Further Evidence of the Divergent Correlates of the Psychopathic Personality Inventory Factors: Prediction of Institutional Misconduct Among Male Prisoners

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Further Evidence of the Divergent Correlates of the Psychopathic Personality Inventory Factors: Prediction of Institutional Misconduct Among Male Prisoners

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Recent evidence suggests that 2 largely orthogonal dimensions underpin the latent construct assessed by the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996): Fearless Dominance (PPI-I) and Impulsive Antisociality (PPI-II). Relatively few data exist on the correlates of these 2 dimensions in offender samples, however. The present study examines the criterion-related validity of these 2 dimensions among male prison inmates (N = 131) in relation to the prediction of 3 categories of institutional maladjustment: aggressive misconduct, nonaggressive misconduct, and any misconduct. PPI-II significantly predicted each criterion type, with effect sizes of moderate magnitude, whereas PPI-I was essentially unrelated to these outcome measures.

Keywords: Psychopathic Personality Inventory, psychopathy, prison violence, inmates, institutional adjustment

Psychopathy is an extensively researched personality disorder that typically has been operationalized by means of the Psychopathy Checklist—Revised (PCL–R; Hare, 2003). The PCL–R, however, has several practical and theoretical limitations. In particular, it is labor-intensive to administer and has limited applicability outside of settings that provide access to extensive collateral data for scoring purposes. In recent years, several self-report instruments have emerged that offer promise as measures of psychopathic traits in both offender and nonoffender samples (Lilienfeld & Fowler, 2006). One of the more well-validated measures is the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996). In addition to providing scores on eight factor-analytically derived subscales, the PPI yields a total score that provides a global index of psychopathic traits.

Although early investigations of the PPI focused mainly on providing evidence for the construct validity of the total score (e.g., Sandoval, Hancock, Poythress, Edens, & Lilienfeld, 2000), more recent research suggests that seven of the PPI subscales operate as indicators of two largely orthogonal factors (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003). The first, PPI-I—labeled “Fearless Dominance” by Benning, Patrick, Blonigen, Hicks, and Iacono (2005)—is defined by the Social Potency, Fearlessness, and Stress Immunity subscales. The second, PPI-II—termed “Impulsive Antisociality” by Benning et al. (2005)—is marked by Machiavellian Egocentricity, Carefree Nonplanfulness, Impulsive Nonconformity, and Blame Externalization. A final subscale, Coldheartedness, does not load on either factor.

The two PPI factors have demonstrated evidence of a number of preferential associations with theoretically relevant constructs, such as verbal intelligence and measures of externalizing behaviors (Benning et al., 2003, 2005; Patrick, Edens, Poythress, Lilienfeld, & Benning, 2006). Nevertheless, only a few studies have focused on applied criterion measures of interest (e.g., institutional misconduct) in forensic and correctional contexts. Patrick et al. (2006) examined the association between PPI factors and a history of prison misconduct, reporting that PPI-II was significantly associated with aggressive and nonaggressive infractions (rs ranging...
from .21 to .27), whereas PPI-I was significantly associated only with nonaggressive infractions ($r = .26$). In the only prospective criterion-related validity study of which we are aware, Edens, Poythress, Lilienfeld, and Patrick (2007) reported follow-up results for a youthful offender sample originally assessed several years earlier (see Edens, Poythress, & Lilienfeld, 1999). They found that both PPI factors predicted an aggregate category of general prison misconduct but showed differential relationships with aggressive versus nonaggressive infractions. PPI-I uniquely predicted nonaggressive infractions ($r = .39$) but was only modestly associated with aggressive (verbal and physical) misbehavior ($r = .15$). In contrast, PPI-II was positively associated with future aggressive misconduct ($r = .24$) but only weakly predictive of nonaggressive infractions ($r = .11$). Exploratory analyses of the Coldheartedness scale suggested that it might serve as a protective factor against misconduct, with correlations ranging from −.21 to −.29 across the outcome measures.

