

Psychopathy, Antisocial Personality, and Suicide Risk

Edelyn Verona
Florida State University

Christopher J. Patrick
University of Minnesota

Thomas E. Joiner
Florida State University

H. Cleckley (1976) maintained that psychopaths are relatively immune to suicide, but substantial evidence exists for a relationship between antisocial deviance and suicidal acts. This study was the first to explicitly examine suicidal history among psychopathic individuals as defined by R. D. Hare's (1991) Psychopathy Checklist—Revised (PCL–R). Male prison inmates ($N = 313$) were assessed using the PCL–R and *DSM–III–R* and *DSM–IV* criteria (American Psychiatric Association, 1987, 1994) for antisocial personality disorder (APD), and they completed A. Tellegen's (1982) Multidimensional Personality Questionnaire (MPQ). Presence or absence of prior suicide attempts was coded from structured interview and prison file records. Suicide history was significantly related to PCL–R Factor 2 (which reflects chronic antisocial deviance) and to APD diagnosis but was unrelated to PCL–R Factor 1, which encompasses affective and interpersonal features of psychopathy. Higher order MPQ dimensions of Negative Emotionality and low Constraint were found to account for the relationship between history of suicidal attempts and antisocial deviance, indicating that temperament traits may represent a common vulnerability for both.

Suicide is most often considered in connection with internalizing forms of psychopathology, marked by prominent dysphoria, distress, and behavioral withdrawal, most notably depressive disorders. However, the growing incidence and awareness of suicidal episodes in prison (Haycock, 1991) and jail settings (McKee, 1998) highlights the possibility that heightened suicidal risk is also characteristic of syndromes that might be characterized as externalizing (Krueger, 1999; Krueger, Caspi, Moffitt, & Silva, 1998; Verona & Patrick, 2000). Empirical studies have in fact demonstrated a heightened risk for suicidal behavior among individuals manifesting reactive aggressiveness, persistent criminality, and

antisocial personality disorder (APD; Bukstein et al., 1993; Virkkunen, 1979). One aim of the present study was to confirm the relationship between suicidal behavior (i.e., attempts) and antisocial tendencies in a sample of incarcerated male offenders. A second aim was to clarify associations among antisocial personality, psychopathy, and suicide by separately examining the relationship of suicide to two facets of psychopathy: one encompassing the affective and interpersonal symptoms of the disorder, and the other entailing tendencies toward impulsive, antisocial behavior (cf. Harpur, Hare, & Hakstian, 1989). A third aim was to evaluate the hypothesis that the link between antisociality and suicidal behavior is attributable to a common temperament-trait vulnerability, reflecting heightened negative emotionality and reduced constraint/inhibition (Apter, Plutchik, & van Praag, 1993; Banki & Arato, 1983; Krueger et al., 1994; Nordstrom, Schalling, & Asberg, 1995; Patrick, 1994, 1995; Sher & Trull, 1994).

Edelyn Verona, Department of Psychology, Florida State University; Christopher J. Patrick, Department of Psychology, University of Minnesota; Thomas E. Joiner, Department of Psychology, Florida State University.

This study was supported by Grants MH48657 and MH52384 from the National Institute of Mental Health and funds from the Hathaway endowment at the University of Minnesota. Preliminary findings were presented at the annual meeting of the American Psychological Society in June 2000.

Thanks are extended to the residents and staff of FCI-Tallahassee, and in particular to Chief Psychologist Allen Hanley, for their ongoing support of this work. We also thank Emily Daughtrey, Lynelle Erickson, Donna James, Stacey Lavoro, Mark Miller, David O'Connor, Arleen Goff, Erin Schaden, and Kristin Zempolich for their participation in the diagnostic and assessment aspects of this work and Auke Tellegen and Robert Krueger for their scholarly input.

Correspondence concerning this article should be addressed to Christopher J. Patrick, Department of Psychology, University of Minnesota, Minneapolis, Minnesota 55455. Electronic mail may be sent to cpatrick@tc.umn.edu.

Suicidal Behavior

Suicidal behaviors (ideation, gestures, attempts, completions) have been conceptualized as falling along a continuum, in which ideators, gesturers, and attempters are individuals who are inclined toward suicide but have not yet completed it (Brent et al., 1988). Related to this, empirical research indicates that self-harm not resulting in death is related to a higher risk for eventual suicide (Ivanoff, 1992; Marcus & Alcabes, 1993); a prior history of suicide attempts is evident among approximately 65% of suicide completers (see Cross & Hirschfeld, 1986). Suicide completers differ from attempters and ideators in that they are more likely to have a diagnosis of bipolar disorder; a mood disorder with comorbidity (e.g., major depression coupled with substance abuse); and

access to firearms in the home (Brent et al., 1988). In the current study, we chose to focus on prior suicide attempts, because this represents a more severe manifestation of suicidality than ideation but allows for collection of new data from at-risk individuals.

Psychopathy and Antisocial Personality Disorder

The diagnosis of APD in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (*DSM-IV*; American Psychiatric Association, 1994) reflects a pattern of chronic antisocial deviance beginning in childhood (before age 15) and persisting into the adult years. The classic description of the psychopathic personality, presented by Cleckley (1976) in his monograph "The Mask of Sanity," places stronger emphasis on affective/interpersonal symptoms. Thus, Cleckley used the term *psychopath* to describe individuals who manifest a unique profile of emotional and interpersonal characteristics—low anxiety, immunity to guilt or shame, incapacity for love or intimacy, shallow emotions, and absence of loyalty—in addition to reckless, amoral behavior. Relatedly, the 20-item Psychopathy Checklist—Revised (PCL-R), developed by Hare (1991) to identify Cleckley psychopaths in criminal offender populations, comprises two correlated factors (Hare et al., 1990; see also Harpur et al., 1989): Factor 1 (PCL-R F1), which is marked by items reflecting the emotional and interpersonal features of the psychopath that Cleckley emphasized; and Factor 2 (PCL-R F2), which consists of items dealing with stimulation-seeking, impulsivity, aggressiveness, and other antisocial behavior tendencies. Patrick, Bradley, and Lang (1993) used the terms *emotional detachment* and *antisocial behavior*, respectively, for these two facets of Hare's PCL-R.

DSM diagnoses of APD have been shown to relate substantially to PCL-R ratings of psychopathy (Hare, 1991; Widiger et al., 1996), but the relationship is asymmetric with respect to the two PCL-R factors: APD is substantially related to the antisocial and aggressive features of psychopathy (PCL-R F2) but not to the affective/interpersonal characteristics of psychopathy (PCL-R F1; Hare, 1991; Hare, Hart, & Harpur, 1991). Individuals who are predominantly high in PCL-R F2 tend to be impulsive, aggressive, and irresponsible but exhibit normal or enhanced emotional reactivity in relation to controls (Patrick, 1994; Patrick & Lang, 1999; Verona & Carbonell, 2000). We will argue in the following discussion that it is this type of individual who is likely to be at heightened risk for suicide.

