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# The MMPI–2 Antisocial Practices Content Scale: Construct Validity and Comparison With the Psychopathic Deviate Scale

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Little is known regarding the construct validity of the Minnesota Multiphasic Personality Inventory—2 Antisocial Practices (ASP) content scale or its differences from the Psychopathic Deviate (*Pd*) scale. In 3 studies with undergraduates (*Ns* = 95, 110, and 100), the ASP scale exhibited convergent and discriminant validity with self-report, interview, family history, and observer measures of psychopathy, personality disorders, and personality traits. The ASP and *Pd* scales had many similar correlates, but the ASP scale correlated more positively with measures of Machiavellianism and more negatively with interviewer-rated honesty than the *Pd* scale. The ASP scale demonstrated incremental validity over and above the *Pd* scale for global indexes of psychopathy and antisocial behavior. Neither scale related highly to the absence of stress and interpersonal anxiety characteristic of psychopathy. The ASP and *Pd* scales, although overlapping in content, appear to measure somewhat different facets of the psychopathy construct.



The assessment of psychopathy and its accompanying antisocial behaviors has been fraught with controversy (Hare, Hart, & Harpur, 1991; Lilienfeld, 1994). The correlations among most self-report measures of psychopathy tend to be relatively low (Hare, 1985; Hundleby & Ross, 1977; Widom & Newman, 1985), which suggests that they assess only partly overlapping aspects of the same construct. In addition, most self-report indices of psychopathy appear to measure primarily the antisocial and criminal behaviors characteristic of the diagnosis of antisocial personality disorder (ASPD) found in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–IV*; American Psychiatric Association, 1994), rather than the personality traits (e.g., guiltlessness, superficial charm, lack of anxiety, dishonesty, manipulativeness) traditionally deemed central to psychopathy (Harpur, Hare, & Hakstian, 1989).

Of all the self-report indices of psychopathy, none has been the focus of more research than the Minnesota Multiphasic Personality Inventory (MMPI) Psychopathic Deviate (*Pd*) scale. The *Pd* scale was developed by contrasting the responses of hospitalized individuals with "psychopathic personality, asocial and amoral type" (McKinley & Hathaway, 1944, p. 167) with those of normal nonpatients. Although many researchers have used the *Pd* scale as an indicator of psychopathy, the results of several studies call its construct validity into question. Lykken (1957) reported that the *Pd* scale does not distinguish criminals with high scores on the Cleckley (1941/1982) criteria for psychopathy from other criminals. Similarly, Hare and Cox (1978) found that the correlation between the *Pd* scale and clinician ratings of Cleckley psychopathy was only .13. Hawk and Peterson (1974) reported that the *Pd* scale correlates neglibly with ratings derived from Kohlberg's (1981) scheme of moral development. These findings all suggest that the *Pd* scale assesses a generalized propensity toward antisocial behavior, rather than psychopathic personality traits per se.

Harpur et al. (1989) reported that the correlations between the *Pd* scale and Factor I of the Psychopathy Checklist (PCL) (Hare, 1990) ranged from .05 to .11 in two samples of male prison inmates. Because PCL Factor I appears to assess most of the core personality features of psychopathy, these results, like those cited above, suggest that the *Pd* scale does not map closely onto traditional trait-based conceptions of psychopathy. Harpur et al. also found that the *Pd* scale correlated moderately with the diagnosis of ASPD found in the revised third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–III–R*; American Psychiatric Association, 1987), which indicates that this scale is in part a measure of chronic antisocial behavior.

Partly in response to the perceived shortcomings of the *Pd* scale, a number of researchers have developed alternative self-report measures of psychopathy. Recently, a new content scale of the MMPI–2, the Antisocial Practices (ASP) scale (Butcher, Graham, Williams, & Ben-Porath, 1990), was constructed to assess the antisocial behaviors often associated with psychopathy. The MMPI–2 content scales, including the ASP scale, were designed to provide more homogeneous measures of psychopathology compared with the standard MMPI clinical scales. In addition, they were intended to "facilitate psychometrically reliable communication between the test taker and interpreter" (Ben-Porath, McCully, & Almagor, 1993, p. 560) in that they generally possess higher face validity than the clinical scales. Al-

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though this increased face validity does not ensure increased empirical validity, it guarantees that the interpretation of these scales will be tied fairly closely to the content of the respondent's answers.

Butcher et al. (1990) rationally constructed the ASP scale by selecting a composite of MMPI items assessing "antisocial ideas and practices" and removing items having low correlations with this composite. The scale was further purified by deleting one item having low face validity and two items having higher correlations with other MMPI–2 content scales than with the provisional ASP scale (Butcher et al., 1990). Butcher et al. (1990) reported that the correlations between the *Pd* scale and the ASP scale were moderate ($r$ = .37 in both men and women). Because the ASP and *Pd* scales share only three items, the correlation between them is attributable only minimally to item overlap. In addition, Butcher et al. found that the ASP scale exhibited several meaningful behavioral correlates derived from spouse ratings. For example, among men the ASP scale correlated positively and significantly with reports of illegal drug use, legal problems, and profanity. Among women the ASP scale correlated positively and significantly with reports of physical threats and dishonesty.

Apart from these findings, however, little is known regarding the ASP scale's construct validity. For example, there are few data concerning its relation to either personality traits or psychopathological syndromes relevant to psychopathy, such as ASPD. Moreover, because the ASP and *Pd* scales contain considerable amounts of nonshared variance, it becomes important to determine what, if any, differential correlates are possessed by each scale. Finally, the incremental validity of the ASP scale over and above the *Pd* scale for criteria relevant to psychopathy and antisocial behavior has not been examined.

In light of the preceding considerations, in the current project I addressed three major issues. To ascertain the replicability of the findings, I examined these issues in three samples of undergraduates. Although undergraduate samples have the potential disadvantage of lacking individuals with extremely high scores on measures of antisocial behavior, they have the advantage of being relatively free of individuals who have experienced incarceration, high rates of substance abuse and dependence, and organic brain syndromes, which may influence the assessment of psychopathic personality traits. In addition, undergraduate samples have lower rates of mood and anxiety disorders than clinical samples and are thus less susceptible to state–trait artifacts. State–trait artifacts, which refer to the tendency of transient mood changes to influence the reporting of enduring dispositions, have been found to affect scores on self-report indices of ASPD. Trull and Goodwin (1993), for example, found that scores on the ASPD scale of the Personality Diagnostic Questionnaire—Revised (PDQ–R), a self-report measure of personality disorders used in the studies reported here, decreased significantly among outpatients following treatment.

First, I examined the construct validity of the ASP scale by embedding it within a nomological network of self-report, psychiatric interview, family history, and observer rating indices. In light of the overlap between psychopathy and several Axis II conditions (Lilienfeld, 1994), I examined both the convergent and discriminant validity of the ASP scale.

Second, I compared the correlates of the ASP scale with those of the *Pd* scale to determine whether either measure is a better predictor of relevant criteria. Because many clinicians use the ASP scale in conjunction with the *Pd* scale, the extent to which either scale possesses superior validity for variables pertinent to psychopathy and antisocial behavior represents an important applied issue. With the exception of the study by Ben-Porath et al. (1993), no published reports have compared the capacity of the ASP and *Pd* scales to predict psychopathology-related variables. Moreover, because the constructs examined by Ben-Porath et al. (e.g., depression, paranoid ideation) are not directly relevant to psychopathy, their findings do not bear directly on the convergent validity of the ASP and *Pd* scales.

Third, I examined the incremental validity of the ASP scale over and above the *Pd* scale for global measures of psychopathy and antisocial behavior. In this context, Ben-Porath et al. (1993) and Butcher, Graham, and Ben-Porath (1995) argued that increased attention should be paid to the incremental validity of the MMPI–2 content scales relative to the MMPI–2 clinical scales. Although Ben-Porath, Butcher, and Graham (1991) and Ben-Porath et al. (1993) found that the MMPI–2 content scales possess incremental validity relative to the MMPI–2 clinical scales for interview and self-report criteria, the incremental validity of the ASP scale per se has yet to be examined.

## Study 1

### *Method*

#### *Participants*

Participants were 98 undergraduates drawn from introductory psychology courses at a large northeastern university who received partial course credit for participation. Three participants were excluded because of either their age or elevated scores on validity scales (see *Procedure*), which left 95 participants for the analyses reported here. Their mean age was 20.3 years ($SD$ = 3.9); 41 were men and 54 were women.[1]

#### *Measures*

In addition to the MMPI–2 ASP content scale and the *Pd* scale,[2] which were administered as isolated scales (i.e., out of context of the full MMPI–2) in Studies 1 through 3, several measures were collected.