In interpreting these and related findings, Edens et al. (2007) argued that PPI-I may represent a construct more consistent with “primary psychopathy” (for discussions of primary–secondary psychopathy distinctions, see Karpman, 1941; Lykken, 1995; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). Because the PPI-I is composed of subscales that capture features (e.g., fearlessness, low social anxiety) thought to be indicative of primary psychopathy, higher PPI-I scores in principle might predispose inmates to nonaggressive misconduct that is more indicative of weaker behavioral inhibition, such as engaging in activities that often lead to punishment (e.g., prohibited “prison economy” activities, such as dealing in contraband). In contrast, they argued that PPI-II may represent personality traits more consistent with conceptualizations of “secondary psychopathy,” which in theory should be associated with emotional maladjustment, interpersonal conflict, and impulsivity, all of which might predispose inmates to aggressive misconduct while incarcerated. Consistent with this interpretation, Blackburn (1987) and Lykken (1995) hypothesized that inmates with secondary psychopathology should experience greater difficulty adjusting to prison life. Despite these theoretical musings, there are scant data to inform our understanding of the relationship between PPI scores and the adjustment of prisoners.

As such, the present study builds on findings concerning the PPI and institutional misconduct by (a) examining this relationship in a larger and more heterogeneous sample of offenders than previously studied, and (b) using more sophisticated statistical procedures to address the predictive validity of the PPI and the incremental validity of its two factors above and beyond other variables. Given the associations noted in earlier studies regarding preferential correlates, we hypothesized that PPI-II would be more strongly associated with aggressive misconduct and that PPI-I would be more strongly associated with nonaggressive misconduct. For exploratory purposes, we also examined the correlates of the individual PPI subscales that compose the two PPI factors, as well as the PPI Coldheartedness subscale.

Method

Participants in this follow-up study were derived from three samples of male offenders incarcerated within the Florida Department of Corrections (FDOC) who had completed the PPI as part of earlier validation research. Two of these samples initially were recruited from two jails in adjacent counties in central Florida and have been described in concurrent/postdictive validity studies by Edens et al. (1998) and Sandoval et al. (2000). The participants included in the current report were those from the original studies who subsequently received prison sentences and were incarcerated in the FDOC following the adjudication of their criminal cases (combined $n = 47$). The third sample ($n = 84$) consisted of prison inmates originally described in Study 2 of Patrick et al. (2006). That retrospective study examined the relationship between PPI factor scores and infractions committed during the 1st year of incarceration (i.e., prior to administration of the PPI), but did not include any prospective analyses concerning future misconduct. In terms of the demographics of the combined three samples examined in the present study ($N = 131$), the mean age was 33.70 ($SD = 8.50$) and self-reported ethnicity was primarily African American (54%) and Caucasian (36%). There were no significant site differences on demographic variables.

As noted earlier, the PPI provides a total score as well as eight factor-analytically derived subscales that assess narrower traits of psychopathy. Lilienfeld and Andrews (1996) reported satisfactory psychometric properties for the PPI (see also Lilienfeld & Widows, 2005). Cronbach’s alpha for the total PPI score in this sample was .89; subscale alphas ranged from .84 (Blame Externalization) to .67 (Stress Immunity). Factor analyses of the PPI subscales in a relatively large offender data set ($N = 302$; described in Patrick et al., 2006, footnote 1) have replicated the two-factor structure initially reported by Benning et al., 2003).¹ We computed PPI-I and PPI-II scores in a manner similar to that described by Benning et al. (2003) in their derivation sample. Fearless Dominance (PPI-I) scores were created by summing standardized scores for the Social Potency, Fearlessness, and Stress Immunity subscales. Impulsive Antisociality (PPI-II) scores were created by summing standardized scores for the Machiavellian Egocentricity, Carefree Nonplanfulness, Blame Externalization, and Impulsive Nonconformity subscales. The two PPI factors have been essentially orthogonal in community studies and were not significantly correlated in this sample ($r = .08, p = ns$).

We computed the number of recorded infractions accrued during the follow-up period as one outcome index, as is typically done (e.g., Guy, Edens, Anthony, & Douglas, 2005). In addition, to examine more narrowly the relationship between PPI-II scores and aggressive misconduct, we summed the total number of physical and verbal aggression infractions committed during this period, using a classification scheme developed by Edens et al. (1999) in consultation with FDOC staff. Finally, given our specific hypothesis concerning the relationship between PPI-I and nonaggressive infractions, we used the Edens et al. classification to parse out these types of misconduct as a separate outcome category.

