb, Kendler, Tambs, Orstavik, Neale, Aggen, Torgersen, Reichborn-Kjennerud, 2011). This supports Blackburn et al.'s (2005) assertion that essentially the same dimensions likely underlie both mental illness and personality disorders, and that personality characteristics rendering a person vulnerable to maladjustments provide a link between the two. In a bifactor model of PD developed by Sharp, Wright, Fowler, Frueh, Allen, Oldham & Clark (2015), externalising features of PD contributed prominently to a general ('g') factor identified as putatively reflecting overall PD severity. These findings raise the question of whether such higher-order dimensions of personality pathology might relate to psychopathy and its factors. Blackburn et al. (2005) identified factors labelled 'Acting out' and 'Anxious-inhibited', reflecting externalising and internalising forms of maladjustment respectively, from a factor analysis of IPDE items in a sample of forensic psychiatric patients. 'Acting out' correlated significantly and positively with total PCL-R score, leading Blackburn et al. to suggest that 'Acting out' is equivalent to psychopathy. 'Anxious-inhibited' appeared to capture neurotic introversion.

In the interests of continuity, DSM-5 has chosen to retain the existing, symptom-based system of defining PDs as distinct categories, in preference to a trait-based system which is included under "Emerging Measures and Models" in Section III of DSM-5 (APA, 2013). In this respect DSM-5 has heeded the call by some PD researchers for retention of the traditional DSM categories. For example, notwithstanding their advocacy of a trait-based approach Lynam and Vachon (2012) argued for retention of PD categories on the grounds that "these PD types are familiar to clinicians and represent useful shorthand for describing consequential collections of traits" (p. 492). Retention of the PD categories is supported by a recent study comparing the categorical and trait-based systems which found that the latter lacked specificity and differed from the former in diagnosis rates, suggesting it would be premature to abandon the categorical system (Yam and Simms, 2014). This raises the

question of the extent to which PD assessed using traditional DSM diagnostic categories can adequately capture the variance in psychopathy assessed using the PCL-R without recourse to trait-based measures such as the Personality Inventory for DSM-5 (PID-5: Krueger, Derringer, Markon, Watson & Skodol, 2012). This question was the focus of the present study, which tested the hypothesis that a significant proportion of the variance in PCL-R scores could be captured by a combination of DSM PD categories measured dimensionally. We further investigated the relationship of externalising and internalising forms of personality maladjustment – ‘acting out’ and anxious-inhibited’ respectively - to the two PCL-R factors, interpersonal-affective and antisocial/unstable, with the prediction that ‘acting out’ would correlate with PCL-R psychopathy (confirming Blackburn et al., 2005). If it were demonstrated that a significant amount of variance in PCL-R scores was captured by assessing PDs using dimensional measures of the traditional DSM categories, or by a consideration of IPDE factors measured trans-diagnostically, then initial assessment of PD within the existing DSM categorical framework could be parsimoniously used to screen for the presence of psychopathic features. These could then be further investigated using measures such as the PCL-R that are more specifically targeted at psychopathy.

METHODS.

The sample.

After excluding those who did not meet study criteria, and those who met the criteria but refused consent (23% of patients approached), one hundred male patients with PD detained under UK Mental Health Act (1983) legislation at different levels of security, both medium (N=31) and high (N=69), were recruited into the study between 2006 and 2008, having given their written, informed consent. Inclusion criteria were: (i) admission under the 1983 UK Mental Health Act category of Psychopathic Disorder¹; (ii) at least one definite PD confirmed by IPDE assessment (Loranger et al., 1997); (iii) male gender; (iii) age 18-65 years; (iv) full-scale IQ 70 or greater as measured using Shipley’s (1939) Institute of Living Scale, a measure of global IQ. Since symptoms of mental illness

¹ The UK 1983 Mental Health Act defined “psychopathic disorder” as “a persistent disorder or disability of mind (whether or not including significant impairment of intelligence) which results in abnormally aggressive or seriously irresponsible conduct on the part of the person concerned.” This has been abolished in a subsequent revision of the Mental Health Act (2007) in favour of the generic term “mental disorder”.

would obscure differences between different types of personality disorder, patients were excluded if they received a life-time diagnosis of psychosis or bipolar affective disorder or current major depressive disorder according to DSM-IV (American Psychiatric Association, 1994), or if they had a history of head injury or epilepsy.

Assessment: procedure and instruments.