Psychopathy, Antisociality, and Suicide

Cleckley (1976) based his conception of the psychopath on clinical cases he encountered in an inpatient psychiatric setting. He noted that suicidal behavior was much rarer among psychopathic individuals than among other ward patients. Indeed, he listed "suicide rarely carried out" as one of his 16 diagnostic criteria for psychopathy: "Instead of a predilection for ending their own lives, psychopaths, on the contrary, show much more evidence of a specific and characteristic immunity from such an act" (p. 359).

In contrast to this, substantial evidence exists for a positive relationship between criminal deviance and suicidal behavior. Studies that have investigated suicide risk factors among male inmate samples have shown that histories of juvenile delinquency

and violent crime are associated with suicidal attempts and completions in adulthood (Ivanoff & Jang, 1991; Marcus & Alcabes, 1993; Bland, Newman, Thompson, & Dyck, 1998). The adolescent suicide literature also supports an association between criminal deviance and suicide risk. Results from this domain indicate that the combination of depressed symptoms and antisocial behavior is a common antecedent of teenage suicide (Martunen, Aro, Henriksson, & Lonnqvist, 1994).

Evidence also exists for a relationship between antisocial personality disorder as defined by *DSM-IV* and suicidal behavior. The *DSM-IV* states that individuals diagnosed with APD are more likely than members of the general population to die by violent means including suicide, and Frances, Fyer, and Clarkin (1986) estimated the base rate of suicide completions among APD individuals to be 5%, with an 11% rate of attempts. Both of these rates substantially exceed population base rates (i.e., 0.01% and 1%–2%, respectively; National Center for Health Statistics, 1994; Mosciki, 1995). More recent research has established suicide risk as an associated feature of APD (Black, 1998; Black & Braun, 1998; Lester, 1998). Moreover, in a study analyzing the genetic risk for suicide, it was found that suicidal behavior in children was associated with a diagnosis of APD and with aggressivity and substance abuse in first-degree relatives (Pfeffer, Normandin, & Kakuma, 1994).

Some earlier studies (Maddocks, 1970; Robins, 1966; Woodruff, Clayton, & Guze, 1972) reportedly examined risk for suicidal behavior among "psychopaths" and "sociopathic personalities"—variously diagnosed according to history of criminal behavior, aggression, and irresponsible/impulsive lifestyle—in relation to other psychiatric patients. Findings were mixed: Some of these studies reported evidence for increased risk among psychopaths and antisocials, whereas others found no difference. Nonetheless, such studies have consistently reported a higher rate of suicide attempts among antisocial individuals in comparison to the general population. More recently, Widom (1978) reported a suicide attempt rate of 28.6% in a sample of "noninstitutionalized psychopaths," but formal clinical diagnoses were not performed. The most salient features of the sample were indicators of antisocial deviance (e.g., high arrest rates, impulsive and irresponsible behavior, substance abuse, and extreme scores on delinquency scales).

In sum, prior research on the relationship between psychopathy and suicide has been limited in scope and has focused primarily on antisocial behavior tendencies akin to the *DSM* construct of APD rather than on the affective and interpersonal symptoms that Cleckley emphasized. Our study brought new light to this issue by using Hare's *PCL-R* to assess psychopathy and its two facets (F1 and F2) and by using *DSM* criteria to assess for APD in a criminal offender sample. We postulated that the apparent inconsistency between Cleckley's view of psychopaths as low in suicidal risk and the data indicating a positive relationship between antisocial personality and suicidal behavior might be resolved in terms of these two facets of psychopathy. The empirical links between antisocial deviance and suicidal behavior and between APD and PCL-R F2 suggest that PCL-R F2 should be predictive of suicide risk. Consistent with this, prior research has shown that PCL-R F2 is selectively related to reactive violence (Patrick, Zempolich, & Levenston, 1997) and to substance abuse—both known correlates of suicidality (Verona & Patrick, 2000). On the other hand, PCL-R

F1, which reflects the callous/unemotional disposition of the psychopath, should be either unrelated or negatively related to suicide risk.

Role of Temperament Traits

The observed relationship between suicidal behavior and antisociality suggests the possibility of common underlying risk factors (Verona & Patrick, 2000). A cluster of personality traits related to suicide risk has consistently emerged from research in this area: high neuroticism (anxiousness), hostility, irritability, and alienation; low socialization and high psychoticism, impulsivity, and sensation seeking; and high introversion (Engstroem, Alsen, Gustavsson, & Schalling, 1996; Lester, 1987; Lolas, Gomez, & Suarez, 1991; Nordstrom et al., 1995). In turn, these trait variables map onto a smaller number of temperament-trait dimensions. Anxiousness/neuroticism, alienation, and hostility coalesce around a higher order dimension of high Negative Emotionality (NEM); impulsivity, sensation seeking, socialization, and psychoticism are linked to a higher order dimension of Constraint (CON; Tellegen & Waller, in press). Extraversion/introversion, sociability, and happiness (well-being), on the other hand, all relate to a higher order dimension of Positive Emotionality (PEM; Tellegen & Waller, in press). Thus, the personality profile of the suicidal individual, particularly where comorbid personality disorder exists, is one of heightened Negative Emotionality and low Constraint, and perhaps low Positive Emotionality (see Verona & Patrick, 2000).

Furthermore, the trait characteristics of suicidal individuals closely resemble those of antisocial/aggressive persons. In particular, the clustering of impulsivity- and anxiety-related traits has been frequently reported among highly antisocial individuals, particularly men (Krueger et al., 1994; Patrick, 1994, 1995; Sher & Trull, 1994). With regard to psychopathy, differential relationships have been observed between temperament-trait measures and the two PCL-R factors. Using Buss and Plomin's (1975, 1984) temperament scales, Patrick (1994) reported that PCL-R F2 was positively related to Fear, Distress, Anger, and Impulsivity, whereas PCL-R F1 was negatively related to Fear and Distress and unrelated to Anger and Impulsivity. Subsequently, using Tellegen's (1982) Multidimensional Personality Questionnaire (MPQ), Patrick (1995) reported that PCL-R F1 was associated with high Social Potency and Achievement and low Stress Reaction, whereas PCL-R F2 was related to higher overall NEM (including facets of Stress Reaction, Alienation, and Aggression) and low overall Constraint.

