

Psychopathy in a Noninstitutional Sample: Differences in Primary and Secondary Subtypes

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Early theoretical conceptualizations suggest psychopathy is a heterogeneous construct whereby psychopathic individuals are found in diverse populations. The current study examined male and female psychopathy subtypes in a large sample of undergraduate students ($n = 1229$). Model-based cluster analysis of the Psychopathic Personality Inventory-Short Form (PPI-SF) revealed two clusters in both male and female students. In males, the primary subtype evidenced greater psychopathic personality traits (i.e., Social Potency, Fearlessness, and Impulsive Nonconformity) and lower anxiety (i.e., higher Stress Immunity), whereas the secondary subtype displayed fewer psychopathic personality traits (i.e., Machiavellian Egocentricity and Blame Externalization) and higher anxiety (i.e., lower Stress Immunity). In females, the primary subtype exhibited higher scores across all PPI-SF subscales and lower anxiety whereas the secondary subtype reported lower PPI-SF subscale scores and higher anxiety. Across a diverse array of personality, affective, and behavioral external correlates, differences between the subtypes and with nonpsychopaths emerged. Implications for psychopathy in noninstitutional populations with respect to theory, research, and gender are discussed.

Keywords: psychopathy, noninstitutional, subtypes, affect, antisocial behavior

Since the dissemination of Cleckley's (1941) work, theory and empirical research on adult psychopathy have grown exponentially. In particular, the development of the Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003) provided a common measurement framework for researchers and clinicians to assess the disorder and examine its precursors, correlates, and outcomes. Psychopathic individuals are manipulative, callous, and engage in impulsive, reckless behaviors. At present, there is substantial evidence that psychopathy is associated with greater violence and recidivism (Douglas, Vin-

cent, & Edens, 2006), and less treatment responsiveness (Harris & Rice, 2006). However, there is variability in the strength of the association between psychopathy and recidivism (Leistico, Salekin, DeCoster, & Rogers, 2008), and in treatment responsiveness (Salekin, 2002; Skeem, Monahan, & Mulvey, 2002), suggesting that psychopathic individuals constitute a heterogeneous group whereby variants exist. It is important to note that much of the PCL-R research has been conducted in criminal and forensic populations, although Cleckley (1941) did not suggest that psychopathy was specific to offenders. Rather, psychopaths may be found in diverse settings, raising questions about whether variants found in the community are (dis)similar to those in clinical-forensic populations. The current study examined personality and emotional differences between psychopathy subtypes in a noninstitutional sample, in addition to negative outcomes that may be more closely linked to psychopathy in nonoffenders.

Primary and Secondary Psychopathy

Karpman (1941, 1948) first proposed the idea of adult psychopathy subtypes, using the terms

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primary and secondary psychopathy. Although phenotypically similar, the subtypes differed with respect to genetic constitution and motivation. Primary psychopaths possessed constitutional deficits in terms of emotion whereas secondary psychopaths displayed neurotic or anxious tendencies that reflected environmental causes. In other words, psychopathy may be the result of two distinct developmental pathways: primary psychopathy is the consequence of a genetic vulnerability to emotional deficits whereas secondary psychopathy reflects an environmental adaptation (e.g., abuse). This distinction has implications for understanding the construct of psychopathy, including etiology, prediction, and practice (e.g., decisions about institutional release). Several researchers have examined the utility of primary and secondary subtypes distinguished on the basis of anxiety. One group of studies has employed traditional cluster analytic techniques in male offenders, finding primary and secondary subtypes that appear to reflect those proposed by Karpman (1941, 1948). Primary psychopaths demonstrated higher interpersonal-affective traits, and moderate behavioral traits and anxiety, whereas secondary psychopaths exhibited moderate interpersonal-affective traits, and higher behavioral traits and anxiety (Swogger & Kosson, 2007; Vassileva, Kosson, Abramowitz, & Conrod, 2005).

Other research has used model-based cluster analysis to investigate primary and secondary subtypes among psychopathic male offenders (i.e., high PCL-R total scores). Hicks, Markon, Patrick, Krueger, and Newman (2004) identified a group of emotionally stable psychopaths who scored low on stress reaction and anxiety (primary), and a group of aggressive psychopaths who scored high on aggression and anxiety (secondary). Aggressive psychopaths engaged in more fights and were charged with their first offense at an earlier age. Similarly, Skeem, Johansson, Andershed, Kerr, and Loudon (2007) found a group of primary psychopaths who had higher interpersonal, affective, and behavioral traits and lower anxiety. In contrast, secondary psychopaths had lower interpersonal, affective, and behavioral traits and higher anxiety. Relative to primary psychopaths, secondary psychopaths reported more borderline traits, social withdrawal, and psychopathology, and exhibited a trend toward greater treatment responsiveness. Taken together, there is emerging evidence for psychopathy variants in adult male offenders, which may assist in managing individ-

uals and targeting interventions. However, an understudied area is the investigation of variants in noninstitutional populations. As noted above, Cleckley (1941) did not negate the possibility of identifying psychopathy subtypes in the community. Similarities and differences between institutional and noninstitutional populations may provide further insights into how psychopathic individuals manifest in normal settings, potential etiological factors linked to the disorder, and the specificity of negative outcomes and treatment approaches. Furthermore, investigating psychopathy in nonincarcerated individuals may provide information about "successful" psychopaths who reside in communities and manage to elude formal detection despite engaging in illegal activities.

Assessing Psychopathy in the Community

There is a growing body of research examining the assessment and utility of psychopathy in the community. Many studies have assessed such traits using the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996), a self-report measure designed to assess the personality traits of psychopathy in noninstitutional populations. In general, there is evidence that the traits can be assessed reliably and appear to tap a similar construct in noninstitutional populations. First, there is evidence of a two-factor structure whereby one factor taps the interpersonal-affective features and another factor assesses the behavioral deviance symptoms (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003). Second, these two factors demonstrate differential associations with various correlates. The interpersonal-affective dimension is negatively associated with anxiety, positively associated with fearlessness, and not significantly associated with aggression or antisocial behavior (Benning et al., 2003; Benning, Patrick, Salekin, & Leistico, 2005; Falkenbach, Poythress, Falki, & Manchak, 2007). In contrast, the behavioral dimension is positively associated with many personality disorders, substance abuse, aggression, and antisocial behavior (Benning et al., 2003; Benning, Patrick, Salekin, et al., 2005; Falkenbach et al., 2007). Finally, there is emerging evidence of psychophysiological and neurological relationships consistent with theory. Psychopathic individuals in the community exhibit deficits in fear-

potentiated startle response and skin conductance to negative stimuli (Benning, Patrick, & Iacono, 2005; Justus & Finn, 2007; Vanman, Mejia, Dawson, Schell, & Raine, 2003). Furthermore, they utilize regions involved in perception and cognition when identifying emotions whereas regions involved in emotion interpretation and response are activated in nonpsychopathic individuals (Gordon, Baird, & End, 2004).