*1. Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996).* The PPI, which consists of self-report items in a 1–4 Likert-type format, was developed to assess the personality features of psychopathy delineated by Cleckley (1941/1982), Lykken (1957), Hare (1990), and others. In addition to providing a total score, which is interpretable as a global index of psychopathy, the PPI consists of eight factor-analytically derived subscales. These subscales were developed through an iterative process of construct formulation, item writing, and factor analysis in which the results of the analyses progressively in-

[1] In all of the analyses reported in this article, I combined male and female samples in order to increase statistical power. Comparison of the male and female correlation matrices in all three studies revealed few significant differences.

[2] Ben-Porath and Butcher (1989) found that none of the MMPI *Pd* items rewritten for the MMPI–2 exhibited significant changes in mean endorsement. Thus, the present findings can be assumed to be generalizable to both the MMPI and the MMPI–2.

Table 1
*Psychopathic Personality Inventory Subscales and Description of High Scorers*

| Subscale | No. of items | Description |
|---|---|---|
| Machiavellian Egocentricity | 30 | Ruthless, manipulative, self-centered, and practical; willing to "stretch the rules" in order to get his or her way. |
| Social Potency | 24 | Charming, interpersonally relaxed and poised, and persuasive; good at influencing others. |
| Coldheartedness | 21 | Callous, free of guilt, and unsentimental; claims not to experience tender emotions (e.g., nostalgia, deep love). |
| Carefree Nonplanfulness | 20 | Impulsive, insouciant, and short-sighted; enjoys "living for the moment." |
| Fearlessness | 19 | Unafraid of physical danger and inclined to take risks; views self as a "daredevil." |
| Blame Externalization | 18 | Blames others for mistakes and misbehaviors; prone to feeling mistreated or victimized. |
| Impulsive Nonconformity | 17 | Nontraditional, rebellious, and disdainful of authority; prefers to make his or her "own rules." |
| Stress Immunity | 11 | Free from disabling tension and nervousness; able to remain calm during anxiety-provoking experiences. |



formed the other steps (see Tellegen & Waller, in press, for an overview of this test construction method). Development of the PPI included three iterations involving 1,156 undergraduates (Lilienfeld, 1990). Brief descriptions of the traits possessed by high scorers on each PPI subscale are displayed in Table 1.

The PPI also contains two validity scales. The first, the Deviant Responding (DR) scale, consists of 10 items with extremely low endorsement frequencies and is intended to assess malingering and careless or random responding. This scale was designed to be relatively independent of psychopathology in that it consists of items that, although bizarre, are not characteristic of any known form of psychological disturbance (e.g., "When I am under stress, I sometimes see large, red, rectangular shapes moving in front of my eyes"). The second, Variable Response Inconsistency (VRIN), which was modeled after Tellegen's (1978/1982) VRIN scale and the MMPI–2 VRIN scale (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989), consists of item pairs with relatively high ($r > .30$) intercorrelations. Scores on the VRIN scale are calculated by taking the absolute value of the difference between the two items within each pair and then summing across pairs. The VRIN scale is designed to detect careless or inconsistent responding (see Tellegen, 1988, and Graham, 1993). In all three studies I used high scores on the DR and VRIN scales to exclude potentially invalid protocols.

The PPI and its subscales have been reported to exhibit good internal consistencies; across several undergraduate samples, alphas for the total score have ranged from .90 to .93, and alphas for the subscales have ranged from .70 to .89 (Lilienfeld & Andrews, 1996). In addition, the PPI total score exhibits an encouraging pattern of convergent and discriminant validity with self-report, psychiatric interview, peer rating, and family history indices of personality disorders and personality traits. For example, the PPI has been reported to correlate −.59 with the California Psychological Inventory (CPI) Socialization (*So*) scale, .59 with *DSM–III–R* ASPD as assessed by structured interview, and .45 with peer-rated Cleckley psychopathy. In addition, the PPI has low correlations with measures of social desirability, depression, and schizotypy. Finally, the PPI subscales show a clear-cut pattern of convergent–discriminant relations with the lower order scales of Tellegen's (1978/1982) Multidimensional Personality Questionnaire (MPQ; Lilienfeld, 1990; Lilienfeld & Andrews, 1996).

*2. MMPI–2 ASPD scale (Morey, Waugh, & Blashfield, 1985).* This scale was developed from the MMPI item pool with the use of rational and empirical test construction strategies. The items on this scale were targeted to assess the criteria for ASPD found in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–III*; American Psychiatric Association, 1980). This scale shows a promising pattern of convergent and discriminant validity with the MMPI clinical scales (Morey et al., 1985) and discriminates patients with ASPD from those with other personality disorders (Morey, Blashfield, Webb, & Jewell, 1988). The MMPI–2 ASPD scale shares 11 items with the ASP scale and 4 items with the *Pd* scale. The scale administered here was the MMPI–2 version of the ASPD scale, which has two fewer items than the original MMPI version (see Colligan, Morey, & Offord, 1994).

*3. Psychopathy scale (Nichols, 1989).* Nichols developed the Psychopathy scale by selecting MMPI items that loaded highly on a Delinquency factor identified from factor analyses of the MMPI item pool. Items were retained if they exhibited high loadings among White men, White women, and Black men; additional MMPI items were added if they appeared to assess features of ASPD. Among psychiatric patients, the Psychopathy scale has been reported (Nichols, 1989) to correlate .60 with the MMPI *Pd* scale and .55 with both Wiggins's (1966) Authority Conflict and Manifest Hostility content scales (see Basham, 1992, for further validity data). The Psychopathy scale shares 6 items with the ASP scale and 9 items with the *Pd* scale.

*4. Personality Diagnostic Questionnaire—Revised (PDQ–R) ASPD scale (Hyler & Rieder, 1987).* This self-report measure was rationally constructed to assess the *DSM–III–R* criteria for ASPD. The PDQ–R ASPD scale has been found to exhibit moderate levels of agreement with diagnoses of ASPD as assessed by two structured interviews (kappas were .36 and .42), as well as moderate correlations with dimensional ASPD scores derived from these interviews (intraclass correlations were both .46; Hyler, Skodol, Kellman, Oldham, & Rosnick, 1990). Because the PDQ–R scales are better thought of as screening, rather than diagnostic, measures of psychopathology (Hyler, Skodol, Oldham, Kellman, & Doidge, 1992), I analyzed these scales using dimensional scores only.

*5. Michigan Alcohol Screening Test, Short Form (SMAST).* The SMAST is a questionnaire that assesses various complications resulting from alcohol abuse and dependence. It has been found to distinguish alcoholic inpatients and outpatients from nonalcoholics and to correlate moderately with other self-report indices of alcoholism (Hedlund & Vieweg, 1984). The SMAST was administered because of findings indicating substantial covariation between alcoholism and antisocial behavior (Wender & Klein, 1981).

*6. MPQ Unlikely Virtues scale.* This self-report measure of socially

desirable impression management, which was developed by Tellegen (1978/1982), is similar to the MMPI Lie scale in that it assesses trivial flaws possessed by virtually all individuals. Unlike the MMPI Lie scale, however, the Unlikely Virtues scale has an equal number of items keyed true and false and thereby minimizes the potential impact of acquiescence response bias.

*7. Structured Clinical Interview for DSM–III–R, Axis II (SCID–II; Spitzer, Williams, & Gibbon, 1987).* The SCID–II is a structured psychiatric interview for the assessment of *DSM–III–R* personality disorders. In this study, four disorders were assessed for purposes of convergent and discriminant validity: ASPD, narcissistic personality disorder (NPD), histrionic personality disorder (HPD), and borderline personality disorder (BPD). Symptoms of these disorders were coded positive if they reached the threshold level on the SCID–II.[3]

ASPD was assessed so that the covariation between the ASP and *Pd* scales with measures of chronic antisocial behavior could be examined. Although ASPD is not equivalent to psychopathy (Lilienfeld, 1994), the ASP and *Pd* scales were predicted to relate fairly highly to ASPD. The other three personality disorders were assessed because, like ASPD, they are in the dramatic–emotional–erratic cluster of Axis II and were thus predicted to be moderately correlated with the ASP and *Pd* scales.