Other work has examined psychopathy in relation to the five-factor model (FFM) of personality (cf. Lynam, in press). Harpur, Hart, and Hare (1994) reported correlations between FFM trait dimensions and the PCL-R in inmate and college student samples ($n_s = 28$ and 47 , respectively). In the inmate sample, overall PCL-R scores were related primarily to Agreeableness ($r = -.47$), which correlated similarly with the two factors; in the college sample, the PCL-R and its two factors also correlated negatively with Conscientiousness. Hart and Hare (1994) examined relationships between overall scores on an abbreviated version of the PCL-R and independent observer ratings of FFM-related traits in a sample of 12 inmates and 12 college men. Significant correlations were observed for all trait dimensions:

Dominance (+), Love (-), Neuroticism (-), Openness (-), and Conscientiousness (-). More recently, Widiger and Lynam (1998) analyzed the PCL-R items and factors in terms of the FFM and concluded that PCL-R F1 can be conceptualized as involving low Agreeableness (or high Antagonism), low Neuroticism, and heightened Extraversion, whereas PCL-R F2 reflects a combination of low Conscientiousness and low Agreeableness.

Tellegen's MPQ and the FFM can be viewed as complementary structural models of personality (Clark & Watson, 1999; Watson, Clark, & Harkness, 1994). Church (1994) showed via a joint factor analysis that NEM encompasses Neuroticism and Agreeableness (reversed), PEM involves Extraversion and achieving/surgent aspects of Conscientiousness, and CON encompasses impulse-control aspects of Conscientiousness along with elements of Openness to Experience (reversed). Our own work utilizes the MPQ because we are interested in psychopathy from the standpoint of emotion and temperament, and these constructs serve as benchmarks for the MPQ structural model (Church, 1994; Clark & Watson, 1999; Tellegen, 1985; Tellegen & Waller, in press). Furthermore, as noted earlier, available data on the personality correlates of antisociality and suicide indicate that both are associated with traits encompassed by two of the MPQ higher order dimensions: NEM and CON. Accordingly, we hypothesized that a common temperament-based vulnerability might account for the systematic co-occurrence of suicidal and antisocial tendencies, and our test of this hypothesis focuses on these higher order MPQ dimensions.

Present Study

Empirical evidence converges on the notion that heightened suicide risk is associated with antisocial deviance and criminality. The data reviewed further indicate that these syndromes share a temperament profile marked by impulsiveness (low CON) and high neuroticism. The purpose of our study was to examine the relationship between PCL-R-defined psychopathy and suicide history in a sample of male federal prisoners. To tie our findings to the existing literature on antisocial personality and suicidal behavior, we also report relationships between the *DSM* APD construct and suicidal behavior, and between APD and PCL-R scores. Primary hypotheses were as follows:

1. Suicide history would be positively related to the antisocial deviance factor (F2) of the PCL-R and would be unrelated or perhaps negatively related to the affective-interpersonal factor (F1). Based on prior research findings, we also predicted that suicide history would be positively correlated with APD diagnoses and symptoms and that APD would be related substantially and selectively to F2 of the PCL-R.
2. Suicide history and PCL-R F2 would show parallel relationships with NEM and CON dimensions of temperament, as assessed by the MPQ.
3. The aforementioned temperament-trait dimensions would account for the observed relationship between antisocial behavior and suicidal tendencies.

Method

Participants

Participants were 313 male inmate residents of the Federal Correctional Institution in Tallahassee, Florida, a large low-medium security prison.

Most inmates in the institution (approximately 70%) were serving time for drug-related offenses; the remainder were imprisoned for other federal crimes such as bank robbery, counterfeiting, and mail fraud. Volunteers were recruited randomly from the master prison roster and were subject to exclusionary criteria as follows: age 45 or less; no evidence in the file of a current major mental disorder; and no imminent release date. Those demonstrating conversational competency in English and the ability to read aloud a text description of the study were scheduled for further participation and supplied informed written consent. The mean age of participants in the current study was 32.4 years ($SD = 7.8$). Racial composition of the sample was as follows: Caucasian, 40.3% ($n = 126$); African American, 46.6% ($n = 146$); Hispanic, 12.8% ($n = 40$); and other, 0.3% ($n = 1$). These sample characteristics corresponded closely with census figures for the inmate population as a whole.

Measures and Procedures

Psychopathy and antisocial personality disorder. Each inmate underwent a structured diagnostic interview designed to assess for features of psychopathy as defined by the PCL-R (Hare, 1991). This information, in conjunction with the inmates' file records, was used to assign ratings on the PCL-R. Scores on the two factors of the PCL-R, the affective-interpersonal (F1) and antisocial deviance behavior (F2) features, were also obtained in this manner. In occasional instances where specific items could not be rated (e.g., Item 19, which requires a prior history of adjudication; Hare, 1991), total and factor scores were prorated. Two independent raters, the primary interviewer and a second assessor who viewed a videotape of the interview, completed diagnostic ratings. All raters were advanced undergraduate or graduate students in psychology who had undergone extensive training in the use of the PCL-R. Interrater reliability for the PCL-R was evaluated by intraclass correlation coefficients (Shrout & Fleiss, 1979). Single-rater coefficients for PCL-R F1, F2, and total scores were .82, .88, .91, respectively; coefficients for the mean of two raters were .90, .94, .95, respectively. For purposes of analysis, PCL-R scores were averaged across the two independent assessors. For the sample as a whole, PCL-R summary statistics were as follows: total score, $M = 21.6$, $SD = 7.1$, range = 3.2–36.5; F1, $M = 9.1$, $SD = 3.3$, range = 0–16; F2, $M = 9.5$, $SD = 3.6$, range = 0–17.5.

Information from the aforementioned interview and from prison files was also used to assign diagnoses of APD based on *DSM* criteria. The *DSM-III-R* (3rd ed., rev.; American Psychiatric Association, 1987) diagnostic criteria were used in the first part of the sample ($n = 171$), on whom APD assessments were completed between 1992 and 1994; *DSM-IV* criteria were used for the remainder of the sample, who were assessed between 1994 and 1996. Again, two independent raters completed APD diagnostic ratings; 92% of the diagnoses were consistent across raters (i.e., there was agreement on presence or absence of the diagnosis). Cohen's kappa coefficient for the extent of agreement between the two raters was .83. If either one or both assessors judged that criteria for APD were met, then the presence of the diagnosis was assumed. In this sample of male federal prison inmates, 51% of offenders met criteria for APD.

Suicide history. A history of suicide attempts among participants was determined on the basis of two independent sources of information. Within the context of the PCL-R diagnostic interview, which included questions about mental health and psychiatric history, participants were asked directly if they had ever attempted suicide or been hospitalized for a suicide attempt. Researchers also reviewed the inmates' prison files, which included presentence investigations that summarized family background, criminal history, substance abuse history, and mental health/psychiatric history.