Building on this body of research, a handful of studies have investigated primary and secondary variants of psychopathy in nonforensic populations, indicating support for this distinction in the community. However, it is important to note that the majority of investigations have used Factor 1 and Factor 2 scores of psychopathy measures as proxies for primary and secondary psychopathic features, respectively. Levenson, Kiehl, and Fitzpatrick (1995) found that anxiety was associated with secondary but not primary psychopathy. Furthermore, primary psychopathy was associated with less fearfulness and a lack of anxiety, greater disinhibition and boredom susceptibility, and greater involvement in antisocial behaviors. Similarly, somatization is negatively associated with primary psychopathy and positively associated with secondary psychopathy (Lilienfeld & Hess, 2001; Wilson, Frick, & Clements, 1999). Finally, Lilienfeld and Hess (2001) found that primary psychopathy was negatively associated with punishment sensitivity, whereas secondary psychopathy was unrelated to punishment sensitivity.

Although these studies provide preliminary evidence in support of psychopathy variants in the community, it is unclear whether there are distinct groups that are consistent with Karpman's (1941, 1948) theory. To date, only one study has examined this question. Falkenbach, Poythress, and Creevy (2008) conducted a model-based cluster analysis of Levenson et al.'s (1995) primary and secondary psychopathy scales, behavioral inhibition and activation, and anxiety in a sample of male undergraduates. Analyses revealed four clusters, two that resembled primary and secondary psychopathy. The primary group reported lower anxiety than the secondary group and the two groups differed with respect to aggression, with instrumental aggression associated with primary psychopathy. However, the primary and secondary clusters both reported moderate levels of anxiety relative to the two nonpsychopathic groups. In

addition, negative correlates beyond aggression were not examined.

The Current Study

Although previous studies provide some support for primary and secondary variants of psychopathy that are somewhat consistent with theory (e.g., Karpman, 1941, 1948) and empirical research in incarcerated samples (e.g., Hicks et al., 2004; Skeem et al., 2007), there are a number of limitations and unaddressed questions. First, the one study that examined psychopathy subtypes in a noninstitutional sample performed cluster analysis on the entire sample due to the small sample size. Given the low levels of psychopathic traits in noninstitutional populations, it is unclear whether primary and secondary variants of psychopathy *per se* were examined. Second, the majority of studies have examined a limited number of correlates. A diverse array of correlates and those that are relevant to nonincarcerated populations may provide important insights into how noninstitutional psychopathy variants are (dis)similar to institutional variants. Finally, no studies in either forensic or community samples have examined psychopathy variants in females. Evidence that the structure, manifestation, and correlates of psychopathy may differ in females (Verona & Vitale, 2006) suggests this is an important question for generalizability.

In light of these issues, the current study employed model-based cluster analysis (Banfield & Raftery, 1993) to examine primary and secondary variants of psychopathy¹ in a large community sample² of undergraduate students. First, we assessed psychopathy with the Psychopathic Personality Inventory-Short Form (PPI-SF). The advantage of this self-report measure is that it is specifically designed to assess psychopathic traits in noninstitutional populations. Second, we cluster-analyzed the upper

¹ We use the term psychopathy to describe the maladaptive personality traits being measured in this study. However, it should be noted that we are not using the term to imply a taxon or category of individuals.

² We use the term community because the university students who participated in this study represent a portion of the community and because university students represent a much broader group of community members than in the past. However, this may not represent the broader community and the findings may generalize more closely to other university samples.

distribution of the sample (i.e., individuals who exhibited high levels of psychopathy) to address concerns about low levels of psychopathy in noninstitutional samples. Third, we examined the validity of the subtypes across a diverse set of personality, affective, and behavioral correlates to provide a comprehensive picture of noninstitutional psychopathy variants. More specifically, we included correlates that have received less attention, such as attachment, and incorporated behavioral indices more specific to nonincarcerated samples, such as risky driving. Finally, we conducted separate analyses in males and females to examine gender differences in psychopathy variants.

Method

Participants

Participants were 1229 male (30%) and female (70%) undergraduate students attending a large university in the southeastern United States. They ranged in age from 17 to 51 years, with a mean age of 19.32 ($SD = 2.32$). Participants were 84% Caucasian and 11% African American, with the remainder (5%) of other ethnicity.

For the purposes of subtyping and consistent with previous studies (e.g., Hicks et al., 2004; Skeem et al., 2007), we analyzed participants who obtained PPI-SF total scores in the approximately top third of the distribution (37% for males and 36% for females).³ This resulted in 138 males with a total score of 136 or greater ($M = 144.01$, $SD = 7.95$) and 312 females with a total score of 126 and above ($M = 136.09$, $SD = 8.37$). We elected to analyze this subgroup because we were interested in subtypes of individuals with high levels of psychopathy. The remaining 232 males ($M = 122.57$, $SD = 9.13$) and 547 females ($M = 112.42$, $SD = 9.12$) who scored below these cut-offs served as a comparison group (i.e., nonpsychopaths). There were no significant differences between these groups on age or race in both males and females.

Measures

Psychopathic Personality Inventory-Short Form (PPI-SF). The PPI-SF is a condensed version of the 187-item self-report Psycho-

pathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996). Each of the 56 items is rated on a 4-point Likert scale (1 = *false*, 2 = *mostly false*, 3 = *mostly true*, 4 = *true*) and summed to yield a total score and eight subscale scores that reflect various personality aspects of psychopathy: Machiavellian Egocentricity (self-centered, ruthless), Social Potency (charming, skilled at influencing others), Coldheartedness (callous, lack remorse), Carefree Nonplanfulness (absence of planning and forethought), Fearlessness (propensity for risk-taking), Blame Externalization (rationalize and justify misbehaviors), Impulsive Nonconformity (reckless lack of concern), and Stress Immunity (absence of anxiety). The items included in the PPI-SF are those that evidenced the highest loadings on each of the eight subscales (Lilienfeld, 1990).

Factor analytic work on the PPI identified two higher order factors (Benning et al., 2003): Social Potency, Fearlessness, and Stress Immunity comprised one factor (PPI-I) and Machiavellian Egocentricity, Carefree Nonplanfulness, Blame Externalization, and Impulsive Nonconformity comprised a second factor (PPI-II), which have been referred to as Fearless Dominance (FD) and Impulsive Antisociality (IA), respectively (Benning, Patrick, Salekin, et al., 2005). These two factors purportedly parallel PCL-R Factors 1 and 2, although a more accurate description may be that FD captures some of the adaptive interpersonal features of psychopathy whereas IA assesses more of the maladaptive features of psychopathy. However, recent evidence indicates a three-factor structure better captures the PPI (Neumann, Malterer, & Newman, 2008). The PPI demonstrates good internal consistency and test-retest reliability (Lilienfeld & Andrews, 1996), strong associations with the PCL-R (Poythress, Edens, & Lilienfeld, 1998), and construct validity in undergraduate and correctional populations (Benning, Patrick, Salekin, et al., 2005; Bernardino, Meloy, Sherman, & Jacobs, 2005; Patrick, Edens, Poythress, Lilienfeld, & Benning, 2006). There are limited studies of the reliability and validity

³ We acknowledge that examining the upper third of the distribution may be arbitrary given that the PPI-SF does not have recommended cut-scores. We reran the model-based cluster analysis using the top quarter of the distribution and obtained similar results with respect to the number and nature of the identified clusters in both males and females.

of the PPI-SF. However, the PPI-SF and PPI are highly correlated, with $r = .90$ or above in several samples (Lilienfeld, 1990). The PPI-SF has been found to be negatively associated with behavioral inhibition and positively associated with behavioral activation (Lilienfeld & Hess, 2001).