In this study, the SCID–II sections were tape-recorded and scored by independent raters. With the exception of ASPD, for which 10 participants (8 men, 2 women) met *DSM–III–R* criteria for ASPD, the base rates of personality disorders were too low (5% or less) to render analyses at the categorical (i.e., diagnostic) level meaningful. Thus, in the analyses for ASPD both categorical and dimensional scores are reported, whereas in the analyses for the other personality disorders only dimensional scores are reported.[4] The intraclass correlations for interrater reliability with use of dimensional scores were .85 for ASPD, .52 for NPD, .77 for HPD, and .51 for BPD. Although the values for NPD and BPD are somewhat low, they are within the range of interrater reliabilities typically reported for these two disorders (Zimmerman, 1994). The kappa coefficient of interrater agreement for the ASPD diagnosis was .90.

*8. Family Informant Schedule and Criteria (FISC; Mannuzza, Fyer, Endicott, & Klein, 1985).* This structured interview is designed to assess family history of several major psychological disorders and is based largely on the Family History—Research Diagnostic Criteria (FH–RDC). The FISC differs from the FH–RDC in providing interviewers with more highly structured questions for assessing psychopathology. In this study, the sections of the FISC assessing ASPD, alcoholism, drug dependence, and depression were administered. The first three disorders were assessed in light of findings that they covary with psychopathy within individuals and within families (Wender & Klein, 1981); the depression section was administered in order to assess discriminant validity. In addition, a module developed by Lilienfeld and Blake (1988) to assess somatization disorder was administered. This module was based on the *DSM–III–R* screening criteria for somatization disorder (American Psychiatric Association, 1987, pp. 263–264) and was included in light of findings indicating that ASPD and somatization disorder covary within families (Lilienfeld, 1992). Because of the low base rate of psychiatric diagnoses among the first-degree relatives of this sample, only dimensional analyses (i.e., those using number of symptoms endorsed) are reported here. All of the analyses reported here used the number of first-degree relatives as a covariate.

*9. Interviewer ratings.* At the conclusion of the interview battery, interviewers rated participants on a set of characteristics. First, interviewers completed a 20-item measure of the Cleckley criteria for psychopathy adapted from the work of Harkness (1992). This measure had an internal consistency (Cronbach's alpha) of .79. Second, interviewers were asked to provide their clinical impressions of interviewees on six items. Specifically, they were asked to rate the extent to which they found the interviewee to be trustworthy, believable, an accurate reporter, likeable, easy to establish rapport with, and interesting. For each item, interviewers were told to consider all of the information gleaned from the interview and their observation of the interviewee's behavior and demeanor during the interview, and to rate the interviewee on each item using a 5-point scale (1 = *not true;* 5 = *extremely true*).

*10. Peer ratings.* At the conclusion of the testing session, participants were asked to nominate at least two same-sex friends or roommates who had known them well for at least a 6-month period and to provide their telephone numbers. These peers were contacted and asked to complete a questionnaire consisting of items assessing (a) the 3 higher order dimensions (Positive Affectivity, Negative Affectivity, and Constraint) and 11 lower order dimensions of Tellegen's (1978/1982) MPQ; (b) the frequency and intensity of alcohol use; and (c) the Cleckley (1941/1982) criteria for psychopathy, again adapted from the work of Harkness (1992). Peers, who were paid $2 each for their participation, completed the questionnaire at home and returned it by mail in the self-addressed stamped envelope provided.

I assessed the MPQ scales by adapting a rating measure developed by Tellegen (1978/1982) to approximate the full MPQ scales. This measure consists of 33 items, with three items for each of the 11 lower order MPQ scales. Scores on the three higher order scales are calculated by unit weighting and summing scores on the lower order scales that load most highly on each higher order dimension (see Tellegen & Waller, in press, for information on the factor structure of the MPQ). The two alcohol-use variables were each assessed by a single item. These two items were highly correlated ($r = .89$) and were combined into a single scale for analyses.

The alphas for the three MPQ higher order scales ranged from .76 to .82, whereas in all but 2 cases the alphas for the 11 lower order MPQ scales ranged from .50 to .71 (the exceptions were Wellbeing, for which alpha was .46, and Traditionalism, for which alpha was .33). The internal consistency of the Cleckley scale, as assessed by Cronbach's alpha, was .76. At least one peer rating questionnaire was obtained for 62 participants. In cases in which both peers completed the questionnaire, responses were averaged.

## Procedure

Two participants were excluded on the basis of elevated scores on the DR (21 or above) and VRIN (43 or above) validity scales, and 1 participant was excluded because she was below 18 years of age (the age cutoff for the MMPI–2). All measures were collected during individual testing sessions. Interviewers, who administered the SCID–II and the FISC, were blind to participants' scores on other measures. Interviewers and independent raters included a graduate student in clinical psychology and several advanced psychology majors who underwent a program of training in the descriptive psychopathology of *DSM–III–R* personality disorders and other conditions relevant for the present study (e.g., alcoholism, somatization disorder). All interviewers received extensive training and practice in interview administration.

# Results

## Correlation Between the ASP and Pd Scales

The ASP and *Pd* scales correlated .26 ($p < .05$). This figure is similar to, although slightly lower than, that of Butcher et al.

[3] Analyses that used responses scored at either the subthreshold or threshold levels yielded correlations similar to, but generally slightly higher than, those reported here.

[4] Analyses that used categorical (i.e., diagnostic) scores yielded, in virtually all cases, correlations similar to, but slightly lower than, those reported here.

Table 2
*Correlations Between the ASP and Pd Scales and Self-Report Measures in Study 1*

| Measure | ASP scale | *Pd* scale | *t* | *df* |
|---|---|---|---|---|
| PPI and subscales | | | | |
| Total score | .58*** | .32** | 2.53 | 92 |
| Machiavellian Egocentricity | .75*** | .25* | 5.68 | 92 |
| Social Potency | .07 | .11 | −0.29 | 92 |
| Coldheartedness | .24* | −.06 | 2.46 | 92 |
| Carefree Nonplanfulness | .25* | .21 | 0.40 | 92 |
| Fearlessness | .37*** | .22* | 1.26 | 92 |
| Blame Externalization | .47*** | .44*** | 0.26 | 92 |
| Impulsive Nonconformity | .14 | .29** | −1.28 | 92 |
| Stress Immunity | −.13 | −.20* | 0.57 | 92 |
| Other self-report measures | | | | |
| MMPI–2 ASPD scale | .80*** | .42*** | 4.77† | 92 |
| Psychopathy scale | .57*** | .53*** | 0.44 | 92 |
| PDQ–R ASPD scale | .49*** | .43*** | 0.58 | 92 |
| SMAST | .00 | .40*** | −3.32† | 84 |
| MPQ Unlikely Virtues scale | −.40*** | −.34*** | −0.54 | 92 |

*Note.* *N*s range from 87 to 95. ASP = Antisocial Practices; *Pd* = Psychopathic Deviate; PPI = Psychopathic Personality Inventory; MMPI–2 = Minnesota Multiphasic Personality Inventory—2; ASPD = antisocial personality disorder; PDQ–R = Personality Diagnostic Questionnaire—Revised; SMAST = Michigan Alcohol Screening Test, Short Form; MPQ = Multidimensional Personality Questionnaire.
* $p < .05$. ** $p < .01$. *** $p < .001$.
† Significant following Bonferroni correction.

(1990) and leaves open the possibility that one or both scales possess incremental validity over and above the other for external criteria.

### *Correlates of the ASP and Pd Scales*

The correlations between the ASP and *Pd* scales and the self-report measures are shown in Table 2. This table also displays the significance of the difference between the self-report correlates of the ASP and *Pd* scales calculated with the test of the difference between dependent correlations (Cohen & Cohen, 1983). To minimize the possibility of Type I error, I held the familywise error rate within each measure at .05 by Bonferroni-correcting each test by the total number of scales or subscales within each measure. Measures not containing scales or subscales were combined into a single class and were Bonferroni-corrected by the number of measures within each class. Thus, the revised alpha levels were .0056 (.05/9) for the PPI and its subscales, .01 (.05/5) for the other self-report measures, .017 (.05/3) for the psychiatric interview measures, .01 (.05/5) for the family history measures, .0071 (.05/7) for the interviewer ratings, .0036 (.05/14) for the MPQ peer ratings, and .025 (.05/2) for the other peer rating measures. In Studies 1 through 3, only those correlational differences between the ASP and *Pd* scales that were significant at Bonferroni-corrected alpha levels are discussed.