Consenting patients were recruited into the study by inspection of their case files to ensure they met the inclusion criteria in terms of IQ and clinical diagnosis, as above. Information concerning patients' clinical diagnoses (DSM IV Axes I & II) and their history of offending (including index offence) was recorded. Participants then underwent psychometric assessments. These were conducted by the first author, who is a qualified forensic psychiatrist, and included the following:

1. Clinical/Psychometric assessment.

C-DIS, a computerised version of the National Institute of Mental Health Diagnostic Interview Schedule (Robins, Helzer, Cottler & Goldring, 1989), was used to screen patients for DSM-IV Axis I disorders (American Psychiatric Association, 1994), including schizophrenia and bipolar disorder, conduct disorder and attention deficit disorder. In addition, data were collected concerning patients' ethnicity, marital status and the number of years they had lived apart from their biological parents before age 14. Patients' case-files were inspected to obtain information about their IQ, collateral for the PCL assessment, and their index offence and history of offending.

DSM-IV personality disorders were assessed using the interview version of the IPDE (Loranger et al., 1997). This 99-item semi-structured interview is designed to assess the ten DSM-IV Axis II personality disorders and personality disorder not otherwise specified. Individual IPDE items are scored on a three-point scale (0=absent, 1=partially present, 2=definitely present) allowing dimensional scores to be derived for individual personality disorder categories as well as personality disorder clusters (cluster A, odd and eccentric; cluster B, dramatic; and cluster C, anxious avoidant). For 13 participants in the study kappa statistics (kappa .72-.83, $p < .005$) were used to explore inter-rater reliability for individual IPDE PD diagnoses (negative, probable or definite). In addition to DSM-IV PDs, assessed both categorically and dimensionally, factor scores were computed using the weighted sum score method (Distafano, Zhu & Mîndrilă, 2009) on two higher-order factors, "Acting

out” (externalising) and “Anxious inhibited” (internalising), derived by Blackburn, Logan, Renwick & Donnelly (2005) from a primary factor analysis of 93 IPDE items. Twenty-one items contributed to the “acting out” factor, and 19 items to the “anxious inhibited” factor: for individual items (see Table 1 in Howard, Hepburn & Khalifa, 2014). Psychopathy, including scores on the two PCL factors (F1: selfish, callous & remorseless use of others; F2: chronically unstable & antisocial lifestyle) was assessed by trained raters using the PCL-R (Hare, 2003). PCL-R and IPDE assessments were carried out independently, by different raters who did not have knowledge of results of the alternative assessment.

2. Assessment of violence.

Assessment of violence was based on offending history (number of violent offences) and a severity of violence rating scale (SVRS) adapted from that originally developed by Gunn and Robertson (1987) and validated in hospitalised forensic patients by Wong, Lumsden, Fenton and Fenwick (1993) and Khalifa, Lumsden, Duggan and Howard (2012). This comprised 3 sub-scales, each rated on a 5-point scale (0= no violence, 4=severe violence) for: (i) admission (index) offence; (ii) previous criminal record; and (iii) current institutional behaviour. This last was additional to the scales used by Wong et al. (1993) and was scored: 0 (no incidents of aggression), 1 (evidence of occasional intimidation, verbal aggression or minor property damage); 2 (verbal threats of serious violence or one or two incidents of physical aggression to others not causing significant injury); 3 (3 or more incidents of physical aggression resulting in non-serious injury); 4 (one or more severely violent episodes, or an incident involving use of a weapon against another person). A selection of cases ($n=10$) used to examine the inter rater reliability of the ratings yielded a Kappa value of .697 ($p=.003$), indicating substantial agreement.

Analytic strategy

Analysis was carried out using SPSS, version 21 in three stages. In the first stage, correlational analysis was conducted to examine the relationship between PCL-R total and factor scores and: (i) PD dimensional scores; (ii) overall PD severity measured by using both the Hopwood et al. (2011) method and Blackburn et al.’s (2005) externalising (‘Acting out’) factor scores; (iii) past history of violence in terms of both quantity and severity. For continuous variables, Spearman’s rho test was

used on any variable found not to be normally distributed. Otherwise Pearson's correlation test was used. For categorical variable, Kendall's tau correlation test was used. In the second stage we carried out multiple linear regression analyses to see whether the Hopwood et al. (2011) PD severity measure or Blackburn et al.'s (2005) 'Acting out' factor score could be used to adequately predict PCL-R total and factor scores. In the final stage, we carried out linear regression analyses to see whether a combination of individual PD dimensional scores could be used to adequately predict PCL-R total and factor scores. Individual PD dimensional scores which correlated significantly with PCL-R psychopathy were included in the regression model. In order to control for covariates, the effects of variables which correlated significantly with the PCL-R total and factor scores were partialled out in regression analysis. Given that the sample size was relatively small, and in order to avoid confounding within the covariates, they were initially included individually in the regression model. Covariates that did not show significant effects on the parameters of the regression model were excluded from subsequent regression models such that the final model only included covariates with significant effects. Additionally, multicollinearity diagnostics, such as tolerance test and variance inflation factor (VIF), were applied to assess whether the main predictors (i.e. IPDE dimensional scores) had a strong linear relationship with each other.