Revised Interpersonal Adjective Scales-Big 5 (IASR-B5). The IASR-B5 (Trapnell & Wiggins, 1990) is a 124-item self-report adjective rating scale that assesses the 5-factor model of personality: conscientiousness (e.g., self-disciplined), neuroticism (e.g., fretful), openness (e.g., inquisitive), extraversion (e.g., friendly), and agreeableness (e.g., accommodating). Items are rated on an 8-point Likert scale (1 = *extremely inaccurate*, 8 = *extremely accurate*), and standardized and summed to yield t-scores. The measure demonstrates convergent and divergent validity with other personality measures (Trapnell & Wiggins, 1990).

Test of Self-Conscious Affect-Version 3 (TOSCA-3). The TOSCA-3 (Tangney, Dearing, Wagner, & Gramzow, 2000) is a 16-item self-report rating scale. Each item provides a scenario and participants indicate how likely they are to react in different ways on a 5-point scale (1 = *not likely*, 5 = *very likely*). Responses are summed to yield scores on the various dimensions of affect: shame, guilt, externalization, detachment/unconcern, alpha pride (general pride in the self), and beta pride (pride about one's behavior). The measure possesses adequate internal consistency (Tangney, 1996) and demonstrates convergent and discriminant validity with anger, hostility, and psychopathology (Tangney, Wagner, Fletcher, & Gramzow, 1992; Tangney, Wagner, & Gramzow, 1992). In this study, we examined indices of affect (shame, guilt) and cognition (externalization, detachment).

Measure of Attachment Qualities (MAQ). The MAQ (Carver, 1997) is a 14-item self-report measure that assesses attachment patterns. Items are rated on a 4-point Likert scale (1 = *disagree a lot*, 4 = *agree a lot*) and summed to yield four attachment styles: avoidance (avoiding, rejecting response style), ambivalence-worry (worry over potential abandonment), ambivalence-merger (approach aspects of ambivalence), and security (healthy response style). The measure possesses adequate internal consistency and test-retest reliability, and dem-

onstrates convergent and discriminant validity with other attachment measures and general personality (Carver, 1997).

Risky driving. Participants were administered a questionnaire that assessed aspects of driving safety, attitudes, and behaviors (Harré, Brandt, & Dawe, 2000). We obtained a measure of risky driving attitudes and behaviors by summing nine items (e.g., drive through a traffic light after it has turned red). For risky driving attitudes, the items asked participants whether these behaviors are okay for drivers on a 6-point Likert scale (1 = *never okay*, 6 = *always okay*). For risky driving behaviors, each item asked participants how often they engaged in the behaviors when driving on a 7-point scale (1 = *never*, 7 = *all the time*). Higher scores indicate greater risky driving attitudes and greater engagement in risky driving. Evidence indicates the measures demonstrate good internal consistency (Harré et al., 2000; Harré, Field, & Kirkwood, 1996).

Antisocial behaviors. Antisocial behaviors were assessed in two ways. Participants completed the Antisocial Action Scale (AAS; Levenson et al., 1995), which is comprised of 24 items that assess various antisocial (e.g., I have "lifted" money from others' wallets) and prosocial (e.g., I let other students photocopy my lecture notes) behaviors typical of students. Each item is rated on a 4-point scale (1 = *never done*, 2 = *done once or twice*, 3 = *done a few times*, 4 = *done frequently*) and summed to yield a total score, with prosocial items reverse-scored. In this study, the items were embedded as part of another measure using a 4-point scale (0 = *disagree strongly*, 4 = *agree strongly*). We summed the 15 antisocial items to obtain a measure of engaging in antisocial behaviors. Second, participants were asked whether (no/yes) they engaged in various antisocial behaviors, including been accused of academic misconduct, in trouble with the law, arrested, and detained in jail.

Procedure

All participants provided informed consent, completed the various measures in small groups, and received research course credits for their participation. Ethics approval was ob-

tained from the Institutional Review Board prior to the start of the study.

Statistical Analyses

We used S-PLUS 8 and the MCLUST library to conduct model-based cluster analysis (Fraley & Raftery, 2002, 2003). This approach tests the relative fit of models that vary in their assumptions about the cluster distributions (spherical, diagonal, or ellipsoidal) and in the cluster volume, shape, and orientation (equal or variable). The relative fit of 10 different models, whereby the number of clusters in each model is varied from one to nine, is tested using the Bayesian Information Criterion (BIC). Higher BIC values (i.e., less negative values) indicate models that are a better fit to the data.

Participants' z-scores on eight variables, the PPI-SF subscales, were subjected to model-based cluster analysis. Evidence indicates the PPI-SF Stress Immunity subscale is strongly associated with anxiety (Edens, Poythress, & Watkins, 2001); as such, this subscale served as a proxy for anxiety whereby higher scores reflect lower anxiety. Upon identifying the best-fitting model, multivariate analyses of variance (MANOVA) were conducted to compare the subtypes on the cluster derivation variables for descriptive purposes. In addition, comparisons were made on other variables for the purposes of external validation: personality traits (IASR-B5), affect (TOSCA-3), attachment (MAQ), risky driving, and antisocial behaviors. Analyses were conducted separately for males and females.

Results

The descriptive data and scale homogeneity for each of the measures by gender are reported in Table 1. All measures demonstrated reasonable dispersion and adequate reliability. There were several significant gender differences across the measures. Males scored higher on psychopathic traits (PPI-SF Total, Machiavellian Egocentricity, Coldheartedness, Fearlessness, Impulsive Nonconformity, and Stress Immunity), externalization and detachment (TOSCA), ambivalence-merger attachment (MAQ), risky driving (attitudes and behaviors), and antisocial behaviors (AAS). Similarly, males were more likely

to report being in trouble with the law, arrested, and detained in jail. In contrast, females scored higher on PPI-SF Social Potency, IASR-B5 conscientiousness, neuroticism, extraversion, and agreeableness, TOSCA shame and guilt, and MAQ ambivalence-worry.