Both the ASP and *Pd* scales exhibited moderate to high significant correlations with both the PPI total score and PPI Blame Externalization. In addition, the ASP scale was correlated highly with PPI Machiavellian Egocentricity and was significantly more highly correlated with this subscale than was the *Pd* scale. The ASP scale, unlike the *Pd* scale, also was significantly positively correlated with PPI Coldheartedness. Both the *Pd* and ASP scales were significantly, although moderately, correlated with PPI Fearlessness. Both scales were negatively correlated with PPI Stress Immunity, the *Pd* scale significantly so.

The ASP and *Pd* scales were significantly correlated with the MMPI–2 ASPD scale, although the correlation with the ASP scale was significantly higher. In addition, both the ASP and *Pd* scales were significantly and moderately positively correlated with the PDQ–R ASPD scale. In contrast, only the *Pd* scale was correlated (positively) with the SMAST; this difference in correlations was significant. Both the ASP and *Pd* scales were significantly negatively correlated with the MPQ Unlikely Virtues scale.

The correlations between the ASP and *Pd* scales and the psychiatric interview, family history, and interviewer rating indices are displayed in Table 3. The ASP and *Pd* scales were significantly positively correlated with ASPD, whether assessed dimensionally or categorically. Although the correlations of the ASP scale with these two operationalizations of ASPD were higher than those of the *Pd* scale, these differences were not significant. For the ASP scale, the difference between participants with (12.70) and without (8.86) ASPD was significant: $t(79) = 3.08$, $p < .01$ (Cohen's $d = 1.04$). For the *Pd* scale, the difference between participants with (22.70) and without (18.99) ASPD

Table 3
*Correlations Between the ASP and Pd Scales and Psychiatric Interview, Family History, and Interviewer Rating Measures*

| Measure | ASP scale | *Pd* scale | *t* | *df* |
|---|---|---|---|---|
| Psychiatric interview (SCID–II) measures | | | | |
| ASPD (dimensional) | .43*** | .37*** | 0.43 | 78 |
| ASPD (categorical) | .33** | .24* | 0.70 | 78 |
| NPD | .31** | .17 | 1.03 | 72 |
| HPD | .10 | .23* | −0.96 | 75 |
| BPD | .13 | .48*** | −2.54 | 61 |
| Family history measures | | | | |
| Antisocial personality symptoms | .17 | .14 | 0.24 | 76 |
| Alcohol abuse symptoms | .13 | .08 | 0.38 | 76 |
| Drug abuse symptoms | .25* | .32** | −0.51 | 76 |
| Depression symptoms | .18 | .36*** | −1.34 | 76 |
| Somatization symptoms | .14 | .07 | 0.51 | 76 |
| Interviewer ratings | | | | |
| Cleckley psychopathy | .50*** | .21 | 2.22 | 63 |
| Trustworthiness | −.46*** | −.04 | −3.07† | 63 |
| Believability | −.28* | .15 | −3.01† | 63 |
| Accuracy of reporting | −.21 | .11 | −2.21 | 63 |
| Likeability | −.05 | .17 | −1.44 | 63 |
| Rapport | −.01 | .15 | −1.05 | 63 |
| Interest | .12 | .32** | −1.41 | 63 |

*Note.* *N*s = range from 64 to 79. ASP = Antisocial Practices; *Pd* = Psychopathic Deviate; SCID–II = Structured Clinical Interview—Axis II; ASPD = antisocial personality disorder; NPD = narcissistic personality disorder; HPD = histrionic personality disorder; BPD = borderline personality disorder.
* $p < .05$. ** $p < .01$. *** $p < .001$.
† Significant following Bonferroni correction.

was also significant: $t(79) = 2.16$, $p < .05$ (Cohen's $d = 0.73$). When Cohen's (1982) criteria for gauging the magnitude of effect sizes were used, the difference for the ASP scale was large, whereas the difference for the *Pd* scale was in the medium to large range.

The ASP and *Pd* scales were both weakly to moderately, although in some cases not significantly, positively correlated with NPD, HPD, and BPD. Only the ASP scale was significantly correlated with interviewer-rated Cleckley psychopathy, although the difference in correlations between the ASP and *Pd* scales for this variable was not significant. The ASP scale, unlike the *Pd* scale, was negatively and significantly correlated with interviewer-rated trustworthiness and believability. In fact, the *Pd* scale was positively, although not significantly, correlated with interviewer-rated believability. The same pattern emerged for interviewer-rated accuracy of reporting, although its correlation with the ASP scale was not significant. In the case of trustworthiness and believability, the differences between the correlations of the ASP and *Pd* scales were significant.

The correlations between the ASP and *Pd* scales and the peer rating variables are displayed in Table 4. Most of the correlations between the two MMPI–2 scales and peer-rated MPQ variables were low and nonsignificant. The only exceptions to this finding were the significant negative correlation of the ASP scale with MPQ Constraint and the significant positive correlation of the ASP scale with MPQ Aggression.[5]

### *Incremental Validity Analyses*

The next set of analyses examined the extent to which the ASP scale possessed incremental validity over and above the *Pd* scale in the prediction of scores on five global measures of psychopathy and antisocial behavior administered in this study: the PPI total score, the PDQ–R ASPD scale, interview-assessed ASPD (scored dimensionally), interviewer-rated Cleckley psychopathy, and peer-rated Cleckley psychopathy. The MMPI–2 ASPD scale and the Psychopathy scale were excluded from these analyses because of their item overlap with the ASP and *Pd* scales. For each dependent measure, hierarchical multiple regressions were performed in which the *Pd* scale was entered first, followed by the ASP scale. The results of these analyses can be seen in Table 5.

With the exception of peer-rated Cleckley psychopathy, the addition of the ASP scale following the entry of the *Pd* scale provided significant increments in the amount of variance accounted for in the dependent measures. The $R^2$ changes across the five measures ranged from .03 to .27. The addition of the *Pd* scale following the entry of the ASP scale did not yield significant increments in variance for either measure of Cleckley psychopathy, although the increments in variance for the other three dependent measures were significant. With the exception of interviewer-rated Cleckley psychopathy, the increments in variance corresponding to the entry of the *Pd* scale following the ASP scale were smaller than those corresponding to the entry of the ASP scale following the *Pd* scale, with $R^2$ changes ranging from .00 to .10.

Hierarchical logistic regression analyses were also performed in order to examine the incremental validity of the ASP and *Pd* scales for predicting diagnoses of ASPD. In the first analysis, the ASP scale was entered following the *Pd* scale. The addition of the ASP scale resulted in a significant improvement in model

Table 4
*Correlations Between the ASP and Pd Scales and Peer Rating Measures*

| Measure | ASP scale | *Pd* scale | *t* | *df* |
|---|---|---|---|---|
| MPQ scales | | | | |
| Positive Affectivity | .05 | .11 | −0.39 | 59 |
| Negative Affectivity | .21 | .15 | 0.40 | 59 |
| Constraint | −.26* | −.18 | −0.55 | 59 |
| Wellbeing | −.04 | −.05 | 0.07 | 59 |
| Social Potency | .05 | .24 | −1.24 | 59 |
| Social Closeness | −.03 | .08 | −0.68 | 59 |
| Achievement | .14 | .02 | 0.76 | 59 |
| Stress Reaction | .06 | .03 | 0.17 | 59 |
| Aggression | .37** | .12 | 1.63 | 59 |
| Alienation | .04 | .18 | −0.89 | 59 |
| Harmavoidance | −.13 | −.19 | 0.38 | 57 |
| Control vs. Impulsiveness | −.22 | −.07 | −1.04 | 59 |
| Traditionalism | −.20 | −.23 | 0.20 | 59 |
| Absorption | .05 | .10 | −0.28 | 54 |
| Other peer rating measures | | | | |
| Drinking frequency and intensity | .22 | .22 | 0.03[a] | 58 |
| Cleckley psychopathy | .21 | .23 | −0.12 | 59 |

*Note.* *N*s range from 57 to 62. ASP = Antisocial Practices; *Pd* = Psychopathic Deviate; MPQ = Multidimensional Personality Questionnaire.
[a] Because the correlations between the ASP and *Pd* scales and drinking frequency and intensity are not exactly equal (they have been rounded to .22), the *t* test of significance is slightly greater than .00.
* $p < .05$. ** $p < .01$.