Of the 313 men whose suicide history was examined, 19 reported a history of attempted suicide (at least one past suicide attempt) during the interview, and 8 of these 19 had collateral information in prison files concerning suicide attempts. Five other men who did not report a history of suicidal behavior in the interview had evidence of prior suicide attempts

in their prison files. The remainder of the sample ($n = 289$) neither reported nor had file evidence of a history of suicidal behavior. For purposes of analysis, prisoners with a history of suicide attempts according to either self-report (i.e., interview) or prison records were coded as having a history of suicidality (thus, overall $n = 24$, or 7.7% of the sample).¹ As evidence of the validity of the suicide variable, it was found to correlate .37 ($p \leq .001$) with total scores on the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979).²

Personality/temperament. During an individual session held separately from the diagnostic interview, participants completed the MPQ (Tellegen, 1982), a 300-item self-report inventory. The MPQ includes 11 primary trait scales, measuring distinct personality constructs, which factor into three higher order temperament dimensions: PEM, NEM, and CON. The PEM factor encompasses trait scales assessing Well-Being, Social Potency, Social Closeness, and Achievement, reflecting dispositions toward positive affect, dominance, ambition, and pleasurable engagement with others. Stress Reaction, Alienation, and Aggression scales define the NEM factor. Tendencies toward negative affect, suspiciousness, resentfulness, and aggression (i.e., unpleasurable engagement; Tellegen, 1985) are associated with high NEM scores. The third higher order factor, CON, is marked by scales reflecting Control, Harm Avoidance, and Traditionalism. High CON is associated with caution, restraint, and support of conventional moralistic views. A final trait scale, Absorption, reflects imaginativeness and capacity for perceptual engagement; this scale does not load uniquely on PEM, NEM, or CON. Tellegen and Waller (in press) reported that PEM, NEM, and CON share substantial variance with, respectively, the Extraversion, Neuroticism, and Psychoticism (reversed) superfactors of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1987). The median internal consistency (alpha) coefficient for the MPQ content scales within this prisoner sample was .86 (range = .71–.90), which is commensurate with reliabilities reported for nonincarcerated samples (Tellegen & Waller, in press).

The MPQ also includes six validity scales that are combined into an overall invalidity index (INVAL) to aid in the detection of invalid response profiles. MPQ data were available for 229 participants in the study sample; in 20 of these cases, the MPQ protocol was invalid (i.e., INVAL > 38; Tellegen, 1982). Only the 209 participants with valid profiles were included in statistical analyses involving the MPQ; the base rate of suicide attempts (7.6%) in this subsample was equivalent to that of the overall sample.

Results

Suicide, Psychopathy, and Antisocial Personality

A significant positive relationship was found between total PCL-R scores and history of suicide attempts ($r = .11$, $p < .05$). A logistic regression analysis was used to assess the unique contributions of the two PCL-R factors (F1 and F2) and their interaction in predicting the suicide variable. In this analysis, PCL-R F2 contributed significantly to prediction ($\beta = .75$, $p \leq .01$, odds ratio = 2.12). The predictive weight for F1 was in fact negative

¹ Subsidiary analyses were performed using the following alternative definitions of suicidality: (a) self-reported history of attempts according to interview only ($n = 19$); (b) history of attempts according to prison files only ($n = 13$); and (c) history of attempts according to both file and self-report ($n = 8$). Results for these more restrictive indices of suicidality paralleled those for the omnibus index used in the primary analyses reported here.

² Beck Depression Inventory data were available for a subset of the sample ($n = 111$), in which the base rate of suicidal attempts was comparable to that of the overall sample.

($\beta = -.26, p = .33$, odds ratio = .77) but nonsignificant, and the interaction term was not significant ($\beta = .27, p = .20$, odds ratio = 1.30).³

To tie the aforementioned findings to prior research on the relationship between antisocial personality and suicide, we also examined the presence or absence of APD as a predictor of suicide history. Inmates with an APD diagnosis were more likely to have a history of suicidal behavior than inmates without APD, $\chi^2(1, N = 313) = 5.93, p \leq .05$. As in prior research (Hare, 1991), APD diagnosis was substantially related to PCL-R F2 scores ($r = .67$) but less so to PCL-R F1 scores ($r = .35$), and the latter relationship became negligible ($r = -.01$) when the influence of PCL-R F2 was partialled out. The magnitude of the relationship between overall APD symptoms (proportion of child and adult criteria met; average across two raters) and suicide history ($r = .18, p \leq .01$) was similar to that between PCL-R F2 and suicide (.16; see earlier discussion). The correlation between overall APD symptoms and PCL-R F2 scores was .83.

To summarize, the foregoing analyses revealed that suicidal behavior in this male prisoner sample was related specifically to the antisocial deviance factor of the PCL-R (F2) and was unrelated to the affective-interpersonal factor (F1). Suicidal behavior was also predicted by binary APD diagnoses and symptoms, which were substantially and selectively related to PCL-R F2.

Suicide, Psychopathy, and MPQ Temperament Scales

We examined correlations between the suicide variable and the MPQ personality scales to identify personality factors associated with a history of suicide attempts (see Table 1). To control for familywise error, Bonferroni corrections were applied to significance levels for the higher order MPQ factors ($p \leq .017$) and for the MPQ trait scales ($p \leq .005$). These analyses revealed that suicide history was related positively to the higher order dimension of NEM and constituent scales and was related negatively to the dimension of CON (or inverse of impulsivity/sensation seeking) and constituent scales.

Partial correlations between MPQ scores and each PCL-R factor, controlling for the influence of the other PCL-R factor, are also presented in Table 1; these relationships are consistent with preliminary results reported by Patrick (1995) for a subset of the present sample. Higher scores on F2 of the PCL-R were associated with higher dispositional NEM and lower CON, whereas PCL-R F1 scores were related to personality traits reflecting high agentic PEM (i.e., achievement and social potency; Tellegen & Waller, in press) as well as low stress reactivity. Most notably for the purposes of this article, the personality correlates of F2, but not F1, paralleled those for suicidality. These results further indicate that it is the antisocial and impulsive features of psychopathy, and not the personality or interpersonal features, that are associated with higher suicide risk.

Role of Temperament in the Suicide–Antisociality Link

As described in the introduction, the existing research literature suggests that antisocial deviance and suicidal behavior may be manifestations of a common temperament disposition involving the coalescence of high NEM and low CON. The results of the correlational analyses reported in the preceding section are con-

Table 1
Correlations Between MPQ Factors and Trait Scales, Suicide, and PCL–R Scores (N = 209)

MPQ factor or scale	Suicide	PCL–R score		
		F2 ^a	F1 ^a	TOT
PEM	-.07	-.21	.24	.03
Well-Being	-.25	-.19	.12	-.06
Social Potency	-.03	-.07	.30	.20
Social Closeness	-.18	-.11	-.06	-.16
Achievement	.11	-.28	.23	-.04
NEM	.28	.30	-.07	.22
Stress Reaction	.34	.33	-.24	.11
Alienation	.13	.21	-.04	.14
Aggression	.20	.37	-.02	.33
CON	-.19	-.26	.00	-.24
Control	-.24	-.29	.10	-.16
Harm Avoidance	-.22	-.13	-.04	-.19
Traditionalism	-.04	-.06	-.07	-.13
Absorption	.14	.02	.07	.08

Note. Coefficients in boldface are significant at $p \leq .017$ for MPQ factors (PEM, NEM, and CON) and at $p \leq .005$ for MPQ trait scales; italicized values in PEM, NEM, and CON rows are for MPQ higher order factors. Suicide variable reflects interview report or file history evidence of past suicide attempts. MPQ = Multidimensional Personality Questionnaire (Tellegen, 1982); PCL–R = Psychopathy Checklist–Revised (Hare, 1991); F2 = Factor 2; F1 = Factor 1; TOT = Total PCL–R score. PEM = Positive Emotionality; NEM = Negative Emotionality; CON = Constraint.