Subtype Identification and Description

Male subtypes. BIC values ranged from -3155.42 to -4138.48 for the males, with the best-fitting model identifying two clusters. The uncertainty values indicated that three-quarters of the sample had a relatively high probability of being accurately classified, 87%. For descriptive purposes, we compared the two clusters across the eight variables used to derive the groups. As shown in Table 2 and Figure 1, the two clusters appear to designate a primary and secondary psychopathy group, Wilks' $\Lambda = .35$, $F(8, 129) = 29.39$, $p < .001$. The cluster we refer to as primary psychopathy ($n = 55$) had higher Social Potency, Fearlessness, Impulsive Nonconformity, and Stress Immunity scores. The secondary psychopathy group ($n = 83$) scored higher on Machiavellian Egocentricity and Blame Externalization, and lower on Stress Immunity. There were no significant differences between the subtypes in terms of age or PPI-SF total scores. However, there was a significant difference regarding race (Caucasian vs. non-Caucasian), $\chi^2(1) = 4.76$, $p < .05$. Although both the primary (94%) and secondary (82%) groups were largely Caucasian, a greater percentage of the secondary group was comprised of non-Caucasian individuals (18%) than the primary group (6%).

Female subtypes. BIC values ranged from -7092.79 to -8384.14 for the females, with the best-fitting model identifying two clusters. The uncertainty values indicated that three-quarters of the sample had a relatively high probability of being accurately classified, 98%. We also refer to these two clusters as primary and secondary psychopathy (see Table 2 and Figure 2), Wilks' $\Lambda = .28$, $F(8, 303) = 96.55$, $p < .001$. The primary psychopathy cluster ($n = 71$) had higher scores across all the PPI-SF subscales and the secondary psychopathy cluster ($n = 241$) had lower PPI-SF subscale scores. There were no significant differences between the subtypes in terms of age or race (Caucasian vs. non-Caucasian). However, the primary

Table 1
Descriptive Data

	Males (<i>n</i> = 365–370)			Females (<i>n</i> = 856–859)			<i>d</i>
	Mean (<i>SD</i>)	Range	α	Mean (<i>SD</i>)	Range	α	
PPI-SF							
Total***	130.56 (13.54)	84–187	.75	121.01 (14.43)	84–167	.80	.67
Mach Egocentricity***	15.55 (3.69)	8–27	.67	14.68 (3.56)	7–27	.71	.24
Social Potency**	19.63 (4.44)	9–28	.81	20.42 (4.06)	7–28	.79	.19
Coldheartedness***	14.79 (3.50)	7–27	.61	13.41 (2.95)	7–26	.53	.44
Carefree Nonplan	13.04 (3.24)	7–24	.64	12.81 (3.07)	7–24	.64	
Fearlessness***	18.12 (4.79)	7–28	.71	14.52 (4.76)	7–27	.76	.76
Blame Externalization	14.49 (4.42)	7–28	.81	14.58 (4.48)	7–28	.82	
Imp Nonconform***	14.75 (3.99)	7–27	.66	13.36 (3.49)	7–27	.63	.38
Stress Immunity***	20.19 (3.77)	7–28	.73	17.24 (4.18)	7–27	.78	.73
IASR-B5							
Conscientiousness***	36.16 (10.49)	1–65	.86	39.18 (10.46)	8–65	.88	.29
Neuroticism***	35.30 (9.59)	0–66	.80	39.98 (10.19)	10–74	.84	.47
Openness	37.67 (11.52)	7–69	.80	37.33 (10.29)	10–68	.78	
Extraversion***	35.88 (11.38)	10–68	.88	41.95 (11.25)	6–71	.89	.54
Agreeableness***	34.06 (8.68)	6–57	.80	39.98 (9.91)	5–71	.86	.62
TOSCA-3							
Shame***	41.47 (8.83)	18–70	.69	47.70 (9.07)	16–77	.72	.69
Guilt***	58.07 (9.44)	27–80	.78	63.63 (8.31)	34–80	.76	.64
Externalization**	40.17 (8.13)	17–63	.64	38.43 (8.24)	16–64	.68	.21
Detachment***	32.88 (5.76)	17–55	.55	31.47 (5.98)	14–50	.63	.24
MAQ							
Avoidance	9.39 (3.09)	5–19	.68	9.31 (3.32)	5–20	.76	
Ambivalence-Worry**	6.88 (2.47)	3–12	.74	7.32 (2.66)	2–12	.78	.02
Ambivalence-Merger**	6.21 (2.24)	3–12	.70	5.80 (2.13)	3–12	.68	.19
Security	10.60 (1.61)	4–12	.60	10.75 (1.57)	3–12	.64	
Unsafe Driving							
Attitudes***	22.28 (6.96)	9–48	.80	19.56 (6.13)	8–49	.80	.43
Behaviors***	28.03 (8.16)	1–49	.73	25.26 (7.99)	9–53	.75	.34
Antisocial Behaviors							
AAS Antisocial***	11.76 (8.21)	0–37	.82	8.05 (6.66)	0–37	.78	.52
Academic Misconduct	6%			3%			
Trouble with the law***	36%			21%			
Arrested***	17%			7%			
Jail/detention***	15%			6%			

Note. *SD* = Standard deviation; α = Cronbach's alpha; *d* = Cohen's *d* effect size; PPI-SF = Psychopathic Personality Inventory–Short Form; Mach Ego = Machiavellian Egocentricity; Carefree Nonplan = Carefree Nonplanfulness; Imp Nonconform = Impulsive Nonconformity; IASR-B5 = Revised Interpersonal Adjective Scales-Big 5 (Trapnell & Wiggins, 1990); TOSCA-3 = Test of Self-Conscious Affect-Version 3 (Tangney et al., 2000); MAQ = Measure of Attachment Qualities (Carver, 1997); AAS = Antisocial Action Scale (Levenson et al., 1995).

** $p < .01$. *** $p < .001$ indicates a significant gender difference.

group ($M = 148.97$, $SD = 4.97$) had significantly higher PPI-SF total scores than the secondary group ($M = 132.29$, $SD = 4.48$), $F(1, 310) = 721.92$, $p < .001$.

Gender differences. To examine gender differences, we compared males and females within each subtype. Within the primary subtype, there was a significant gender difference in PPI-SF total scores, $F(1, 124) = 34.61$, $p < .001$, and five of the PPI-SF subscales, Wilks'

$\Lambda = .56$, $F(8, 117) = 11.50$, $p < .001$: Machiavellian Egocentricity, $F(1, 124) = 26.82$, $p < .001$, $\eta^2 = .18$, Carefree Nonplanfulness, $F(1, 124) = 8.42$, $p < .01$, $\eta^2 = .06$, and Blame Externalization, $F(1, 124) = 57.75$, $p < .001$, $\eta^2 = .14$, with females scoring higher than males. In contrast, males scored higher than females in Fearlessness, $F(1, 124) = 6.52$, $p < .05$, $\eta^2 = .05$, and Stress Immunity, $F(1, 124) = 19.81$, $p < .001$, $\eta^2 = .14$.