Table 5
*Incremental Validity of the ASP and Pd Scales for Measures of Psychopathy and Antisocial Behavior in Study 1*

| Measure | ASP scale entered second: $R^2$ change | ASP scale entered second: *df* | *Pd* scale entered second: $R^2$ change | *Pd* scale entered second: *df* |
|---|---|---|---|---|
| PPI total score | .27*** | 2, 92 | .03* | 2, 92 |
| PDQ–R ASPD scale | .15*** | 2, 92 | .10*** | 2, 92 |
| SCID–II ASPD | .10** | 2, 78 | .06* | 2, 78 |
| Interviewer-rated Cleckley psychopathy | .03 | 2, 59 | .04 | 2, 59 |
| Peer-rated Cleckley psychopathy | .21*** | 2, 63 | .00 | 2, 63 |

*Note.* ASP = Antisocial Practices; *Pd* = Psychopathic Deviate; PPI = Psychopathic Personality Inventory; PDQ–R = Personality Diagnostic Questionnaire—Revised; ASPD = Antisocial Personality Disorder; SCID–II = Structured Clinical Interview—Axis II.
* $p < .05$. ** $p < .01$. *** $p < .001$.

[5] Because of the low reliabilities of the MPQ Wellbeing and Traditionalism scales, I recomputed the correlations between these scales and the ASP and *Pd* scales after correcting these correlations for attenuation. The disattenuated correlations were as follows: ASP scale with MPQ Wellbeing, $r = -.06$; *Pd* scale with Wellbeing, $r = -.08$; ASP scale with Traditionalism, $r = -.35$; and *Pd* scale with Traditionalism, $r = -.40$.

fit: $\chi^2(1, N = 81) = 5.99$, $p < .05$. In contrast, in the second analysis, addition of the *Pd* scale after the ASP scale did not significantly improve model fit: $\chi^2(1, N = 81) = 1.05$, *ns*. Because only 10 participants met criteria for ASPD, however, these results should be interpreted with caution.

## Study 2

Although the results of Study 1 provided preliminary support for the ASP scale's construct validity and incremental validity over and above the *Pd* scale for measures of psychopathy and antisocial behavior, it was important to replicate these findings in an independent sample. In particular, because the number of comparisons between the ASP and *Pd* scales in Study 1 was large, it was necessary to rule out the possibility that significant differences between these scales were attributable to Type I error. In addition, because few significant findings were observed for the MPQ peer-rating variables, I used a self-report version of the MPQ in Study 2 in order to determine whether these negative findings were potentially attributable to the mode of assessment. Finally, I examined the relations of the ASP and *Pd* scales to other indices of psychopathy and other personality disorders, as well as to additional indices relevant to fearlessness and freedom from anxiety.

### Method

#### Participants

Participants were 119 undergraduates drawn from introductory psychology courses at a large northeastern university who received partial course credit for their participation. Nine participants were excluded because of either their age or elevated scores on validity scales (see *Procedure*), which left a total of 110 participants. Their mean age was 18.7 years ($SD = 1.3$); 45 participants were men, 64 were women, and 4 neglected to record their gender.

#### Measures

In addition to the ASP and *Pd* scales, the PPI, the PDQ–R and *DSM–III* MMPI–2 ASPD scales, the Psychopathy scale, and the MPQ Unlikely Virtues scale, all of which were described in Study 1, participants completed the following self-report measures:

*1. Self-Report Psychopathy Scale—Reviewed (SRP–R).* This measure, which was designed to provide a self-report approximation to the PCL, was developed by Hare (1985), who used a combination of rational, empirical, and internal consistency approaches. The SRP was developed by identifying items that discriminated between high and low psychopathy groups as assessed by the PCL, and it was revised to provide superior coverage of PCL Factor I traits. The revised version of the SRP, which was used in this study, has been found to correlate .54 with the revised version of the PCL (T. Harpur, personal communication, 1989).

*2. Self-report MPQ items (Tellegen, 1978/1982).* These items were very similar to those used for peer ratings in Study 1, except that they were reworded appropriately for self-report. The internal consistencies of the higher order scales ranged from .70 to .83, while in all but two cases those of the lower order scales ranged from .51 to .81 (the exceptions were Control vs. Impulsiveness and Absorption, the alphas for which were .42 and .33, respectively).

*3. Activity Preference Questionnaire (APQ; Lykken, Tellegen, & Katzenmeyer, 1973).* The APQ is a forced-choice measure designed to assess fearfulness. Low levels of fearfulness are believed by some authors (e.g., Lykken, 1957) to be a cardinal attribute of psychopathy. Fearfulness differs from trait anxiety in that the former is a sensitivity to signals of threat, whereas the latter is the emotion resulting from the perception that threat is unavoidable (Tellegen, 1978/1982). Each APQ item consists of two choices, one of which is unpleasant because it is boring or onerous, and the other of which is unpleasant because it is frightening or embarrassing. The APQ consists of two subscales, Social Fearfulness and Physical Fearfulness, as well as a total score interpretable as a global index of fearfulness. The APQ total score has been reported to correlate negatively with psychopathy (Lilienfeld & Andrews, 1996; Lykken, 1957), although several studies cast doubt on this association (Hare & Cox, 1978). The APQ total score has been found to correlate negatively with the frequency of criminal offenses among college students and to differentiate delinquents from normal adolescents (Lykken et al., 1973).

*4. PDQ–R personality disorder scales.* In addition to the PDQ–R ASPD scale, the following five PDQ–R personality disorder scales were administered: Narcissisistic Personality Disorder, Histrionic Personality Disorder, Borderline Personality Disorder, Schizotypal Personality Disorder, and Schizoid Personality Disorder. These scales, developed by Hyler and Rieder (1987), were administered in order to replicate and extend the findings from Study 1 with measures of additional personality disorders within the dramatic–emotional–erratic cluster (i.e., NPD and BPD) and to examine the discriminant validity of the ASP and *Pd* scales from personality disorders outside of this cluster. Schizotypal and schizoid personality disorders, which are in the odd–eccentic cluster (American Psychiatric Association, 1994), served as "comparison" disorders with which the discriminant validity of the ASP and *Pd* scales could be examined. As in Study 1, only dimensional scores on the PDQ–R were used in analyses.

#### Procedure

Six participants were excluded on the basis of elevated scores on the DR (24 or above) and VRIN (47 or above) validity scales, and 3 participants were excluded because they were younger than 18. All measures were completed in large group testing sessions.

### Results

#### Correlation Between the ASP and Pd Scales

The correlation between the ASP and *Pd* scales was .42 ($p < .001$). Although it is somewhat higher than the corresponding correlation in Study 1, this value again indicates that one or both scales contain substantial amounts of unique variance.

#### Correlates of the ASP and Pd Scales

Table 6 displays the correlations between the ASP and *Pd* scales and the self-report measures in Study 2. As in Study 1, these comparisons were Bonferroni-corrected within each measure by the number of scales or subscales per measure. The revised alpha levels were .0056 (.05/9) for the PPI and its subscales, .0036 (.05/14) for the MPQ scales, .0083 (.05/6) for the PDQ–R scales, .0167 (.05/3) for the APQ and its subscales, and .0125 (.05/4) for the other self-report measures.

As in Study 1, the ASP scale was more highly correlated with the PPI total score than was the *Pd* scale, although this difference was not significant. The ASP scale was again more highly correlated with PPI Machiavellian Egocentricity than was the *Pd* scale; as in Study 1, this difference remained significant following Bonferroni correction. Both the ASP and *Pd* scales were

moderately and significantly correlated with PPI Fearlessness, Blame Externalization, and Impulsive Nonconformity. Only the *Pd* scale was significantly negatively correlated with PPI Coldheartedness and PPI Stress Immunity.

The ASP and *Pd* scales were neglibly correlated with MPQ Positive Affectivity and moderately and significantly positively correlated with MPQ Negative Affectivity. Only the *Pd* scale was significantly correlated (negatively) with MPQ Constraint. The ASP scale was more highly correlated than the *Pd* scale with MPQ Aggression; this difference was significant. The *Pd* scale, unlike the ASP scale, was significantly negatively correlated with MPQ Constraint and with MPQ Control vs. Impulsiveness and Traditionalism, two lower order markers of Constraint.[6]

The ASP and *Pd* scales were moderately to highly correlated with both ASPD measures and with indices of other personality disorders, including NPD, BPD, and schizotypal personality disorder. Both the ASP and *Pd* scales were significantly correlated with the SRP-R. Finally, the ASP and *Pd* scales were moderately and significantly (negatively) correlated with the APQ total and Physical Fearfulness scores, whereas their correlations with the APQ Social Fearfulness score were nonsignificant.