RESULTS.

1. Sample characteristics

Patients' mean age at the time of assessment was 35.2 years ($SD = 9.2$; range 21 to 64). Most (91%) were of white ethnicity and never married (81%); fewer were from African Caribbean (5%), Asian (2%) and other ethnic groups (2%). The mean number of years lived apart from biological mother before age 14 was 3.6 ($SD = 4.8$, range 0-14) and from biological father was 4.8 ($SD = 5.4$, range 0-14). All patients had a history of mostly violent offending starting from a young age: mean age of first offence was 15 years ($SD = 4.5$), and of first violent offence, 18 years ($SD = 5.1$). Patients had a history of chronic offending, with a mean number of 33 lifetime offences (range 1-154) and of 12.5 violent offences (range 1-135). Most (91%) had received a DSM-IV Cluster B PD diagnosis: antisocial (72%), borderline (47%), histrionic (7%) or narcissistic (13%) PD; fewer received Cluster A (45%) or Cluster C (42%) diagnoses. The mean number of PD diagnoses was 2.9 ($SD = 1.5$).

Patients' mean total PCL-R score was 24 (SD = 7, range 1-35). Over half met the European cut-off for psychopathy (total PCL-R scores of 25 or over). Three-quarters of the sample (76%) had a history of childhood CD, and a quarter (25%) additionally had a diagnosis of childhood Attention Deficit/Hyperactivity Disorder (ADHD). A large proportion received co-morbid lifetime diagnoses of major depression and alcohol dependence (56% and 54% respectively).

2. Correlates of PCL-R

Correlations between PCL-R scores and IPDE and criminal offense variables are shown in Table 1. PCL-R total and both F1 and F2 correlated positively with all measures of criminal, including violent, offending, but in all cases F2 correlated more strongly than F1. A notable exception was violence in the index offence, which correlated negatively with F1. A high PCL-R score, particularly F2, was associated with an earlier age of onset of both general criminal offending and of violent offending.

From Table 1 it may be seen that both PCL-R total and PCL-R F1 correlated positively with antisocial, histrionic and narcissistic PD dimensional scores, IPDE Acting out and overall PD severity measured using the Hopwood et al. (2011) method, but negatively with avoidant PD dimensional score. In contrast, PCL-R F2 correlated positively only with antisocial PD dimensional score, with IPDE Acting out, and with overall PD severity as measured using the Hopwood et al. (2011) method. IPDE Anxious-inhibited correlated negatively with PCL-R Factor 1 score.

TABLE 2 HERE

3. Linear regression analysis:

(i) Diagnostic categories.

Results of linear regression analysis, shown in Table 2, revealed that, after partialling out the effects of severity of violence in the criminal record ($\beta=.23$, $p=.001$), PCL-R total was significantly predicted by narcissistic ($\beta=.23$, $p=.007$), antisocial ($\beta=.32$, $p<.001$) and avoidant ($\beta=-.22$, $p=.007$) PD dimensional scores in a model that explained 40% of the variance in the PCL-R score. Variance observed between PCL-R F1 and IPDE-assessed PDs ($R^2=36\%$) was explained in a model that included narcissistic ($\beta=.46$, $p<.001$) and avoidant ($\beta=-.20$, $p=0.015$) PD dimensional scores as significant predictors after partialling out the effects of severity of violence in the criminal record ($\beta=.28$, $p=.001$). In contrast, only antisocial PD dimensional score ($\beta=.20$, $p=.046$) significantly

predicted PCL-R F2 score, explaining 41% of the variance observed after partialling out the effects of severity of violence in the criminal record ($\beta=.36, p<.001$), total number of non-violent offences across life time ($\beta=.21, p<.011$) and age at first violent offence ($\beta=-.18, p=.034$).