For all categories, the modal number of infractions committed was zero. Variables were therefore dichotomized as 0 (“no infractions”) or 1 (“one or more infractions”). The base rate in the general or any infraction category was 44%. Base rates for aggressive and nonaggressive infractions were both 34%. Supporting our decision to dichotomize infractions into these two subcategories,

¹ The 131 participants in the present study represent part of the larger data set factor analyzed by Patrick et al. (2006); hence, we do not report separate factor analytic results for this subgroup.
the kappa coefficient between aggressive and nonaggressive infractions was .56, indicating a reasonable degree of nonoverlapping variance. The mean length of follow-up for this sample was 2.26 years ($SD = 1.64$, range = 2.5 months to 5.49 years).

Results and Discussion

Table 1 presents biserial correlations and area under the curve (AUC) values from receiver operating characteristic (ROC) curves examining the relationship between the PPI total score, factor scores, Coldheartedness, and the three infraction categories (any, aggressive, nonaggressive). The PPI total score significantly predicted each of these outcomes. With regard to the factor scores, PPI-II was, as hypothesized, positively correlated with both any infractions and aggressive infractions, yielding effect sizes of medium to large magnitude. Somewhat unexpectedly, PPI-II was also predictive of nonaggressive misconduct. In contrast, the hypothesis that PPI-I would predict nonaggressive misconduct was not supported. In fact, PPI-I was unrelated to all outcome measures, with effect sizes near zero. Similarly, Coldheartedness evidenced no significant relation with any infraction category.

Table 1 also provides results for the remaining individual PPI subscales that make up PPI-I and PPI-II. Given our lack of a priori hypotheses regarding individual subscales, these findings should be viewed as exploratory in nature. The four PPI-II subscales for the most part showed a pattern of effect sizes consistent with the composite scale, although the results for Carefree Nonplanfulness were somewhat weaker than those of the other three. Results for the three scales of the PPI-I were less consistent, with the direction of associations for Stress Immunity opposite to those obtained for Fearlessness and (to a lesser extent) Social Potency. In particular, higher Stress Immunity was associated with a lower incidence of aggressive misconduct, whereas higher Fearlessness tended to be modestly associated with greater misconduct overall.

Next, to test the incremental validity of PPI-II above and beyond PPI-I and potential "nuisance" variables, we conducted logistic regression analyses on the three outcome measures in which we first entered age, race/ethnicity (dichotomized as White/nonWhite), and days served as a block on the first step, followed by PPI-I and Coldheartedness as a block on the second step. On the third step, PPI-II was entered alone. The results of each of these three analyses were highly consistent. The first step of each model was significant ($\chi^2 = 30.02–44.23$, all $p < .001$), with age and days served predicting the likelihood of committing an infraction. The second step of these analyses, in which PPI-I and Coldheartedness were entered, never resulted in a significant improvement in model fit, with Wald statistics and odds ratios for both variables being nonsignificant. On the third step of each analysis, the entry of PPI-II resulted in a significant improvement in model fit ($\Delta \chi^2 = 7.44–10.00$, all $p < .01$), with Wald statistics ranging from 6.75 to 8.72 (all $p < .01$). Odds ratios for PPI-II scores on the third step ranged from 1.88 to 2.17.

Logistic regression informs our understanding of the likelihood that an outcome will occur, yet it ignores possible differences in how quickly individuals exhibit the criterion behavior. To address this limitation, we performed survival analyses (Cox regression) for each misconduct variable to examine correlates of how quickly

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Note. Standard errors for all area under the curve (AUC) values were .05. * $p < .05$. ** $p < .01$ (two-tailed).

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2 Subsequent multivariate analyses controlling for time at risk revealed results highly similar to those reported in Table 1. For sake of simplicity, we report only the bivariate analyses here.