Table 6
*Correlations Between ASP and Pd Scales and Self-Report Measures in Study 2*

| Measure | ASP scale | *Pd* scale | *t* | *df* |
|---|---|---|---|---|
| PPI and subscales | | | | |
| Total score | .40*** | .26** | 1.39 | 105 |
| Machiavellian Egocentricity | .49*** | .21* | 2.98† | 105 |
| Social Potency | .06 | −.05 | 1.02 | 105 |
| Coldheartedness | .02 | −.22* | 2.36 | 105 |
| Carefree Nonplanfulness | .01 | .27** | −2.53 | 105 |
| Fearlessness | .27** | .27** | 0.03[a] | 105 |
| Blame Externalization | .34*** | .48*** | −1.58 | 105 |
| Impulsive Nonconformity | .22* | .25** | −0.27 | 105 |
| Stress Immunity | −.02 | −.25** | 2.21 | 105 |
| MPQ scales | | | | |
| Positive Affectivity | −.01 | −.17 | 1.46 | 104 |
| Negative Affectivity | .41*** | .27** | 1.47 | 104 |
| Constraint | −.15 | −.39** | 2.53 | 104 |
| Wellbeing | −.10 | −.29** | 1.95 | 104 |
| Social Potency | .10 | .06 | 0.44 | 104 |
| Social Closeness | −.07 | −.14 | 0.69 | 104 |
| Achievement | .00 | −.16 | 1.53 | 104 |
| Stress Reaction | .18 | .19 | 0.04 | 104 |
| Aggression | .50*** | .07 | 4.78† | 104 |
| Alienation | .19* | .32*** | −1.31 | 104 |
| Harmavoidance | −.29** | −.29** | 0.00 | 104 |
| Control vs. Impulsiveness | −.07 | −.34*** | 2.79 | 104 |
| Traditionalism | .04 | −.24** | 2.82 | 104 |
| Absorption | .02 | .16 | −1.33 | 104 |
| PDQ-R scales | | | | |
| ASPD | .49*** | .35*** | 1.53 | 101 |
| NPD | .24* | .23* | 0.05 | 105 |
| HPD | .19 | .24* | −0.49 | 105 |
| BPD | .36*** | .49*** | −1.49 | 105 |
| Schizotypal PD | .28** | .36*** | −0.86 | 105 |
| Schizoid PD | .27** | .15 | 1.17 | 105 |
| APQ and subscales | | | | |
| Total score | −.29** | −.27** | −0.52 | 105 |
| Physical Fearfulness | −.31** | −.27** | −0.35 | 105 |
| Social Fearfulness | −.12 | −.07 | −0.47 | 105 |
| Other self-report measures | | | | |
| MMPI-2 ASPD scale | .78*** | .63*** | 2.34 | 105 |
| Psychopathy scale | .66*** | .64*** | 0.35 | 105 |
| SRP-R | .52*** | .27** | 2.75† | 105 |
| MPQ Unlikely Virtues scale | −.28** | −.16 | −1.15 | 105 |

*Note.* *N*s range from 104 to 110. ASP = Antisocial Practices; *Pd* = Psychopathic Deviate; PPI = Psychopathic Personality Inventory; MPQ = Multidimensional Personality Questionnaire; PDQ-R = Personality Diagnostic Questionnaire—Revised; ASPD = antisocial personality disorder; NPD = narcissistic personality disorder; HPD = histrionic personality disorder; BPD = borderline personality disorder; PD = Personality Disorder; APQ = Activity Preference Questionnaire; MMPI-2 = Minnesota Multiphasic Personality Inventory—2; SRP-R = Self-Report Psychopathy Scale—Revised.
* $p < .05$. ** $p < .01$. *** $p < .001$.
† Significant following Bonferroni correction.

Table 7
*Incremental Validity of the ASP and Pd Scales With Measures of Psychopathy and Antisocial Behavior in Study 2*

| | ASP scale entered second | | *Pd* scale entered second | |
|---|---|---|---|---|
| Measure | $R^2$ change | *df* | $R^2$ change | *df* |
| PPI total score | .10*** | 2, 105 | .01 | 2, 105 |
| PDQ-R ASPD scale | .15*** | 2, 101 | .03 | 2, 101 |
| SRP-R | .20*** | 2, 105 | .00 | 2, 105 |
| APQ total score | .04* | 2, 105 | .02 | 2, 105 |

*Note.* ASP = Antisocial Practices; *Pd* = Psychopathic Deviate; PPI = Psychopathic Personality Inventory; PDQ-R = Personality Diagnostic Questionnaire—Revised; ASPD = antisocial personality disorder; SRP-R = Self-Report Psychopathy Scale—Revised; APQ = Activity Preference Questionnaire.
* $p < .05$. *** $p < .001$.

## *Incremental Validity Analyses*

As in Study 1, I examined the incremental validity of the ASP scale over and above the *Pd* scale in the prediction of global measures of psychopathy and antisocial behavior. The dependent measures selected were the PPI total score, the PDQ-R ASPD scale, the SRP-R, and the APQ total score. The results of these analyses are presented in Table 7.

For all dependent measures, the ASP scale demonstrated statistically significant incremental validity over and above the *Pd* scale, with $R^2$ changes ranging from .04 to .20. In contrast, the *Pd* scale did not demonstrate statistically significant increments in variance over and above the ASP scale, with $R^2$ changes ranging from .00 to .03.

[6] Because of the low reliabilities of the MPQ Control vs. Impulsiveness and Absorption scales, I recomputed the correlations between these scales and the ASP and *Pd* scales after correcting these correlations for attenuation. The disattenuated correlations were as follows: ASP scale with Control vs. Impulsiveness, $r = -.10$; *Pd* scale with Control vs. Impulsiveness, $r = .53$; ASP scale with Absorption, $r = .04$; and *Pd* scale with Absorption, $r = .28$.

## Study 3

I conducted the third study to replicate the findings of Studies 1 and 2 and to ascertain the relation of the ASP and *Pd* scales to additional self-report indices of psychopathy. In addition, I examined the association of the ASP and *Pd* scales with indices related to impulse control, which is often regarded as a central deficit among psychopaths (Hare, 1990).

### *Method*

#### *Participants*

Participants were 104 undergraduates drawn from introductory psychology courses at a large northeastern university and a large southeastern university; they received partial course credit for their participation. Four participants were excluded because of either their age or elevated scores on validity scales (see *Procedure*), which left a total of 100 participants. Their mean age was 18.9 years ($SD$ = 2.6); 38 participants were men, 61 were women, and 1 neglected to record his or her gender.

#### *Measures*

In addition to the ASP and *Pd* scales, the PPI, the PDQ–R and MMPI–2 ASPD scales, the Psychopathy scale, and the MPQ Unlikely Virtues scale, all of which were described earlier, the following self-report measures were administered:

*1. CPI So scale (Gough, 1960).* This measure was designed to assess the role-taking deficits characteristic of psychopathy and was constructed by contrasting the responses of delinquents and nondelinquents. The *So* scale administered in adolescence has been found to predict later delinquency (Yates, 1970) and observer ratings of irresponsibility in adulthood (Block, 1971). In addition, the *So* scale has been reported to rank order a variety of criterion groups along a hypothesized continuum of socialization (Gough, 1960). High scores on the *So* scale reflect lower propensities toward psychopathy.

*2. Levenson Psychopathy Scale.* This 13-item measure was rationally constructed by Levenson (1990) to operationalize the major Cleckley criteria for psychopathy. Levenson's Psychopathy Scale has been found to correlate positively with self-report measures of disinhibition, boredom proneness, and substance use risk and negatively with self-reported empathy (Levenson, 1990).

*3. Eysenck Impulsivity scale (Eysenck & Eysenck, 1977).* This measure was developed by selecting items with high loadings on various lower order impulsivity factors in normal male and female samples. The Eysenck Impulsivity scale has been reported to correlate positively with the Extraversion and Psychoticism scales of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1976). Although the Eysenck Impulsivity scale has been found to consist of four positively intercorrelated factors (Eysenck & Eysenck, 1977), only the total impulsivity score was used in the analyses reported here.