TABLE 2 HERE

(ii) Trans-diagnostic variables: PD severity and IPDE ‘Acting out’

Multiple linear regression analysis revealed that PD severity scores, measured using the Hopwood et al. (2011) method, significantly predicted PCL-R total ($\beta=.76, p=.005, R^2=.06$), and both F1 ($\beta=.23, p=.021, R^2=.04$) and F2 ($\beta=.24, p=.013, R^2=.05$). However, the effects of PD severity on PCL-R total and both F1 and F2 became non-significant when severity of past criminal record was entered into the regression models as a covariate.

Table 3 shows results of linear regression analysis with PCL-R scores as dependent variables and ‘Acting out’ as predictor. After controlling for criminological variables (age at first violent offence, severity of violence in the previous criminal record, total number of non-violent offences) ‘Acting out’ significantly predicted total PCL-R score ($\beta=.3, p<.001$) and both Factor 1 ($\beta=.31, p=.002$) and Factor 2 scores ($\beta=.18, p=.048$).

TABLE 3 HERE

DISCUSSION.

Results of this study indicated that, in a regression model with PCL-R total score as the dependent variable and dimensional scores of PD as predictor variables, a considerable proportion (40%) of the variance in total PCL-R scores could be accounted for by dimensional scores of antisocial, narcissistic and avoidant PDs. Results further indicated that the core interpersonal and affective personality features of psychopathy (PCL-R Factor 1) were adequately captured by a combination of narcissistic (positively associated with Factor 1) and avoidant PD (inversely associated with Factor 1). In contrast, a considerable proportion of the variance in PCL-R Factor 2 (“chronic antisocial and unstable lifestyle”) was accounted for by antisocial PD but not by other PDs. These results mirror Lilienfeld et al.’s (2015) findings that in terms of Five Factor Model (FFM) personality traits, Antagonism (low Agreeableness) is common to both PCL-R factors, but that Factor 1 represents an

extroverted form of Antagonism and Factor 2 reflects an impulsive/neurotic expression of Antagonism. Likewise, Lynam and Miller (2015) suggested that high Antagonism and its component traits represent the tie that binds the various manifestations of psychopathy together. In terms of Patrick and colleagues' triarchic conceptualisation, which decomposes psychopathy into the three phenotypic trait constellations of *meanness, boldness and disinhibition* (Patrick, Fowles & Krueger, 2009), evidence suggests that Antagonism represents primarily the confluence of meanness and disinhibition, but includes also manipulative and arrogant aspects of boldness (Poy, Segarra, Esteller, Lopez & Molto, 2013). In short, therefore, the current results are consistent with the view that PCL-R Factors 1 and 2 share a common underpinning in terms of their personality structure, characterised by high Antagonism, but that each Factor expresses a different manifestation of Antagonism: one (Factor 1) that is narcissistic and – as reflected in a low avoidant PD dimensional score and a low score on the 'Anxious-inhibited' IPDE factor – socially extroverted; and another (Factor 2) that is impulsive, neurotic, and more closely related to antisocial PD.

Results of the current study are substantially congruent with those of Blackburn & Coid (1998), who found the same general pattern of PCL-R associations with PDs as was found here but additionally found positive associations between both PCL-R factors and paranoid and borderline PDs and negative associations with dependent and obsessional-compulsive PDs. It should be noted that the current study differed in two important respects from that of Blackburn & Coid (1998). First, the current study used the diagnostic categories adopted in DSM-IV and retained in DSM-5, while Blackburn and Coid used the earlier set of criteria for antisocial PD contained in DSM-III. This omitted important features identified by Cleckley as essential to psychopathy (e.g. superficial charm, lack of anxiety, absence of remorse). DSM-III-R and subsequently DSM-IV partially reversed this by including lack of remorse as an adult criterion for antisocial PD. Second, unlike in the present study, Blackburn & Coid (1998) used factor scores derived from the IPDE, rather than individual PD dimensional scores, to predict PCL-R psychopathy in their regression analysis.

The current results further indicated that 'Acting out', a trans-diagnostic feature of IPDE-assessed personality pathology that Blackburn et al. (2005) equated with psychopathy, is associated with both interpersonal/affective and unstable/antisocial features of psychopathy. Notably, the ability of 'Acting

out' to predict PCL-R total score and both PCL-R factors survived entry of criminological variables as covariates in the regression equation. While PD severity, indexed by total symptom count across all PDs, correlated significantly with total PCL-R and with both PCL-R factors, regression analysis indicated that it accounted for a relatively small proportion of the variance in each (4% and 5% in Factors 1 and 2 respectively) and ceased to independently predict either Factor 1 or Factor 2 when criminological variables were included as covariates in the regression equation.