Table 2
Differences in Cluster Derivation Variables

Males	Primary (n = 55)	Secondary (n = 83)	F	p	η^2
Mach Ego	14.67 (2.33)***	18.63 (3.42)***	56.28	<.001	.29
Social Potency	22.96 (2.78)	20.54 (4.57)*	12.38	<.01	.08
Coldheartedness	15.84 (3.10)	15.80 (3.98)***	0.00	ns	
Carefree Nonplan	13.80 (2.69)**	14.36 (3.54)	1.00	ns	
Fearlessness	22.91 (2.79)*	19.51 (4.40)***	25.96	<.001	.16
Blame External	12.25 (2.80)***	18.60 (3.74)***	115.30	<.001	.46
Imp Nonconform	17.95 (3.09)	16.39 (3.78)*	6.48	<.05	.05
Stress Immunity	22.98 (3.06)***	20.61 (3.44)***	17.08	<.001	.11
Females	Primary (n = 71)	Secondary (n = 241)	F	p	η^2
Mach Ego	17.65 (3.73)***	15.96 (3.64)***	11.63	<.01	.04
Social Potency	22.85 (3.93)	21.66 (3.61)*	5.62	<.05	.02
Coldheartedness	15.23 (3.44)	14.04 (3.07)***	7.72	<.01	.02
Carefree Nonplan	15.45 (3.49)**	13.97 (2.83)	13.41	<.001	.04
Fearlessness	21.51 (3.25)*	16.71 (3.96)***	86.75	<.001	.22
Blame External	17.93 (4.96)***	16.21 (4.50)***	7.64	<.01	.02
Imp Nonconform	18.00 (2.75)	15.38 (3.15)*	40.28	<.001	.12
Stress Immunity	20.36 (3.42)***	18.35 (3.69)***	16.86	<.001	.05

Note. η^2 = partial eta squared effect size; ns = nonsignificant difference; Mach Ego = Machiavellian Egocentricity; Carefree Nonplan = Carefree Nonplanfulness; Blame External = Blame Externalization; Imp Nonconform = Impulsive Nonconformity.

* $p < .05$. ** $p < .01$. *** $p < .001$ indicates a significant gender difference within each subtype.

Within the secondary subtype, there was a significant gender difference in PPI-SF total scores, $F(1, 322) = 250.75, p < .001$, and seven of the PPI-SF subscales, Wilks' $\Lambda = .50, F(8, 315) = 39.08, p < .001$: Machiavellian Egocentricity, $F(1, 322) = 34.12, p < .001, \eta^2 = .10$, Coldheartedness, $F(1, 322) = 17.19, p < .001, \eta^2 = .05$, Fearlessness, $F(1, 322) = 28.96, p < .001, \eta^2 = .08$, Blame Externalization, $F(1, 322) = 18.94, p < .001, \eta^2 = .06$, Impulsive Nonconformity, $F(1, 322) = 5.69, p < .05, \eta^2 = .02$, and Stress Immunity, $F(1, 322) = 24.00, p < .001, \eta^2 = .07$, with males scoring higher than females. In contrast, females scored higher in Social Potency, $F(1, 322) = 5.16, p < .05, \eta^2 = .02$.

Subtypes External Validation

Male subtypes. As shown in Table 3 and Figure 1, there were several significant differences between the male primary and secondary subtypes with respect to external correlates. Comparisons with the remaining nonpsychopaths also revealed significant differences. First, there were significant group differences across all of the IASR-B5 personality traits, Wilks'

$\Lambda = .76, F(10, 718) = 10.65, p < .001$: conscientiousness, $F(2, 363) = 6.50, p < .01$, neuroticism, $F(2, 363) = 13.63, p < .001$, openness, $F(2, 363) = 4.77, p < .01$, extraversion, $F(2, 363) = 7.95, p < .001$, and agreeableness, $F(2, 363) = 14.201, p < .001$. Specifically, primary and secondary psychopaths exhibited less conscientiousness and agreeableness than nonpsychopaths, primary psychopaths reported less neuroticism and more extraversion than secondary psychopaths and nonpsychopaths, and primary psychopaths were more open to experience than nonpsychopaths.

Second, there were significant differences across two of the TOSCA affect subscales, Wilks' $\Lambda = .93, F(8, 726) = 3.28, p < .01$: guilt, $F(2, 366) = 7.03, p < .01$, and externalization, $F(2, 366) = 4.21, p < .05$. More specifically, secondary psychopaths exhibited less guilt than primary psychopaths and nonpsychopaths. In contrast, secondary psychopaths reported more externalization than primary psychopaths and nonpsychopaths. Finally, there were significant differences in risky driving, Wilks' $\Lambda = .94, F(4, 726) = 6.10, p < .001$, and antisocial behaviors. Both primary and secondary psychopaths reported more risky driving attitudes than nonpsychopaths, $F(2,$

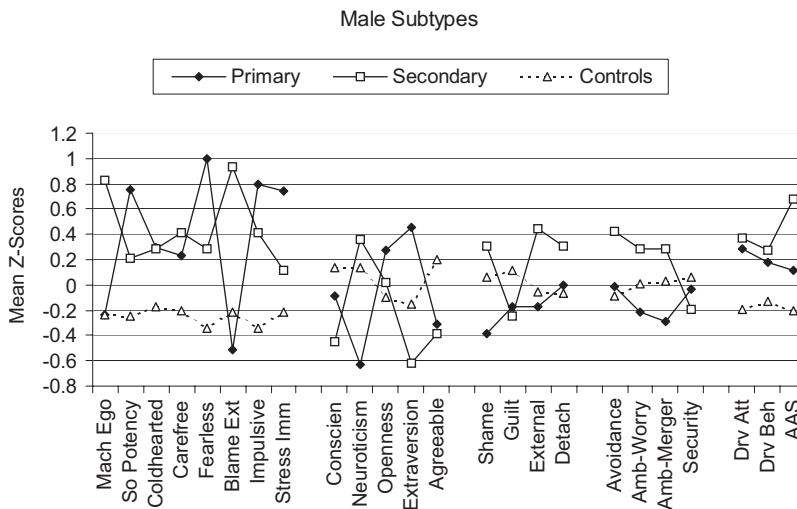


Figure 1. Mean cluster derivation and external validation z-scores for male subtypes. Mach Ego = Machiavellian Egocentricity; So Potency = Social Potency; Coldhearted = Coldheartedness; Carefree = Carefree Nonplanfulness; Fearless = Fearlessness; Blame Ext = Blame Externalization; Impulsive = Impulsive Nonconformity; Stress Imm = Stress Immunity; Conscien = Conscientiousness; Agreeable = Agreeableness; External = Externalization; Detach = Detachment; Amb-Worry = Ambivalence-Worry; Amb-Merger = Ambivalence-Merger; Drv Att = Risky Driving Attitudes; Drv Beh = Risky Driving Behaviors; AAS = Antisocial Action Scale (Levenson et al., 1995).