3 In terms of other potential “nuisance” variables, one anonymous reviewer questioned whether PPI-II would predict future misconduct beyond a history of having engaged in such behavior. Although two of our samples were newly admitted to the FDOC and had no history of infractions to examine, we did have retrospective infraction data on one subset ($n = 84$) that had already been in prison for a significant period of time prior to being recruited into this study (i.e., those described in Patrick et al., 2006). Consistent with other research on the prediction of prison misbehavior, a history of misconduct (any, aggressive, nonaggressive) during the 1st year of incarceration did predict subsequent disciplinary infractions over our follow-up period: $\kappa = .32$ (any), .40 (aggressive), and .28 (nonaggressive; all $p < .01$). Therefore, we performed logistic regression analyses on the three outcome measures in which the infraction history variable was entered alone on the first step and PPI-II scores were entered alone on the second step. For any and nonaggressive infractions, the second steps in the models were both significant ($\Delta \chi^2 = 4.91$ and 6.27, both $p < .05$). Regarding future aggressive misconduct, however, after we controlled for a history of prior institutional aggression, PPI-II no longer was significant on the second step ($\Delta \chi^2 = 1.21$, $p = ns$)
individuals would commit an infraction, using the same order of entry described in the logistic regression analyses (without the days served variable). Each of the three analyses produced a significant model on the first step ($\chi^2 = 11.47–15.71$, all ps < .01), with age significantly predicting time to infraction. Consistent with results of the logistic regressions, neither PPI-I nor Coldheartedness predicted time to infraction when entered on the second step. On the third step, PPI-II predicted any and aggressive infractions, with Wald values of 5.05 and 5.09 (both ps < .01) and odds ratios of 1.37 and 1.41, indicating that PPI-II scores predicted not only who would commit infractions, but how quickly they would commit them. For nonaggressive infractions, there was only a trend in this direction: Wald = 2.66, $p = .10^4$.

Collectively, these prospective results provide further evidence that the two primary dimensions of psychopathy assessed by the PPI differ meaningfully in their associations with external criteria, in this case institutional behavior problems. Our findings demonstrate that the validity of the PPI for predicting institutional misconduct derives from its coverage of the impulsive, socially deviant aspects of psychopathy (reflected in PPI-II) rather than its assessment of the socially dominant, fearless features (reflected in PPI-I). To the extent that the PPI eventually might be used to inform institutional risk assessments or aid in research on the detection and etiology of overt antisocial behavior in prison settings, it appears that PPI-II is the more clinically relevant dimension to consider. Moreover, the obtained effect sizes for PPI-II were comparable or higher in magnitude than those generally reported for risk assessment instruments and for other self-report measures that have been used to predict institutional misconduct (see Gendreau, Goggin, & Law, 1997; Guy et al., 2005; Walters, 2006). Although AUC values greater than .70 typically are greeted with considerable enthusiasm in the risk assessment literature (Quinsey, Harris, Rice, & Cormier, 2006), there are limitations to our study (described below) that temper our enthusiasm for using the PPI in applied settings at this time.

Our prospective findings dovetail with evidence showing that PPI-II effectively predicts various indices of historic deviance (including child conduct problems, adult antisocial behavior, and alcohol and drug problems) to a more substantial degree than PPI-I (Benning et al., 2005; Blonigen et al., 2005). The only subscale of PPI-I that showed even a positive trend toward prediction of misconduct was Fearlessness. In contrast, the Stress Immunity subscale showed a significant negative association with aggressive misconduct. This association may reflect an important role of heightened emotional reactivity to stressful events in aggressive behavior within the current offender sample, and is broadly consistent with research suggesting that negative emotionality (which includes trait anxiety) is a risk factor for antisocial and criminal behavior (Krueger, Caspi, & Moffitt, 2000). Offenders who are low in stress reactivity appear to be at reduced risk for aggressive misconduct. In contrast, the Fearlessness subscale taps a proneness to risk-taking and venturesomeness that tends to be positively associated with overall misconduct.

Although PPI-I scores in toto were negligibly related to misconduct measures, it bears repeating that PPI-I nevertheless captures important (albeit distinctive) elements of the psychopathy construct (cf., Benning et al., 2005)—elements that may be of particular relevance to other clinical concerns. For example, the affective–interpersonal features tapped by PPI-I may be protective with respect to suicide potential (Douglas et al., in press) and may be of importance to predicting treatment motivation and outcome (Hicks & Patrick, 2006). The protective impact of PPI-I with respect to suicide is reminiscent of Cleckley’s depiction of the psychopathic individual as well adjusted in some respects (Cleckley, 1941/1976). In this regard, it is interesting to contrast the construct tapped by PPI-I with the construct tapped by the affective–interpersonal factor of Hare’s PCL–R (Hare, 2003). Whereas scores on PPI-I tend to be minimally correlated with scores on the PBI Behavioral Deviance factor (PPI-II), scores on PCL–R Factor I correlate highly with the PCL–R Behavioral Deviance factor (Factor 2). PPI-I appears to tap aspects of positive adjustment (e.g., lack of anxiety or depression; Blonigen et al., 2005) along with tendencies toward narcissism and emotional insensitivity (Benning et al., 2005), whereas PCL–R Factor 1 taps tendencies that are more uniformly deviant.