*4. Wender Utah Rating Scale (WURS).* This scale, developed by Ward, Wender, and Reimherr (1993), was designed to assess the extent to which respondents possessed symptoms of attention-deficit/hyperactivity disorder (ADHD) in childhood. Participants are provided with a list of symptoms characteristic of ADHD (e.g., "active, restless, always on the go") and asked to retrospectively rate how well each symptom described them as a child. In this study, the brief version of the WURS, which consists of the 25 items that best distinguished children with and without ADHD, was administered. The WURS has been found to correlate moderately with parental ratings of ADHD symptoms among adults both with and without ADHD and to predict responsivity to stimulant medication (Ward et al., 1993). The WURS was administered in view of its relevance to impulsivity and in light of findings that childhood ADHD is a risk factor for adult antisocial behavior (Lilienfeld & Waldman, 1990).

#### *Procedure*

Three participants were excluded on the basis of elevated scores on the DR (22 or above) and VRIN (48 or above) validity scales, and 1 participant was excluded because she was younger than 18. As in Study 2, all measures were completed in large group testing sessions.

### *Results*

#### *Correlation Between the ASP and Pd Scales*

The correlation between the ASP and *Pd* scales was .45 ($p < .001$).

Table 8
*Correlations Between ASP and Pd Scales and Self-Report Measures in Study 3*

| Measure | ASP scale | *Pd* scale | *t* | *df* |
|---|---|---|---|---|
| PPI and subscales | | | | |
| Total score | .51*** | .44*** | 0.76 | 97 |
| Machiavellian Egocentricity | .49*** | .35*** | 1.53 | 97 |
| Social Potency | .16 | .10 | 0.55 | 97 |
| Coldheartedness | .15 | .01 | 1.36 | 97 |
| Carefree Nonplanfulness | .26** | .42*** | −1.67 | 97 |
| Fearlessness | .33*** | .21* | 1.16 | 97 |
| Blame Externalization | .47*** | .64*** | −2.15 | 97 |
| Impulsive Nonconformity | .45*** | .41*** | 0.42 | 97 |
| Stress Immunity | .02 | −.10 | 1.22 | 97 |
| MPQ scales | | | | |
| Positive Affectivity | .00 | −.21 | 1.86 | 81 |
| Negative Affectivity | .25* | .48*** | −2.20 | 81 |
| Constraint | −.44*** | −.32** | −1.20 | 81 |
| Wellbeing | −.17 | −.34*** | 1.52 | 81 |
| Social Potency | .32** | .06 | 0.51 | 81 |
| Social Closeness | −.10 | −.09 | 0.06 | 81 |
| Achievement | −.12 | −.16 | 0.42 | 81 |
| Stress Reaction | .06 | .39*** | −3.12† | 81 |
| Aggression | .29** | .19 | 0.86 | 81 |
| Alienation | .18 | .44*** | −1.96 | 81 |
| Harmavoidance | −.42*** | −.18 | −2.22 | 81 |
| Control vs. Impulsiveness | −.29** | −.24* | −0.45 | 81 |
| Traditionalism | −.39*** | −.42*** | 0.29 | 81 |
| Absorption | .15 | .06 | 0.84 | 81 |
| Other self-report measures | | | | |
| MMPI–2 ASPD scale | .82*** | .54*** | 4.45† | 97 |
| Psychopathy scale | .63*** | .63*** | 0.01[a] | 97 |
| PDQ–R ASPD scale | .65*** | .42*** | 2.74 | 97 |
| *So* scale | −.53*** | −.84*** | 5.08† | 97 |
| Levenson Psychopathy Scale | .57*** | .41*** | 1.87 | 97 |
| Eysenck Impulsivity scale | .46*** | .40*** | 0.63 | 97 |
| WURS | .46*** | .51*** | −0.55 | 97 |
| MPQ Unlikely Virtues scale | −.20* | −.32*** | 1.07 | 97 |

*Note.* *N*s range from 84 to 100. ASP = Antisocial Practices; *Pd* = Psychopathic Deviate; PPI = Psychopathic Personality Inventory; MPQ = Multidimensional Personality Questionnaire; MMPI–2 = Minnesota Multiphasic Personality Inventory—2; ASPD = antisocial personality disorder; PDQ-R = Personality Diagnostic Questionnaire—Revised; *So* = Socialization; WURS = Wender Utah Rating Scale.

[a] Because the correlations between the ASP and *Pd* scales and the Psychopathy scale are not exactly equal (they have been rounded to .63), the *t* test of significance is slightly greater than .00.

* $p < .05$. ** $p < .01$. *** $p < .001$.

† Significant following Bonferroni correction.

### *Correlates of the ASP and Pd Scales*

The correlations between the ASP and *Pd* scales and the self-report measures in Study 3 are displayed in Table 8. Once again, the comparisons between the ASP and *Pd* scales were Bonferroni-corrected by dividing them by the number of scales or subscales within each measure. The resulting alpha levels were .0056 (.05/9) for the PPI and its subscales, .0036 (.05/14) for the MPQ scales, and .0063 (.05/8) for the other self-report measures.

The ASP and *Pd* scales were again moderately positively correlated with the PPI total score and the PPI Machiavellian Egocentricity, Fearlessness, Blame Externalization, and Impulsive Nonconformity subscales. The *Pd* scale, but not the ASP scale, was significantly positively correlated with PPI Carefree Nonplanfulness. As in Study 2, the ASP and *Pd* scales were neglibly related to MPQ Positive Affectivity and moderately positively correlated with MPQ Negative Affectivity; both scales were significantly negatively correlated with MPQ Constraint. In addition, both scales were significantly negatively correlated with MPQ Control vs. Impulsiveness and Traditionalism. The *Pd* scale, unlike the ASP scale, was significantly positively correlated with MPQ Stress Reaction; this difference in correlations was significant. Both the ASP and *Pd* scales were moderately to highly significantly correlated with the MMPI-2 ASPD scale, the Psychopathy scale, the *So* scale (negatively), the Levenson Psychopathy Scale, the WURS, and the PDQ-R ASPD scale. The differences in correlations between the ASP and *Pd* scales were significant for the MMPI ASPD scale and the *So* scale.

### *Incremental Validity Analyses*

As in Studies 1 and 2, I examined the extent to which the ASP scale provided incremental validity over and above the *Pd* scale in the prediction of measures of psychopathy and antisocial behavior. The dependent measures analyzed were the PPI total score, the PDQ-R ASPD scale, the *So* scale, and the Levenson Psychopathy Scale. The results of these analyses are presented in Table 9.

Table 9
*Incremental Validity for the ASP and Pd Scales With Measures of Psychopathy and Antisocial Behavior in Study 3*

| | ASP scale entered second | | *Pd* scale entered second | |
|---|---|---|---|---|
| Measure | $R^2$ change | *df* | $R^2$ change | *df* |
| PPI total score | .12*** | 2, 97 | .05** | 2, 97 |
| PDQ-R ASPD scale | .26*** | 2, 97 | .02 | 2, 97 |
| *So* scale | .03** | 2, 97 | .45*** | 2, 97 |
| Levenson Psychopathy Scale | .19*** | 2, 97 | .03* | 2, 97 |

*Note.* ASP = Antisocial Practices; *Pd* = Psychopathic Deviate; PPI = Psychopathic Personality Inventory; PDQ-R = Personality Diagnostic Questionnaire—Revised; ASPD = antisocial personality disorder; *So* = Socialization.
* $p < .05$. ** $p < .01$. *** $p < .001$.

The ASP scale provided statistically significant incremental validity over and above the *Pd* scale for all four measures, with $R^2$ changes ranging from .03 to .26. The *Pd* scale provided significant incremental validity over and above the ASP scale for all measures except the PDQ-R ASPD scale, with $R^2$ changes ranging from .02 to .45. With the exception of the *So* scale, the increments in variance provided by the ASP scale following the addition of the *Pd* scale exceeded the increments in variance provided by the *Pd* scale following the entry of the ASP scale.

## General Discussion

Self-report measures of psychopathy have often been criticized on the basis of their questionable construct validity (Hare, 1985). The findings reported here suggest that the ASP scale has a promising degree of validity, and they help to address more general concerns regarding the lack of validational evidence for the MMPI-2 content scales (Caldwell, 1991; Helmes & Reddon, 1993). Across all three studies, the ASP scale correlated moderately to highly with global indices of psychopathy and ASPD assessed through self-report, interview, and observer ratings, and it exhibited discriminant validity from personality disorders other than ASPD. Although Nichols (1992) suggested that the ASP scale is misnamed and might better be regarded as a measure of antisocial attitudes, these findings indicate that the ASP scale is substantially correlated with indices of antisocial behavior.