364) = 11.81, $p < .001$. In contrast, only secondary psychopaths reported more risky driving behaviors than nonpsychopaths, $F(2, 364) = 6.02$, $p < .01$. Similarly, secondary psychopaths reported more AAS antisocial behaviors than both primary psychopaths and nonpsychopaths, $F(2, 367) = 21.31$, $p < .001$.

With respect to other antisocial behaviors, there were no significant differences across nonpsychopaths (5%), primary psychopaths (5%), and secondary psychopaths (9%) in terms of the proportion accused of academic misconduct. There was a significant difference in terms of the proportion in trouble with the law, $\chi^2(2) = 21.76$, $p < .001$. More specifically, secondary psychopaths were the most likely (55%), followed by primary psychopaths (38%), and nonpsychopaths the least likely (28%) to report trouble with the law. Similarly, secondary psychopaths were the most likely (32%), followed by primary psychopaths (16%), and nonpsychopaths the least likely (12%), $\chi^2(2) = 17.95$, $p < .001$, to have been arrested. Finally, there was a significant difference in the proportion detained in jail, $\chi^2(2) = 11.79$, $p < .01$. Although a greater

proportion of primary (16%) and secondary (26%) subtypes had been detained in jail than nonpsychopaths (10%), only nonpsychopaths and secondary psychopaths exhibited a significant difference.

Female subtypes. As shown in Table 4 and Figure 2, there were significant differences across the three groups on a number of external correlates. First, there were significant differences across four of the IASR-B5 personality traits, Wilks' $\Lambda = .74$, $F(10, 1700) = 27.12$, $p < .001$: conscientiousness, $F(2, 854) = 45.39$, $p < .001$, neuroticism, $F(2, 854) = 9.33$, $p < .001$, openness, $F(2, 854) = 6.16$, $p < .01$, and agreeableness, $F(2, 854) = 72.94$, $p < .001$. Specifically, primary and secondary psychopaths exhibited less conscientiousness, neuroticism, and agreeableness than nonpsychopaths. In contrast, primary and secondary subtypes reported more openness to experience than nonpsychopaths.

Second, there were significant differences across all of the TOSCA affect subscales, Wilks' $\Lambda = .91$, $F(8, 1700) = 10.64$, $p < .001$: shame, $F(2, 853) = 5.58$, $p < .01$, guilt, $F(2, 853) = 26.54$, $p < .001$, externalization, $F(2, 853) = 4.47$, $p < .05$, and detachment, $F(2, 853) = 21.37$,

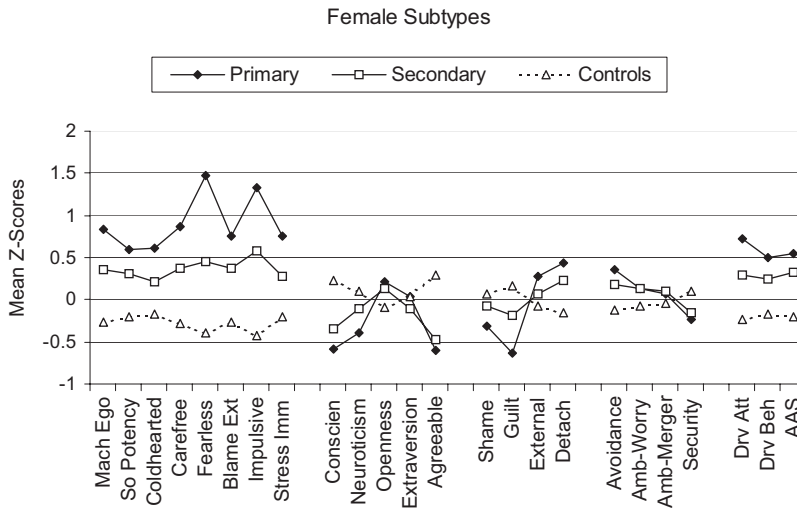


Figure 2. Mean cluster derivation and external validation z-scores for female subtypes. Mach Ego = Machiavellian Egocentricity; So Potency = Social Potency; Coldhearted = Coldheartedness; Carefree = Carefree Nonplanfulness; Fearless = Fearlessness; Blame Ext = Blame Externalization; Impulsive = Impulsive Nonconformity; Stress Imm = Stress Immunity; Conscien = Conscientiousness; Agreeable = Agreeableness; External = Externalization; Detach = Detachment; Amb-Worry = Ambivalence-Worry; Amb-Merger = Ambivalence-Merger; Drv Att = Risky Driving Attitudes; Drv Beh = Risky Driving Behaviors; AAS = Antisocial Action Scale (Levenson et al., 1995).

$p < .001$. Specifically, primary psychopaths reported less shame and more externalization than nonpsychopaths, the primary subtype exhibited the least guilt and nonpsychopaths the most guilt, and both primary and secondary psychopaths reported greater detachment than nonpsychopaths. Third, there were significant differences on three of the MAQ attachment styles, Wilks' $\Lambda = .96$, $F(8, 1704) = 4.56$, $p < .001$: avoidance, $F(2, 855) = 13.36$, $p < .001$, ambivalence-worry, $F(2, 855) = 5.18$, $p < .01$, and security, $F(2, 855) = 7.22$, $p < .01$. Both primary and secondary psychopaths reported more avoidance and less security, whereas secondary psychopaths exhibited more ambivalence-worry than nonpsychopaths.

Finally, there were significant differences in risky driving, Wilks' $\Lambda = .90$, $F(4, 1708) = 24.22$, $p < .001$, and antisocial behaviors. The primary subtype reported the greatest and the nonpsychopathy group the fewest risky driving attitudes, $F(2, 855) = 48.36$, $p < .001$. Both primary and secondary psychopaths engaged in more risky driving behaviors than nonpsychopaths, $F(2, 855) = 26.03$, $p < .001$. Similarly, both psychopathy subtypes reported

more AAS antisocial behaviors than nonpsychopaths, $F(2, 854) = 38.28$, $p < .001$. With respect to other antisocial behaviors, there were no significant differences across nonpsychopaths (3%), primary psychopaths (7%), and secondary psychopaths (4%) in the proportion accused of academic misconduct. There was a significant difference in terms of the proportion in trouble with the law, $\chi^2(2) = 28.30$, $p < .001$. Specifically, a greater proportion of primary (39%) and secondary (28%) subtypes were in trouble with the law compared to nonpsychopaths (16%). Similarly, primary (13%) and secondary (12%) psychopaths were more likely to have been arrested than nonpsychopaths (4%), $\chi^2(2) = 21.80$, $p < .001$. A greater proportion of primary (14%) and secondary (8%) subtypes also reported being detained in jail relative to nonpsychopaths (3%), $\chi^2(2) = 18.28$, $p < .001$.