^aCoefficients for each of the PCL–R factors (F1 and F2) are partial correlations, controlling for the influence of the other factor. Coefficients for suicide and PCL–R TOT are zero-order correlations.

sistent with this idea. To test this hypothesis directly, a hierarchical logistic regression analysis was performed, in which suicide history was the criterion variable. As reported earlier, F2 predicted suicide when entered alone at the first step ($\beta = .75, p \leq .01$, odds ratio = 2.12). When NEM and CON were entered as predictors in the second step, both were found to contribute independently to prediction (β s = 1.11 and $-.72, p$ s < .001 and .02, odds ratios = 3.02 and .49, respectively). In this full model, the contribution of F2 to the prediction of suicide was eliminated ($\beta = .01, p = .99$, odds ratio = 1.01). Thus, NEM and CON completely accounted for the relationship between the antisocial deviance component of the PCL–R and suicidal behavior.

We also examined which specific facets of NEM and CON played a role in accounting for the link between PCL–R F2 and suicide by testing the difference in the F2–suicide relationship before and after controlling for each constituent MPQ trait scale (cf. Cohen & Cohen, 1983, pp. 479–480). Significant reductions ($p \leq .05$) in the correlation between F2 and suicide were observed

³ Recently, Cooke and Michie (2001) proposed on the basis of item-response theory (IRT) analyses of the PCL–R that F1 comprises two distinct subdimensions: “arrogant and deceitful personality style” (ADI, marked by PCL–R Items 1, 2, 4, and 5), and “deficient affective experience” (DAE, marked by Items 6, 7, 8, and 16). When scores for these two variables were included with PCL–R F2 in a logistic regression analysis predicting the suicide variable, results were as follows: F2, $\beta = .76, p \leq .01$, odds ratio = 2.14; ADI, $\beta = .06, p = .81$, odds ratio = 1.07; DAE, $\beta = -.32, p = .24$, odds ratio = .73.

after controlling for the Stress Reaction and Aggression facets of NEM, and the Harm Avoidance and Control scales of CON. An effect of this kind was also found for the Well-Being facet of PEM.

Discussion

Our study is the first to empirically examine relationships between psychopathy and its facets as defined by the PCL-R and suicidal behavior. Findings confirmed the previously reported relationship between antisocial deviance and suicidality within an incarcerated adult male offender sample. APD and PCL-R F2, which were substantially interrelated, were both found to be associated with suicide history. In previous research, relationships have been demonstrated between PCL-R F2 and indices of reactive violence and substance abuse (cf. Verona & Patrick, 2000). Our results indicate that suicidal behavior is yet another phenomenon that is tied to the impulsive, aggressive tendencies of the high antisocial individual. On the other hand, suicidal history was generally unrelated to PCL-R F1, the factor that reflects the core affective-interpersonal features of psychopathy emphasized by Cleckley.

Consistent with predictions derived from prior research, PCL-R F2 and suicidal behavior showed parallel relationships with temperament traits. In this male prisoner sample, temperament dimensions related to negative emotionality and impulsivity/low constraint were correlated with PCL-R F2 and the suicide variable. In line with a priori prediction, these temperament dispositions were found to account for the relationship between the antisocial deviance component of psychopathy and suicidal behavior: When we controlled for scores on the NEM and CON factors of the MPQ, the relationship between PCL-R F2 and the suicide variable was eliminated. This result provides compelling evidence that impulsive antisocial deviance and suicidal behavior in this population are affiliated expressions of a common dispositional vulnerability.

Variance unique to PCL-R F1, on the other hand, was related positively to MPQ trait scales (Social Potency, Achievement) reflecting "agentic positive emotionality" (i.e., the pursuit of satisfaction through dominance and status; Tellegen & Waller, in press), and was related negatively to MPQ Stress Reaction. Relatedly, Harpur et al. (1989) reported positive and negative relationships, respectively, between F1 of the original PCL and indices of dominance and trait anxiety, and Widiger and Lynam (1998) characterized PCL-R F1 as relating uniquely to traits of high Extraversion and low Neuroticism. Elsewhere, F1 of the PCL-R has been shown to predict diminished fear reactivity in laboratory studies of emotion (Patrick et al., 1993; Patrick, 1994). These data converge on the notion that this component of the PCL-R reflects agency and diminished defensive reactivity.

Strengths and Limitations of the Current Study

Before discussing the broader implications of these findings, it is important for us to acknowledge strengths and weaknesses of our investigation. With regard to strengths, this study is the first to empirically examine the relationship between PCL-R-defined psychopathy and suicide and is one of only a few studies to have investigated relationships between antisocial deviance and suicidal behaviors within a forensic sample. The use of an incarcerated sample was important in terms of these aims because it allowed for

overrepresentation of extreme antisocial and psychopathic individuals. Diagnostic assessments were performed using well-established clinical diagnostic criteria—Hare's PCL-R and DSM criteria for APD; in both cases, interrater reliability was very high.

The principal weakness of the current study is the crude, binary index of suicidal behavior that was utilized. The measure was based largely on self-report and included no information about frequency (e.g., number of prior attempts) or severity (e.g., potential lethality) of past suicidal behavior. Despite these limitations, however, there was clear evidence for the validity of the suicide index. It was correlated in predicted ways with diagnostic indices of antisociality (including PCL-R F2 scores and APD diagnoses and symptom counts), with relevant dimensions of the MPQ, and also with a specific well-established index of clinical depression (i.e., BDI). Nevertheless, the limitation of this measure needs to be borne in mind as implications of the present study are discussed and directions for future research are considered.

A further limitation of the current study is its cross-sectional nature. To conclusively establish the role of NEM and CON as trait vulnerability factors that dispose toward the development of antisocial deviance and suicidal behavior, prospective longitudinal research is needed. Prior work (Krueger, 1999) has demonstrated that these MPQ trait dimensions prospectively predict the occurrence of antisocial behavior, but parallel research is needed to establish the ability of NEM and CON to predict the occurrence of future suicidal behavior. Nevertheless, the current investigation represents an important advance in that it helps to clarify the nature of the relationship between psychopathy and suicide and points to temperament as potentially accounting for this relationship.