Nonetheless, a high PCL-R score was clearly associated with greater severity of PD as represented by the trans-diagnostic IPDE 'Acting out' factor which includes items from antisocial (including conduct disorder), narcissistic, borderline and histrionic PDs, indicating that features of PCL-R psychopathy are embedded in, and across, several PDs. Moreover, these same items featured in the 'g' (severity) factor identified by Sharp et al. (2015) in their bifactor model of PD. Consistent with this, Coid et al. (2011) reported very high scores across antisocial, borderline, histrionic and narcissistic PDs in their 'criminal psychopath' sub-type who showed the highest PCL score and – like Mokros et al.'s (2015) 'aggressive' sub-type and Newhill et al.'s (2009) 'antisocial/psychopathic' borderline patients - elevations across all PCL facets. In contrast, Coid et al.'s 'successful psychopath' sub-type, like the 'controlled' variant of primary psychopathy identified among offenders by Blackburn (2009), showed high levels of narcissistic and histrionic PD features and an absence of avoidant PD traits. As pointed out by Blackburn (2009), this 'controlled' variant of primary psychopathy approximates most closely among the sub-types to the classic Cleckleyan psychopath, describing individuals whose narcissistic beliefs involve an inflated self-worth and need to be recognized and who tend to show a disregard for the needs of others, to be self-focused, deceitful, manipulative, callous, grandiose, and attention-seeking (Hopwood, Schade, Krueger, Wright & Markon, 2014). They stand in contrast to Mokros et al.'s 'sociopaths' and Coid et al.'s 'non-psychopathic criminals'. The latter showed elevated scores on both facets of PCL-R Factor 2 but - lacking the interpersonal and affective features of "true" psychopaths - resembled career criminals whose personality pathology does not include salient narcissistic and histrionic features but is well captured by antisocial PD, particularly when this is comorbid with borderline PD.

Criminal offending correlates of PCL-R reported here are consistent with the literature in showing that general criminality with an early onset is more clearly associated with the unstable/antisocial lifestyle features of PCL-R psychopathy than with its affective/interpersonal features. Violence in the index offence was, somewhat unexpectedly, associated with a low degree of psychopathy, in particular with a lack of interpersonal/affective psychopathic features. In contrast, a history of serious violent offending, and violence committed in the institution, were significantly associated with both the interpersonal/affective and unstable/antisocial lifestyle factors of the PCL-R. However, it is important to bear in mind that motivationally distinct types of violence exist (e.g. Howard, 2009; 2011). It will be important for future research to examine relationships of motivationally distinct types of violence with different facets of psychopathy, and with the above-described psychopathy sub-types.

A number of limitations should be born in mind when interpreting the results of this study. First, this was a relatively small-sized sample of men, limiting the generalizability of our findings to women with PD and pointing to the need for replication in a larger sample. Second, the study was cross-sectional and assessment of symptoms was retrospective, and therefore relied on interviewees being truthful in their responses and accurate in their recollections. This applies particularly to assessment of patients' age of first violent offending. Third, the sample did not include those who did not consent to take part in the study. It was not possible to assess how these individuals differed from those who consented to take part, limiting the generalizability of our findings to patients with PD in secure settings. Fourth, the study was conducted on a sample of incarcerated offenders who may have a vested interest in downplaying psychopathology and violent tendencies. Finally, this study examined PCL-R psychopathy at the factor level, but did not perform a facet-level analysis which might have given a more fine-grained picture of the relationship between PD and psychopathy. **This in conjunction with lack of reliability statistics for the PCL-R limits the generalizability of our findings.**

Findings of this study will need to be replicated in future studies using a larger sample which will be needed to explore in detail how IPDE-assessed PDs relate to the various subtypes of psychopathy discussed above. Future studies will also need to include measures such as PID-5 (Krueger et al., 2012) of the personality trait model outlined in DSM-5 Section III (for a review of studies to date, see

Krueger & Markon, 2014). Clearly, the proportion of variance explained in this study is relatively low and the factors tested in this study are but a small part of a much larger picture. Psychopathy in its various guises likely results from a complex interaction between numerous psychosocial, biological and environmental factors, and future studies will need to assess how these factors interact in the development of psychopathy,.

Conclusion and implications for clinical practice

Results of this study suggest that while antisocial PD contributes significantly to the antisocial deviance features of PCL-R psychopathy, the interpersonal/affective features were captured by the presence of narcissistic traits and the absence of avoidant traits. These results suggest that, in clinical practice, an initial assessment of PD within the existing DSM categorical framework can be used to screen for possible psychopathic features. The presence of antisocial and narcissistic PDs together with the absence of avoidant PD should prompt clinicians to conduct a more comprehensive assessment of psychopathy using a validated tool such as the PCL-R, complemented by use of instruments that measure constellations of traits relevant to different 'species' of the psychopath 'genus' (Lilienfeld et al., 2015) .