Our findings were highly consistent with postdictive results reported earlier for a subset of the current sample (Patrick et al., 2006), yet only partially replicated findings from the only other prospective study to date that has examined the prediction of prison misconduct using the PPI (Edens et al., 2007). In that small sample of youthful offenders ($N = 46$), PPI-I predicted nonaggressive misconduct and Coldheartedness played a modest protective role against the occurrence of infractions. However, these two studies differed in important ways, particularly in the mean age and age range of the participants. Also, PPI-I and PPI-II were more strongly correlated in the youthful offender sample ($r = .31$) than in the present study ($r = .08$). In addition, the two subcategories of misconduct displayed differing associations with one another. In the youthful offender sample, aggressive and nonaggressive infractions were weakly correlated ($r = .14$), whereas in the present study their association was substantially stronger ($r = .56$). Conceivably, nonaggressive infractions in the youthful offender sample reflected to a greater extent covert, manipulative forms of misconduct that were predicted more successfully by the features of psychopathy assessed by PPI-I.

Although in many ways an improvement over earlier research, several potential limitations to this investigation should be noted. First, we relied on official institutional records as criterion measures, which raises (at least) three specific concerns. One, although institutional misconduct is a predictor of re-arrest among those released from imprisonment (French & Gendreau, 2006), one should not presume that our pattern of findings necessarily will generalize to community recidivism. Two, this approach probably underestimates occurrences of actual misconduct within prisons, in that it is likely that certain forms of misbehavior occur at a rate higher than that documented in institutional records (e.g., selling of contraband). Nevertheless, our findings regarding documented aggressive behavior do converge with studies that have examined self-report measures of aggression (Benning et al., 2003; Patrick et al., 2006). Three, the official records available to us (and most others who study prison misconduct) provide no means of parsing aggressive behavior into more discrete forms, such as proactive versus reactive aggression. Research suggests that the PCL–R may be preferentially related to proactive, or predatory, types of vio-

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$^4$ Further details concerning the results of any analyses are available from John F. Edens.
lence, although this literature (e.g., Cornell, Warren, Hawk, Stafford, Oram, & Pine, 1996) is for the most part retrospective in nature (i.e., individuals with histories of predatory violence subsequently being diagnosed as psychopathic). Clearly, it will be important in future research to examine the relationship between the PPI factors and more fine-grained types of violent behavior than have been studied thus far.

A second limitation of our research is that all participants were assured of confidentiality, which might have resulted in more honest self-reports than if the PPI had been administered in an adversarial environment. Although the PPI does not include item content of an explicitly antisocial nature and items correlating highly with social desirability scales were removed or revised in the test construction phase, analogue research has nevertheless demonstrated that PPI-II scores can be suppressed when respondents are instructed to “fake good” (Edens, 2004). As such, it is not clear to what extent examinees might be able to deny psychopathic traits in contexts in which there could be negative repercussions for such admissions (e.g., evaluations conducted for parole boards). Third, and finally, our sample consisted only of men; it is unknown how well our results would generalize to female offenders.

These caveats notwithstanding, the present findings advance our understanding of the nomological net surrounding the two primary dimensions assessed by the PPI. They also provide further support for dual-process models of psychopathy positing that this condition may be underpinned by two differing etiological processes that differ in their implications for adaptive functioning in the real world (Fowles & Dindo, 2006; Patrick & Bernat, in press; Patrick & Lang, 1999). In this regard, Cleckley (1941/1976) viewed psychopathy as a configuration of good psychological adjustment (i.e., intelligence and social skills; absence of delusions, anxiety / neurosis, or suicidality) in the presence of maladjusted behavior and social relations. The two largely orthogonal factors of the PPI appear to capture these contrasting phenotypic components of the psychopathy construct in a clearly differentiated fashion. In this respect, the PPI differs from the unitary conceptualization of psychopathy embodied by the PCL–R, in which distinctive factors are viewed as elements of a single, higher-order construct. Some authors (e.g., Patrick & Bernat, in press) have argued that progress toward understanding basic mechanisms contributing to psychopathy (including neurobiological processes) may benefit from a clearer separation of these distinctive components. Further research is needed to evaluate the relative heuristic and predictive merits of this alternative perspective to assessing and conceptualizing psychopathy.

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