Implications and Future Directions

Psychopathy and suicide. In contrast to Cleckley's characterization of psychopaths as immune to suicide, high PCL-R scorers in this study did not show less evidence of suicidal behavior than low PCL-R scorers. One explanation could be the difference in the types of individuals studied, that is, incarcerated offenders versus psychiatric ward patients in Cleckley's work. In our investigation, criminal deviance formed part of the definition of psychopathy. It may be that extreme antisocial behavior, which formed the basis for the psychopathy-suicide relationship, was not characteristic of Cleckley's inpatient psychopaths. Differences in comparison groups are also important to consider. In Cleckley's population, the relative absence of suicidal behavior among psychopathic individuals was perhaps salient because other categories of inpatients were at heightened risk for this behavior. In our study, the comparison sample consisted of low PCL-R scorers without current psychopathology.

Furthermore, as noted earlier, the definition of suicidal behavior in this study did not differentiate between suicide attempts of different types. In an examination of the relationship between psychopathy and suicide, a distinction between "manipulative" and "genuine" attempts (Garvey & Spoden, 1980) may be particularly important. For example, it is conceivable that suicide attempts among PCL-R psychopaths in our study were more predominantly of the "manipulative" type. In future research of this kind, it will be valuable to collect information about the nature of specific suicidal incidents (e.g., motivating factors, method used, degree of injury sustained) that will permit such distinctions to be made.

Temperament-personality substrates. Results from this study suggest that the basis for the intersection of antisocial behavior and suicide risk may lie in a common temperamental vulnerability that places individuals at heightened risk for destructive and self-damaging behavior of various kinds. The combination of high NEM and low CON has previously been discussed as a diathesis for externalizing psychopathology and for suicidal behavior, especially of the impulsive type (Verona & Patrick, 2000). The data of our study indicate that the antisocial deviance factor of the PCL-R (F2) is closely linked to these same temperament dimensions. Although clearly distinct from the construct of psychopathy described by Cleckley, this component of the PCL-R is closely linked to the *DSM* construct of APD, and it appears to be uniquely predictive of aggression/violence (especially impulsive/angry aggression; Patrick et al., 1997; Patrick & Zempolich, 1998), alcohol/drug abuse (Patrick & Iacono, 2000; Smith & Newman, 1990), and, as present results indicate, suicidal behavior.

This pattern of findings points to the possibility of a link between PCL-R F2 and a latent psychopathology dimension identified via structural analysis of the covariance among common mental disorders within *DSM*. Krueger (1999), using data from the National Comorbidity Survey (Kessler et al., 1994), reported evidence for a broad "externalizing" factor encompassing APD along with alcohol and drug dependence and an "internalizing" dimension encompassing mood and anxiety disorders (see also Krueger et al., 1998). The implication is that comorbidity among diagnostic syndromes reflects meaningful (nonrandom) covariance, with multidisorder cases representing extremes along one or another latent vulnerability continuum. In future work, it will be interesting to determine whether PCL-R F2 is related to syndromes such as APD and substance abuse, and perhaps other problem behaviors such as reactive aggression and impulsive suicide, by virtue of its connection to this latent externalizing dimension. Also of interest will be whether the externalizing dimension is systematically related to NEM and CON temperament dimensions.

A further and somewhat related point is that heterogeneity in personality and behavior exists among suicidal individuals (Engstroem et al., 1996), and suicidality is not linked solely to antisocial deviance. At least two suicidal subtypes have been reliably identified in past research: a depressed/withdrawn subtype, and an irritable/aggressive subtype (Apter et al., 1991, 1995; Bagley, Jacobson, & Rehim, 1976; Biro, 1987). Prior research indicates that high rates of violent and antisocial behavior are characteristic of the latter subtype rather than depressive symptomatology (e.g., Apter, Bleich, Plutchik, & Mendelsohn, 1988; Apter et al., 1991, 1995). Additionally, research findings indicate that the reactive/antisocial subtype is characterized by reduced serotonergic functioning, a neurobiological correlate of disinhibited behavior (for a review, see Verona & Patrick, 2000). The direct examination of relationships between this neurobiological marker, the temperament dimensions of NEM and CON, and risk for reactive violence and suicide presents an exciting challenge for future research. In addition, the identification of a low serotonin risk for suicidal and externalizing behaviors provides some promise as to biological treatments for these syndromes (Verkes et al., 1998).

With regard to the aforementioned subtypes, an important issue concerns differences in the nature of suicidal acts performed by antisocial individuals as compared to clinically depressed individuals. In particular, the suicidal behavior of antisocial types would

be predicted to entail greater impulsivity and more hostile negative affect (anger, rage). Indeed, prior research provides some support for the notion that suicidal behavior among antisocial individuals represents an alternative, self-directed manifestation of reactive aggression (Apter et al., 1995; Lester, 1987; Weissman, Fox, & Klerman, 1973). Our study was not equipped to address this issue, but future studies could provide valuable insights in this regard by collecting information about the mood state of individuals at the time of suicide attempts and the method and degree of planning characteristic of these attempts.

Although our study focused on incarcerated criminal offenders, it is important to note that the existence of the externalizing suicidal type is most certainly not limited to criminal or antisocial populations. There also exist chronically hostile and impulsive individuals in the general population who possess the temperament disposition (high NEM, low CON) of the antisocial personality but who do not commit (or at least are not apprehended for) criminal offenses. Such persons are likely to be at heightened risk for hostile and aggressive behavior toward self or others, particularly under conditions of accumulating stress (Verona, Patrick, & Lang, 2001). Rage-related murder-suicide acts may represent an extreme manifestation of these tendencies.

In conclusion, the analysis of the temperament-trait substrates of antisocial behavior represents a promising area of study that stands to advance our understanding of vulnerabilities underlying suicidal and aggressive behavior and, more generally, of externalizing psychopathology. Discoveries and relevant distinctions arising from this work are likely to be of value in developing interventions that will help to prevent vulnerable individuals from engaging in acts of irreparable harm to themselves and others.

References

- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Apter, A., Bleich, A., Plutchik, R., & Mendelsohn, S. (1988). Suicidal behavior, depression, and conduct disorder in hospitalized adolescents. *Journal of The American Academy of Child and Adolescent Psychiatry*, 27, 696-699.
- Apter, A., Gothelf, D., Orbach, I., Weizman, R., Ratzoni, G., Har-even, D., & Tyano, S. (1995). Correlation of suicidal and violent behavior in different diagnostic categories in hospitalized adolescent patients. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34, 912-918.
- Apter, A., Kotler, M., Sevy, S., Plutchik, R., Brown, S., Foster, H., Hillbrand, M., Korn, M. L., & van Praag, H. M. (1991). Correlates of risk of suicide in violent and nonviolent psychiatric patients. *American Journal of Psychiatry*, 148, 883-887.
- Apter, A., Plutchik, R., & van Praag, H. M. (1993). Anxiety, impulsivity, and depressed mood in relation to suicidal and violent behavior. *Acta Psychiatrica Scandinavica*, 87, 1-5.
- Bagley, C., Jacobson, S., & Rehin, A. (1976). Ecological variation of three types of suicide. *Psychological Medicine*, 6, 423-427.
- Banki, C. M., & Arato, M. (1983). Amine metabolites, neuroendocrine findings, and personality dimensions as correlates of suicidal behavior. *Psychiatry Research*, 10, 253-261.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford Press.
- Biro, M. (1987). Factor analytic study of suicidal behavior. *Crisis*, 8, 62-68.