REFERENCES

- American Psychiatric Association [APA] (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Arlington, VA: American Psychiatric Publishing.
- American Psychiatric Association [APA] (1994). *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM IV)*. Washington DC.
- Blackburn, R. (2005). Psychopathy as a personality construct. In S. Strack (Ed.), *Handbook of personology and psychopathology*, pp. 271–291. New York: Wiley.
- Blackburn, R. (2009). Subtypes of psychopath. In M. McMurrin & R.C. Howard (Eds.), *Personality, Personality Disorder and Violence* (pp.113-132). Chichester: Wiley-Blackwell.
- Blackburn, R., & Coid, J. W. (1998). Psychopathy and the dimensions of personality disorder in violent offenders. *Personality and Individual Differences*, 25, 129–145.
- Blackburn, R., Logan, C., Renwick, S.J.D. & Donnelly, J.P. (2005). Higher-order dimensions of personality disorder: Hierarchical structure and relationships with the five-factor model, the interpersonal circle, and psychopathy. *Journal of Personality Disorders*, 19, 597-623.
- Cleckley, H (1941/1976). *The Mask of Sanity*. Oxford, England: Mosby.
- Coid, J., Freestone, M. & Ullrich, S. (2011). Subtypes of psychopathy in the British household population: findings from the national household survey of psychiatric morbidity. *Social Psychiatry and Psychiatric Epidemiology*, DOI 10.1007/s00127-011-0395-3.
- Crego, C. & Widiger, T.A. (2014). Psychopathy and the DSM. *Journal of Personality*, DOI: 10.1111/jopy.12115.
- DiStefano, C., Zhu, M. & Mîndrilă, D, (2009). Understanding and using factor scores: considerations for applied research. *Practical Assessment, Research and Evaluation*, 14 (20), 1-8.
- Crego, C. & Widiger, T.A. (2014). Psychopathy and the DSM. *Journal of Personality*, DOI: 10.1111/jopy.12115.
- Gunn, J., & Robertson, G. (1976). Drawing a criminal profile. *British Journal of Criminology*, 16 (2), 156-160.

- Hare, RD (2003). *The Hare Psychopathy Checklist – Revised: 2nd Edition*. Toronto: Multi-Health Systems Inc.
- Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology, 4*, 217-246. doi: 10.1146/annurev.clinpsy.3.022806.091452.
- Hart, S. D., Cox, D. N., & Hare, R. D. (1995). *The Hare Psychopathy Checklist: Screening Version*. Toronto, Ontario: Multi-Health Systems.
- Hopwood, C.J., Malone, J. C., Ansell, E. B., Sanislow, C. A., Grilo, C. M., McGlashan, T. H., Pinto, A., Markowitz, J. C., Shea, T., Akodol, A. E., Gunderson, J. G., Zanarini, M. C., & Morey, L. C. (2011). Personality assessment in DSM-5: empirical support for rating severity, style, and traits. *Journal of Personality Disorders, 25*, 305-320.
- Hopwood, C.J., Schade, N., Krueger, R.F., Wright, A.G.C. & Markon, K.E. (2014). Connecting DSM-5 personality traits and pathological beliefs: toward a unifying model. *Journal of Psychopathology and Behavioral Assessment, 35*(2). doi:10.1007/s10862-012-9332-3.
- Howard, R.C. (2009). The neurobiology of affective dyscontrol: implications for understanding ‘dangerous and severe personality disorder’. In: McMurrin, M. Howard, R.C., eds. *Personality, personality disorder and violence*, pp. 157-174. J. Wiley & Sons.
- Howard, R. C. (2011). The quest for excitement: A missing link between personality disorder and violence? *Journal of Forensic Psychology and Psychiatry, 22*, 692-705.
- Howard, R.C., Hepburn, E. & Khalifa, N. (2015). Is delusional ideation a critical link in the nexus between personality disorder and violent offending? *The Journal of Forensic Psychiatry & Psychology*, in press. Doi: 10.1080/14789949.2015.1017594.
- Khalifa, N., Lumsden, J., Duggan, C. & Howard, R. (2012). The relationship between childhood conduct disorder and adult antisocial behaviour is partially mediated by early onset alcohol abuse. *Personality Disorder: Theory, Research and Treatment, 3*, 423-432.
- Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2012). Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychological Medicine, 42*, 1879–90.