Gender differences. Within the primary subtype, there was a significant gender difference on one of the IASR-B5 personality traits, Wilks' $\Lambda = .86$, $F(5, 118) = 4.00$, $p < .01$: neuroticism, $F(1, 122) = 13.87$, $p < .001$, $\eta^2 = .10$. Second, there was a significant difference on one of the

Table 3
Differences in External Validation Variables in Male Subtypes

	Primary (n = 54–55)	Secondary (n = 81–83)	NP (n = 230–231)	Primary vs. secondary (p)	Primary vs. NP (p)	Secondary vs. NP (p)
IASR-B5						
Conscientiousness	33.48 (9.65)	33.61 (9.22)	37.60 (10.87)	ns	<.05, d = .39	<.01, d = .38
Neuroticism	29.28 (9.56)***	35.40 (9.83)**	36.63 (9.08)	<.01, d = .63	<.001, d = .80	ns
Openness	41.78 (12.48)	38.25 (11.88)	36.52 (11.00)	ns	<.01, d = .47	ns
Extraversion	40.87 (11.72)	33.09 (11.11)***	35.69 (11.05)	<.001, d = .69	<.01, d = .47	ns
Agreeableness	31.81 (7.81)	30.52 (8.13)***	35.82 (8.61)	ns	<.01, d = .48	<.001, d = .63
TOSCA-3						
Shame	39.31 (7.72)**	41.19 (10.23)***	42.09 (8.48)	ns	ns	ns
Guilt	58.51 (8.68)	54.73 (10.46)***	59.17 (8.97)	<.05, d = .39	ns	<.01, d = .47
Externalization	38.49 (7.40)	42.27 (8.87)**	39.82 (7.91)	<.05, d = .46	ns	<.05, d = .30
Detachment	33.22 (5.54)	33.83 (6.41)	32.46 (5.54)	ns	ns	ns
MAQ						
Avoidance	9.36 (2.98)	10.20 (3.32)	9.10 (2.99)	ns	ns	ns
Ambivalence-Worry	6.62 (2.33)***	6.95 (2.58)*	6.91 (2.46)	ns	ns	ns
Ambivalence-Merger	5.62 (1.96)	6.31 (2.32)	6.31 (2.26)	ns	ns	ns
Security	10.40 (1.87)	10.48 (1.75)	10.69 (1.49)	ns	ns	ns
Unsafe Driving						
Attitudes	24.22 (5.89)	24.69 (7.23)***	20.97 (6.79)	ns	<.01, d = .49	<.001, d = .45
Behaviors	28.91 (8.72)	30.42 (6.90)**	26.96 (8.27)	ns	ns	<.01, d = .68
AAS	11.38 (7.23)	16.61 (9.39)***	10.12 (7.28)	<.001, d = .61	ns	<.001, d = .83

Note. Post hoc tests based on Tukey's honestly significant difference (HSD). NP = Nonpsychopathic; ns = nonsignificant difference, d = Cohen's d effect size; IASR-B5 = Revised Interpersonal Adjective Scales-Big 5 (Trapnell & Wiggins, 1990); TOSCA-3 = Test of Self-Conscious Affect-Version 3 (Tangney et al., 2000); MAQ = Measure of Attachment Qualities (Carver, 1997); AAS = Antisocial Action Scale (Levenson et al., 1995).

* p < .05. ** p < .01. *** p < .001 indicates a significant gender difference within each subtype.

Table 4
Differences in External Validation Variables in Female Subtypes

	Primary (n = 70-71)	Secondary (n = 239-241)	NP (n = 546-547)	Primary vs. secondary (p)	Primary vs. NP (p)	Secondary vs. NP (p)
IASR-B5						
Conscientiousness	33.02 (11.39)	35.52 (10.20)	41.58 (9.66)	ns	<.001, d = .87	<.001, d = .62
Neuroticism	36.11 (10.53)***	38.85 (10.09)**	40.97 (10.00)	ns	<.001, d = .48	<.05, d = .21
Openness	39.66 (11.83)	38.68 (11.34)	36.40 (9.45)	ns	<.05, d = .37	<.05, d = .23
Extraversion	42.26 (13.38)	40.84 (11.40)***	42.37 (10.86)	ns	ns	ns
Agreeableness	34.04 (9.54)	35.26 (9.04)***	42.83 (9.18)	ns	<.001, d = .95	<.001, d = .83
TOSCA-3						
Shame	44.89 (9.88)**	47.02 (8.55)***	48.36 (9.11)	ns	<.01, d = .38	ns
Guilt	58.39 (9.97)	62.14 (8.70)***	64.97 (7.49)	<.01, d = .42	<.001, d = .84	<.001, d = .36
Externalization	40.69 (9.39)	39.00 (8.12)**	37.89 (8.08)	ns	<.05, d = .28	ns
Detachment	34.13 (5.89)	32.86 (5.90)	30.52 (5.81)	ns	<.001, d = .62	<.001, d = .40
MAQ						
Avoidance	10.49 (3.61)	9.92 (3.58)	8.89 (3.08)	ns	<.001, d = .51	<.001, d = .32
Ambivalence-Worry	7.70 (2.25)**	7.71 (2.57)*	7.10 (2.73)	ns	ns	<.01, d = .23
Ambivalence-Merger	5.96 (2.15)	6.01 (2.14)	5.68 (2.11)	ns	ns	ns
Security	10.39 (1.78)	10.51 (1.81)	10.90 (1.40)	ns	<.05, d = .13	<.01, d = .16
Unsafe driving						
Attitudes	24.01 (7.27)	21.39 (6.23)***	18.16 (5.41)	<.01, d = .41	<.001, d = 1.04	<.001, d = .57
Behaviors	29.23 (8.14)	27.26 (8.32)**	23.87 (7.46)	ns	<.001, d = .71	<.001, d = .44
AAS	11.69 (7.78)	10.19 (7.03)***	6.63 (5.88)	ns	<.001, d = .83	<.001, d = .57

Note. Post hoc tests based on Tukey's honestly significant difference (HSD). NP = Nonpsychopathic; ns = Nonsignificant difference; d = Cohen's d effect size; IASR-B5 = Revised Interpersonal Adjective Scales-Big 5 (Trapnell & Wiggins, 1990); TOSCA-3 = Test of Self-Conscious Affect-Version 3 (Tangney et al., 2000); MAQ = Measure of Attachment Qualities (Carver, 1997); AAS = Antisocial Action Scale (Levenson et al., 1995).
* p < .05. ** p < .01. *** p < .001 indicates a significant gender difference within each subtype.

TOSCA affect subscales, Wilks' $\Lambda = .90$, $F(4, 121) = 3.46$, $p < .05$: shame, $F(1, 124) = 11.89$, $p < .01$, $\eta^2 = .09$. Third, there was a significant difference on one MAQ attachment style, Wilks' $\Lambda = .92$, $F(4, 121) = 2.64$, $p < .05$: ambivalence-worry, $F(1, 124) = 7.02$, $p < .01$, $\eta^2 = .05$. In all instances, females scored higher than males. In contrast, there was no significant gender difference for any of the antisocial behaviors.