- Black, D. W. (1998). Iowa record-linkage study: Death rates in psychiatric patients. *Journal of Affective Disorders, 50*, 277–282.
- Black, D. W., & Braun, D. (1998). Antisocial patients: A comparison of those with and without childhood conduct disorder. *Annals of Clinical Psychiatry, 10*, 53–57.
- Bland, R. C., Newman, S. C., Thompson, A. H., & Dyck, R. J. (1998). Psychiatric disorders in the population and in prisoners. *International Journal of Law and Psychiatry, 21*, 273–279.
- Brent, D. A., Perper, J. A., Goldstein, C. E., Kolko, D. J., Allan, M. J., Allman, C. J., & Zelenak, J. P. (1988). Risk factors for adolescent suicide: A comparison of adolescent suicide victims with suicidal inpatients. *Archives of General Psychiatry, 45*, 581–588.
- Bukstein, O. G., Brent, D. A., Perper, J. A., Moritz, G., Baugher, M., Schweers, J., Roth, C., & Balach, L. (1993). Risk factors for completed suicide among adolescents with a lifetime history of substance abuse: A case-control study. *Acta Psychiatrica Scandinavica, 88*, 403–408.
- Buss, A. H., & Plomin, R. (1975). *A temperament theory of personality development*. New York: Wiley.
- Buss, A. H., & Plomin, R. (1984). *Temperament: Early developing personality traits*. Hillsdale, NJ: Erlbaum.
- Church, A. T. (1994). Relating the Tellegen and the five-factor models of personality structure. *Journal of Personality and Social Psychology, 67*, 898–909.
- Clark, L. A., & Watson, D. (1999). Temperament: A new paradigm for trait psychology. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 399–423). New York: Guilford Press.
- Cleckley, H. (1976). *The mask of sanity* (5th ed.). St. Louis, MO: CV Mosby.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment, 31*, 171–188.
- Cross, C. K., & Hirschfeld, R. M. A. (1986). Psychosocial factors and suicidal behavior: Life events, early loss, and personality. In J. J. Mann & M. Stanley (Eds.), *Annals of the New York Academy of Sciences: Vol. 487. Psychobiology of suicidal behavior* (pp. 47–62). New York: New York Academy of Sciences.
- Engstroem, G., Alsen, M., Gustavsson, P., & Schalling, D. (1996). Classification of suicide attempters by cluster analysis: A study of the temperamental heterogeneity in suicidal patients. *Personality and Individual Differences, 21*, 687–695.
- Eysenck, H. J., & Eysenck, S. B. G. (1987). *Manual for the Eysenck Personality Questionnaire*. London: Hodder & Stoughton.
- Frances, A. J., Fyer, M. R., & Clarkin, J. (1986). Personality and suicide. In J. J. Mann & M. Stanley (Eds.), *Annals of the New York Academy of Sciences: Vol. 487. Psychobiology of suicidal behavior* (pp. 281–293). New York: New York Academy of Sciences.
- Garvey, M. J., & Spoden, F. (1980). Suicide attempts in antisocial personality disorder. *Comprehensive Psychiatry, 21*, 146–149.
- Hare, R. D. (1991). *The Hare Psychopathy Checklist—Revised*. Toronto: Multi-Health Systems.
- Hare, R. D., Harpur, T. J., Hakstian, A. R., Forth, A. E., Hart, S. D., & Newman, J. P. (1990). The Revised Psychopathy Checklist: Reliability and factor structure. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2*, 338–341.
- Hare, R. D., Hart, S. D., & Harpur, T. J. (1991). Psychopathy and the proposed DSM-IV criteria for antisocial personality disorder. *Journal of Abnormal Psychology, 100*, 391–398.
- Harpur, T. J., Hare, R. D., & Hakstian, A. R. (1989). Two-factor conceptualization of psychopathy: Construct validity and assessment implications. *Psychological Assessment, 1*, 6–17.
- Harpur, T. J., Hart, S. D., & Hare, R. D. (1994). Personality of the psychopath. In P. T. Costa Jr. & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (pp. 149–173). Washington, DC: American Psychological Association.
- Hart, S. D., & Hare, R. D. (1994). Psychopathy and the Big 5: Correlations between observers' ratings of normal and pathological personality. *Journal of Personality Disorders, 8*, 32–40.
- Haycock, J. (1991). Crimes and misdemeanors: A review of recent research on suicides in prisons. *Omega, 23*, 81–94.
- Ivanoff, A. (1992). Background risk factors associated with parasuicide among male prison inmates. *Criminal Justice and Behavior, 19*, 426–436.
- Ivanoff, A., & Jang, S. J. (1991). The role of hopelessness and social desirability in predicting suicidal behavior: A study of prison inmates. *Journal of Consulting and Clinical Psychology, 59*, 394–399.
- Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., Wittchen, H. U., & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Archives of General Psychiatry, 51*, 8–19.
- Krueger, R. F. (1999). The structure of common mental disorders. *Archives of General Psychiatry, 56*, 921–926.
- Krueger, R. F., Caspi, A., Moffitt, T. E., & Silva, P. A. (1998). The structure and stability of common mental disorders (DSM-III-R). A longitudinal-epidemiological study. *Journal of Abnormal Psychology, 107*, 216–227.
- Krueger, R. F., Schmutte, P. S., Caspi, A., Moffitt, T. E., Campbell, K., & Silva, P. A. (1994). Personality traits linked to crime among men and women: Evidence from a birth cohort. *Journal of Abnormal Psychology, 103*, 328–338.
- Lester, D. (1987). Suicide and homicide: Are they polar opposites? *Behavioral Sciences and the Law, 5*, 49–60.
- Lester, D. (1998). Adolescent suicide risk today: A paradox. *Journal of Adolescence, 21*, 499–503.
- Lolas, F., Gomez, A., & Suarez, L. (1991). EPQ-R and suicide attempt: The relevance of psychoticism. *Personality and Individual Differences, 12*, 899–902.
- Lynam, D. R. (in press). Psychopathy from the perspective of the five-factor model of personality. In P. T. Costa & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed.). Washington, DC: American Psychological Association.
- Maddocks, P. D. (1970). A five year follow-up of untreated psychopaths. *British Journal of Psychiatry, 116*, 511–515.
- Marcus, P., & Alcabes, P. (1993). Characteristics of suicides by inmates in an urban jail. *Hospital and Community Psychiatry, 44*, 256–261.
- Marttunen, M. J., Aro, H. M., Henriksson, M. M., & Lonnqvist, J. K. (1994). Antisocial behavior in adolescent suicide. *Acta Psychiatrica Scandinavica, 89*, 167–173.
- McKee, G. R. (1998). Lethal vs. nonlethal suicide attempts in jail. *Psychological Reports, 82*, 611–614.
- Mosciki, E. (1995). Epidemiology of suicidal behavior. *Suicide and Life-Threatening Behavior, 25*, 22–35.
- National Center for Health Statistics. (1994). Advance report of final mortality statistics, 1991. *Monthly Vital Statistics Report, Vol. 42 (Suppl.)*. Hattysville, MS: Public Health Service.
- Nordstrom, P., Schalling, D., & Asberg, M. (1995). Temperamental vulnerability in attempted suicide. *Acta Psychiatrica Scandinavica, 92*, 155–160.
- Patrick, C. J. (1994). Emotion and psychopathy: Startling new insights. *Psychophysiology, 31*, 319–330.
- Patrick, C. J. (1995, Fall). Emotion and temperament in psychopathy. *Clinical Science*, pp. 5–8.
- Patrick, C. J., Bradley, M. M., & Lang, P. J. (1993). Emotion in the criminal psychopath: Startle reflex modulation. *Journal of Abnormal Psychology, 102*, 82–92.
- Patrick, C. J., & Iacono, W. G. (2000). *Alcohol use disorders and antisocial*