- Krueger, R. F. & Markon, K.E. (2014). The Role of the DSM-5 Personality Trait Model in Moving Toward a Quantitative and Empirically Based Approach to Classifying Personality and Psychopathology. *Annual Review of Clinical Psychology*, *10*, 7.1–7.25.
- Lilienfeld, S.O., Watts, A.L., Smith, S.F., Berg, J.M. & Litzman, R.D. (2015). Psychopathy Deconstructed and Reconstructed: Identifying and Assembling the Personality Building Blocks of Cleckley's Chimera. *Journal of Personality*, doi: 10.1111/jopy.12118.
- Loranger, A.W., Sartorius, N., Andreoli, A., Berger, P., Buchheim, P., Channabasavanna, S.M., Coid, B., Dahl, A., Diekstra, R.F.W., Ferguson, B., Jacobsberg, L.B., Mombour, W., Pull, C., Ono, Y., Regier, D.A. (1997). The International Personality Disorder Examination: The World Health Organisation and Alcohol, Drug Abuse and Mental Health Administration international pilot study of personality disorders. *Archives of General Psychiatry*, *551*, 215-224.
- Lynam, D.R. & Miller, J.D. (2015). Psychopathy and personality: Advances and debates. *Journal of Personality*, doi: 10.1111/jopy.12145.
- Lynam, D.R. & Vachon, D.D. (2012). Antisocial personality disorder in DSM-5: missteps and missed Opportunities. *Personality Disorders: Theory, Research, and Treatment*, *3*, 483–495.
- Miller, J.D. & Lynam, D.R. (2015). Psychopathy and personality: Advances and debates. *Journal of Personality*, doi: 10.1111/jopy.12145.
- Mokros, A., Hare, R. D., Neumann, C. S., Santtila, P., Habermeyer, E., & Nitschke, J. (2015). Variants of Psychopathy in Adult Male Offenders: A Latent Profile Analysis. *Journal of Abnormal Psychology*. Advance online publication. <http://dx.doi.org/10.1037/abn0000042>
- Newhill, C. E., Vaughn, M.G., & DeLisi, M. (2010). Psychopathy scores reveal heterogeneity among patients with borderline personality disorder. *Journal of Forensic Psychiatry & Psychology*, *21*: 2, 202 — 220.
- Olver, M. E., Sewall, L. A., Sarty, G. E., Lewis, K., & Wong, S. C. P. (2015). A cluster analytic investigation and external validation of psychopathic offender subtypes in a multisite sample of Canadian federal offenders. *Journal of Abnormal Psychology*. doi.org/10.1037/abn0000038.

- Patrick, C. J., Fowles, D. C., & Krueger, R. F. (2009). Triarchic conceptualization of psychopathy: Developmental origins of disinhibition, boldness, and meanness. *Development and Psychopathology, 21*, 913-938.
- Poy, R., Segarra, P., Esteller, À., López, R., & Moltó, J. (2013). FFM Description of the triarchic conceptualization of psychopathy in men and women. *Psychological Assessment*. Advance online publication. doi: 10.1037/a0034642.
- Robins, LN, Helzer, J, Cottler, LB, Goldring, E (1989). *National Institute of Mental Health: Quick Diagnostic Interview Schedule – Revised (NIMH-QDISIIR)*. St. Louis, Missouri: Department of Psychiatry, Washington University School of Medicine.
- Røysamb, E., Kendler, K.S., Tambs, K., Orstavik, R.E., Neale, M.C., Aggen, S.H., Torgersen, S., Reichborn-Kjennerud, T. (2011). The joint structure of DSM-IV Axis I and Axis II disorders. *Journal of Abnormal Psychology, 120* (1), 198-209. doi: 10.1037/a0021660.
- Semerari, A., Colle, L., Pellecchia, G., Buccione, I., Carcione, A., Dimaggio, G. Nicolò, G., Procacci, M. & Pedone, R. (2014). Metacognitive dysfunctions in personality disorders: correlations with disorder severity and personality styles. *Journal of Personality Disorders, 28*(6), 751-66. doi: 10.1521/pedi_2014_28_137.
- Sharp, C., Wright, A.G.C., Fowler, J.C., Frueh, B.C., Allen, J.G., Oldham, J. & Clark, L.A. (2015). The structure of personality pathology: both general ('g') and specific ('s') factors? *Journal of Abnormal Psychology*, <http://dx.doi.org/10.1037/abn0000033>.
- Shipley, W. C. (1939). *Shipley Institute of Living Scale*. Western Psychological Services, USA.
- Wong, M, Lumsden, J, Fenton, G, Fenwick, P (1993). Violence ratings of special hospital patients. *Journal of Forensic Psychiatry 4*, 471-480.
- Yam, W.H. & Simms, L.J. (2014). Comparing criterion- and trait-based personality disorder diagnoses in DSM-5. *Journal of Abnormal Psychology, 123*, 802–808.