The ASP scale also was significantly correlated with measures of traits relevant to psychopathy, such as Machiavellianism, fearlessness, aggression, externalization of blame, and impulsivity, and was not significantly correlated with measures of traits that would not be expected to be highly related to psychopathy, such as Positive Affectivity and absorption. The high correlations of the ASP scale with PPI Machiavellian Egocentricity seem consistent with the finding that the ASP scale is highly correlated with the MMPI-2 Cynicism content scale (Butcher et al., 1990). Indeed, inspection of the item content of PPI Machiavellian Egocentricity (e.g., "I'm good at flattering important people when it's useful to do so") suggests that this scale assesses a cynical willingness to manipulate others.

These analyses leave largely unanswered, however, the question of whether the ASP scale is primarily a measure of the core personality features of psychopathy or of generalized social deviance. The ASP scale's significant correlations with indices of both Cleckley psychopathy and antisocial behavior suggest that it may assess both domains. Administration of the ASP scale along with the revised version of the PCL (the PCL-R; Hare, 1990), which contains factors corresponding to both the personality traits and the antisocial behaviors of psychopathy, should clarify the relation of ASP scores to these two facets of psychopathy. The PCL-R was not administered in these studies because it requires access to institutional file information and has questionable levels of validity outside of prison settings (Alterman, Cacciola, & Rutherford, 1993). The recent development of the screening version of the PCL (Hart, Cox, & Hare, 1995), which is designed for the assessment of psychopathy outside of prison settings, should facilitate research on the relations between MMPI-2 scales and psychopathy among nonclinical (e.g., student and community) samples.

The ASP scale demonstrated several differences from the *Pd* scale in its pattern of external correlates. In two of three samples, the ASP scale was significantly more highly correlated than the *Pd* scale with PPI Machiavellian Egocentricity; in the third sample, this difference, although nonsignificant, was in the same direction. In addition, the ASP scale, unlike the *Pd* scale, was significantly negatively correlated with interviewer ratings of trustworthiness and believability. Surprisingly, the correlation of the *Pd* scale with interviewer-rated believability was positive, although nonsignificant. A similar bifurcation occurred for interviewer-rated accuracy of reporting.

One interpretation of these interviewer rating findings is that the ASP scale, which may be a better measure than the *Pd* scale of certain features of psychopathy (e.g., manipulativeness, dishonesty), is associated with a less credible self-presentation. Although it might be argued that interviewers based their ratings of trustworthiness and similar traits in part on participants' responses to the ASPD interview, subsidiary analyses indicated that the pattern of correlations between the ASP and *Pd* scales, on the one hand, and interviewer ratings of these traits, on the other, remained virtually unchanged after participants' scores on the ASPD interview were statistically controlled.

The ASP scale demonstrated significant incremental validity over and above the *Pd* scale for 12 of the 13 dependent measures of psychopathy and antisocial behavior. Moreover, in 11 of 13 cases, the amount of variance accounted for by the ASP scale after the entry of the *Pd* scale exceeded the amount of variance accounted for by the *Pd* scale after the entry of the ASP scale. This result suggests that the ASP scale possesses greater incremental validity than the *Pd* scale for most of the indices of psychopathy and antisocial behavior examined in these three studies. Nevertheless, because the *Pd* scale provided substantial incremental validity over and above the ASP scale for several measures (e.g., the *So* scale), the findings reported here do not suggest that the former scale is dispensable in the assessment of psychopathy and antisocial behavior. In general, our results are consistent with those of Ben-Porath et al. (1993), who reported that both the MMPI–2 content and clinical scales possessed incremental validity over and above each other for various dimensions relevant to psychopathology but that the incremental validity of the content scales was greater.

Although the ASP scale was more highly (negatively) correlated than the *Pd* scale with the MPQ Unlikely Virtues scale in two of the three studies, these differences did not approach significance. These findings may help to allay concerns (Caldwell, 1991; Nichols, 1992) that the MMPI–2 content scales' greater face validity compared with the MMPI–2 clinical scales necessarily translates into their greater susceptibility to social desirability response sets. Moreover, the significant negative correlations of the ASP scale with the Unlikely Virtues scale may not exclusively reflect shared tendencies toward impression management. Because many social desirability measures can be regarded in part as indices of (low) negative affectivity (NA; Furnham, 1988), these correlations may indicate that the ASP scale is saturated with a general dimension of emotional maladjustment. This conjecture is consistent with the findings of Ben-Porath et al. (1993), who reported that the ASP scale was positively correlated with measures of anxiety, depression, and other indicators of NA (see Watson & Clark, 1984).

Neither the ASP scale nor the *Pd* scale appeared to assess the absence of psychological turmoil and interpersonal anxiety found in traditional descriptions of psychopathy (Cleckley, 1941/1982) and lists of commonly cited correlates of the *Pd* scale (e.g., Graham, 1993). Across all three studies, both scales were correlated negligibly or negatively with PPI Stress Immunity and negligibly or positively with MPQ Stress Reaction; in the case of *Pd* these correlations were often significant. These findings are consistent with those of studies indicating that many self-report measures of psychopathy and antisocial behavior, including the *Pd* scale, are saturated with NA (Lilienfeld, 1994). In addition, with one exception in Study 3, in which the ASP scale was significantly correlated with PPI Social Potency, both scales were essentially unrelated to Social Potency as assessed by the PPI and MPQ and to the APQ Social Fearlessness scale. These findings suggest that the classic clinical portrait of the psychopath as charming and interpersonally poised may not apply to high scorers on either the ASP or *Pd* scales.

Although the results reported here provide support for the ASP scale's construct validity, two questions concerning the replicability and generalizability of the present findings can be raised. First, to what extent are these findings attributable to context effects (i.e., the effects of extracting scales from the measures in which they are embedded)? In all three studies the ASP and *Pd* scales were administered in isolation, rather than in the context of the full MMPI–2. Preliminary evidence for context effects has been found for mean scores on several MMPI scales, including *Pd* (Bassos, Seeman, & Schumsky, 1977). Although replications of the present results with use of the full MMPI–2 are warranted, it is unlikely that context effects could account entirely for the present findings. Lilienfeld (1990), for example, administered the *Pd* scale, the ASP scale, and four other MMPI–2 content scales (Depression, Fears, Social Discomfort, and Health Concerns) out of context of the MMPI–2 and found correlations among these scales similar to those reported by Butcher et al. (1990), who administered these scales in the context of the MMPI–2. In addition, context effects tend to be small in magnitude (Council, 1993) and appear unlikely to account for many of the high correlations reported here between the ASP scale and indices of psychopathy and antisocial behavior.

Second, are the present findings relevant to clinical populations? All three studies used undergraduate samples, which are almost certainly characterized by fewer high scores on measures of antisocial behavior compared with clinical samples. Replication of these findings in prison and hospital settings will be necessary to ascertain the generalizability of these findings to more severely affected samples. Nevertheless, it should be noted that the rates of antisocial behavior in the samples examined here were high. Across the three studies, between 15% and 27.3% of participants met PDQ–R screening criteria for *DSM–III–R* conduct disorder (CD), and between 31% and 45.5% reported at least one PDQ–R symptom of *DSM–III–R* CD. In Study 1, in which structured interviews were administered, 24.2% of participants met *DSM–III–R* criteria for CD and 54.7% reported at least one *DSM–III–R* symptom of CD according to the SCID–II.

These high rates of conduct problems among undergraduates

are consistent with literature reviewed by Moffitt (1993) indicating that the number of individuals who engage in antisocial behavior increases dramatically in late adolescence. The prognosis of individuals with this "adolescence-limited" form of antisocial behavior is generally far superior to those with life-course-persistent antisocial behavior, which appears in childhood. In addition, adolescence-limited antisocial behavior, which typically arises in apparently normal individuals with no prior history of antisocial behavior, appears to differ etiologically from life-course-persistent antisocial behavior, in which psychopathic personality traits may play a larger causal role (Moffitt, 1993). Measures assessing such personality traits, including the ASP scale, may thus be useful among late-adolescent (e.g., college) samples in distinguishing between these two quite different subtypes of antisocial behavior.

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