- cial personality disorder (APD): Does comorbidity simply reflect excessive alcohol use as a symptom of APD? Paper presented at the 12th Annual Convention of the American Psychological Society, Miami Beach, FL.
- Patrick, C. J., & Lang, A. R. (1999). Psychopathic traits and intoxicated states: Affective concomitants and conceptual links. In M. Dawson & A. Schell (Eds.), *Startle modification: Implications for clinical science, cognitive science, and neuroscience* (pp. 209–230). New York: Cambridge University Press.
- Patrick, C. J., & Zempolich, K. A. (1998). Emotion and aggression in the psychopathic personality. *Aggression and Violent Behavior, 3*, 303–338.
- Patrick, C. J., Zempolich, K. A., & Levenston, G. K. (1997). Emotionality and violent behavior in psychopaths: A biosocial analysis. In A. Raine, D. Farrington, P. Brennan, & S. A. Mednick (Eds.), *The biosocial bases of violence* (pp. 145–161). New York: Plenum.
- Pfeffer, C. R., Normandin, L., & Kakuma, T. (1994). Suicidal children grow up: Suicidal behavior and psychiatric disorders among relatives. *Journal of the American Academy of Child and Adolescent Psychiatry, 33*, 1087–1097.
- Robins, L. N. (1966). *Deviant children grown up*. Baltimore: Williams & Wilkins.
- Sher, K. J., & Trull, T. J. (1994). Personality and disinhibitory psychopathology: Alcoholism and antisocial personality disorder. *Journal of Abnormal Psychology, 103*, 92–102.
- Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlation: Uses in assessing rater reliability. *Psychological Bulletin, 86*, 420–428.
- Smith, S. S., & Newman, J. P. (1990). Alcohol and drug abuse-dependence disorders in psychopathic and nonpsychopathic criminal offenders. *Journal of Abnormal Psychology, 99*, 430–439.
- Tellegen, A. (1982). *Brief manual for the Multidimensional Personality Questionnaire*. Unpublished manuscript, University of Minnesota.
- Tellegen, A. (1985). Structures of mood and personality and their relevance to assessing anxiety, with an emphasis on self-report. In A. H. Tuma & J. D. Maser (Eds.), *Anxiety and the anxiety disorders* (pp. 681–706). Hillsdale, NJ: Erlbaum.
- Tellegen, A., & Waller, N. G. (in press). Exploring personality through test construction: Development of the Multidimensional Personality Questionnaire. In S. R. Briggs & J. M. Cheek (Eds.), *Personality measures: Development and evaluation*. Greenwich, CT: JAI Press.
- Verkes, R. J., Van der Mast, R. C., Hengeveld, M. W., Tuyl, J. P., Zwinderman, A. H., & Van Kempen, G. M. J. (1998). Reduction by paroxetine of suicidal behavior in patients with repeated suicide attempts but not major depression. *American Journal of Psychiatry, 155*, 543–547.
- Verona, E., & Carbonell, J. C. (2000). Female violence and personality: Evidence for a pattern of overcontrolled hostility among one-time violent female offenders. *Criminal Justice and Behavior, 27*, 176–195.
- Verona, E., & Patrick, C. J. (2000). Suicide risk in externalizing syndromes: Temperamental and neurobiological underpinnings. In T. E. Joiner & D. Rudd (Eds.), *Suicide science: Expanding the boundaries*. Boston: Kluwer Academic Publishers.
- Verona, E., Patrick, C. J., & Lang, A. R. (2001). *A direct assessment of the role of state and trait negative emotion in aggressive behavior*. Manuscript submitted for publication.
- Virkkunen, M. (1979). Alcoholism and antisocial personality. *Acta Psychiatrica Scandinavica, 59*, 493–501.
- Watson, D., Clark, L. A., & Harkness, A. R. (1994). Structures of personality and their relevance to psychopathology. *Journal of Abnormal Psychology, 103*, 18–31.
- Weissman, M., Fox, K., & Klerman, G. L. (1973). Hostility and depression associated with suicide attempts. *American Journal of Psychiatry, 130*, 450–455.
- Widiger, T. A., Cadoret, R., Hare, R., Robins, L., Rutherford, M., Zanarini, M., Alterman, A., Apple, M., Corbitt, E., Forth, A. E., Hart, S. D., Kultermann, J., Woody, G., & Frances, A. (1996). *DSM-IV antisocial personality disorder field trial*. *Journal of Abnormal Psychology, 105*, 3–16.
- Widiger, T. A., & Lynam, D. R. (1998). Psychopathy and the five-factor model of personality. In T. Millon, E. Simonsen, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behavior* (pp. 171–187). New York: Guilford Press.
- Widom, C. S. (1978). A methodology for studying non-institutionalized psychopaths. In R. D. Hare & D. Schalling (Eds.), *Psychopathic behavior: Approaches to research* (pp. 71–84). Chichester, England: Wiley.
- Woodruff, R. A., Clayton, P. J., & Guze, S. B. (1972). Suicide attempts and psychiatric diagnosis. *Diseases of the Nervous System, 33*, 617–621.

Received August 21, 2000

Revision received March 1, 2001

Accepted March 5, 2001 ■