	Total PCL-R	PCL Factor 1	PCL Factor 2
IPDE			
Cluster A dimensional score	-.10	-.17	-.04
Cluster B dimensional score	.49**	.44**	.39**
Cluster C dimensional score	-.16	-.13	-.05
paranoid PD dimensional score	-.05	-.17	.06
schizoid PD dimensional score [§]	-.15	-.16	-.18
schizotypal PD dimensional scores [§]	.00	-.04	.03
antisocial PD dimensional score	.49**	.32**	.50**
borderline PD dimensional score	.12	.06	.17
histrionic PD dimensional score [§]	.30**	.39**	.11
narcissistic PD dimensional score [§]	.41**	.51**	.13
avoidant PD dimensional score [§]	-.22*	-.27**	-.02
dependent PD dimensional score [§]	-.06	.01	-.07
obsessive-compulsive PD dimensional score	-.01	.09	-.09
Acting Out	.48**	.39**	.44**
Anxious Inhibited	-.12	-.23*	.07
PD Severity	.28**	.23*	.25*
Criminal Offending			
Age at first offence	-.40**	-.21*	-.54**
Age at first violent offence	-.39**	-.33**	-.39**
Total number of non-violent offences across lifetime (including index offence) [§]	.40**	.21*	.53**
Total number of violent offences across lifetime [§]	.37**	.26**	.50**
Total number of offences across lifetime [§]	.42**	.25*	.57**
Violence rating - index offence	-.30**	-.24*	-.19
Violence rating - previous criminal record	.44**	.31**	.52**
Violence rating - institutional behaviour	.28**	.23*	.25*

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

§ Spearman's correlation coefficient

¥ Kendall's tau_ correlation coefficient

Table 1: Correlates of PCL-R.

Dependent variables	Predictor variables	Beta	t	Sig.	Adjusted R ²	Collinearity Statistics	
						Tolerance	VIF
Total PCL-R Scores	IPDE - antisocial PD dimensional score	.32	3.61	<.001	.40	.76	1.32
	IPDE - avoidant PD dimensional score	-.22	-2.70	.008		.94	1.06
	Violence rating - previous criminal record	.23	3.45	.001		.82	1.21
	IPDE – narcissistic PD dimensional score	.23	2.74	.007		.88	1.13
PCL-R F1 scores	IPDE – narcissistic PD dimensional score	.46	5.65	<.001	.36	.95	1.04
	Violence rating - previous criminal record	.28	3.43	.001		.99	1.00
	IPDE – avoidant PD dimensional score	-.20	-.2.49	.015		.96	1.04
PCL-R F2 scores	Violence rating - previous criminal record	.36	4.29	<.001	.41	.82	1.21
	Total number of non-violent offences across life-time (including index offence)	.21	2.62	.011		.90	1.11
	IPDE - antisocial PD dimensional score	.20	2.02	.046		.63	1.50
	Age at first violent offence	-.18	-2.15	.021		.77	1.29

Table 2. Results of linear regression analysis with IPDE dimensional scores as predictors.

Dependent variables	Predictor variables	Beta	t	Sig.	Adjusted R ²	Collinearity Statistics	
						Tolerance	VIF
Total PCL-R Scores	'Acting out' factor scores	.33	3.75	<.001	.32	.84	1.85
	Violence rating - previous criminal record	.29	3.24	.002		.85	1.16
	Total number of non-violent offences across life-time (including the index offence)	.17	2.01	.046		.94	1.06
PCL-R F1 scores	'Acting out' factor scores	.31	3.12	.002	.17	.84	1.18
	Age at first violent offence	-.20	-2.08	.041		.84	1.18
PCL-R F2 scores	Violence rating - previous criminal record	.38	4.50	<.001		.85	1.17
	Total number of non-violent offences across life-time (including the index offence)	.22	2.86	.005		.93	1.07
	Age at first violent offence	-.20	-2.45	.016		.83	1.20
	'Acting out' factor scores	.18	1.99	.048	.42	.75	1.33

Table 3. Linear regression analysis with 'Acting out' as predictor.