Within the secondary subtype, there were significant gender differences on three of the IASR-B5 personality traits, Wilks' $\Lambda = .85$, $F(5, 316) = 11.23$, $p < .001$: neuroticism, $F(1, 320) = 7.18$, $p < .01$, $\eta^2 = .02$, extraversion, $F(1, 320) = 28.41$, $p < .001$, $\eta^2 = .08$, and agreeableness, $F(1, 320) = 17.48$, $p < .001$, $\eta^2 = .05$. In all cases, females scored higher than males. Second, there were significant differences for three of the TOSCA affect subscales, Wilks' $\Lambda = .85$, $F(4, 317) = 14.52$, $p < .001$: shame, $F(1, 320) = 25.77$, $p < .001$, $\eta^2 = .08$, guilt, $F(1, 320) = 40.05$, $p < .001$, $\eta^2 = .11$, and externalization, $F(1, 320) = 9.46$, $p < .01$, $\eta^2 = .03$. Females exhibited more shame and guilt whereas males reported more externalization. Third, there was a significant gender difference on one MAQ attachment style, Wilks' $\Lambda = .96$, $F(4, 319) = 3.13$, $p < .05$: ambivalence-worry, $F(1, 322) = 5.31$, $p < .05$, $\eta^2 = .02$, with females scoring higher than males. Finally, there were significant differences for risky driving, Wilks' $\Lambda = .95$, $F(2, 320) = 8.14$, $p < .001$, and antisocial behaviors. Males reported more risky driving attitudes, $F(1, 321) = 15.89$, $p < .001$, $\eta^2 = .05$, and behaviors, $F(1, 321) = 9.66$, $p < .01$, $\eta^2 = .03$, and engaged in more AAS antisocial behaviors, $F(1, 322) = 43.00$, $p < .001$, than females. Similarly, a greater proportion of males had been in trouble with the law, $\chi^2(1) = 22.13$, $p < .001$, arrested, $\chi^2(1) = 18.07$, $p < .001$, and detained in jail, $\chi^2(1) = 18.01$, $p < .001$.

Discussion

Much of the work investigating psychopathy variants has examined forensic populations. Although one study examined a nonforensic population, the small sample size and narrow set of external correlates suggest that more work is needed to provide a broader understanding of the concepts of primary and secondary psychop-

athy, and psychopathy more generally, in the community. The current study examined a diverse set of correlates, including a general model of personality, emotion and attachment, and relevant outcomes, such as risky driving and antisocial behavior, in a sample of university students. Furthermore, we extended previous investigations by examining gender differences.

Primary and Secondary Subtypes

Using model-based cluster analysis, this study found primary and secondary variants of psychopathy in both males and females that differed on anxiety. The male subtypes were in many ways consistent with theory (e.g., Karpman, 1941, 1948) and recent empirical research (e.g., Hicks et al., 2004; Skeem et al., 2007) on this topic. With respect to personality profiles, the primary variant exhibited lower levels of neuroticism and higher levels of extraversion. In contrast, the secondary variant was more neurotic and less extraverted. Furthermore, both primary and secondary subtypes were more likely to engage in risky and criminal behavior relative to nonpsychopaths, although secondary psychopaths exhibited more criminality than primary psychopaths (i.e., trouble with the law and arrests). The difference in neuroticism is likely due to the association between anxiety and neuroticism, and is consistent with theoretical descriptions of secondary psychopathy (Karpman, 1941). It is important to note that differences in extraversion and criminality support the notion that primary and secondary subtypes may represent more and less adaptive psychopaths, respectively. In other words, primary psychopaths appear to be socially skilled to the extent that extraversion includes indicators such as being friendly and outgoing, and certain personality characteristics (e.g., the ability to influence others) may assist in avoiding official detection by criminal justice personnel.

We found interesting that secondary psychopaths reported less guilt and more externalization than primary psychopaths, which is inconsistent with theoretical (e.g., Karpman, 1941) or contemporary (e.g., Hare, 2003) conceptualizations of psychopathy. It is unclear how to interpret this finding. This may reflect differences in blame externalization in that secondary psychopaths reported higher levels on this domain.

Individuals who externalize blame are likely to feel less guilt. This interpretation is further supported by the findings among females. In other words, consistent with Karpman (1941), female secondary psychopaths reported more guilt than primary psychopaths, but did not differ with respect to blame externalization. Alternatively, the manner in which constructs are assessed on the TOSCA measure may not appropriately capture guilt. More specifically, individuals are presented with various common scenarios (e.g., while driving, you hit a small animal) and reactions, and asked to rate how likely they are to react in the ways described. This hypothetical scenario approach may not adequately tap the emotional experience of guilt. Another plausible explanation is that this finding illustrates the problem of asking individuals with high levels of psychopathy to report on an emotion that research indicates they rarely, if ever, experience (Lilienfeld & Fowler, 2006).

The female subtypes of psychopathy demonstrated similarities with the males, but there were fewer differences between the primary and secondary variants. Both primary and secondary psychopaths were less conscientious, neurotic, and agreeable, less secure in terms of attachment, and more open, detached, and avoidant relative to nonpsychopaths. Furthermore, the primary variant exhibited less shame and greater externalization relative to the nonpsychopathy group. The two subtypes differed with each other in two domains, with primary psychopaths reporting less guilt and more risky driving attitudes than secondary psychopaths. With respect to antisocial behavior, both primary and secondary females engaged in greater risky and criminal behaviors than nonpsychopaths. In other words, the two variants demonstrated associations with personality, affective, and behavioral correlates that are consistent with individuals who exhibit high levels of psychopathy. This suggests that female psychopaths, regardless of the specific subtype, possessed more negative personality traits and exhibited greater problematic behaviors.

Comparisons between male and female subtypes further support the existence of gender differences in psychopathy variants. Primary and secondary females reported more neuroticism, shame, and ambivalence-worry than primary and secondary males. Furthermore, secondary females exhibited more extraversion,

agreeableness, and guilt than secondary males. In contrast, secondary males reported greater externalization, risky driving, antisocial behaviors, and criminality than secondary females. We found interesting that primary females reported higher PPI-SF total scores relative to primary males. This may reflect differences on the Machiavellian egocentricity and blame externalization subscales, suggesting that these maladaptive personality features are more salient characteristics of primary psychopathy in females. In addition, this is consistent with recent research indicating an association between these personality features and relational aggression (Barry, Pickard, & Ansel, 2009). Taken together, these findings suggest that psychopathy and high anxiety are associated with more negative outcomes in males than females. Furthermore, despite the existence of psychopathy variants among females, these two groups may not express differential characteristics on traditional external correlates (e.g., antisocial behavior). That is, female subtypes appear to experience similar psychological problems and exact a similar toll on society.

In sum, the findings between and within males and females provide more compelling evidence for primary and secondary psychopathy variants in males than females. To elaborate, the male subtypes demonstrated greater differences with respect to their profile of psychopathic features and exhibited associations with external correlates consistent with theory and research. In contrast, the female subtypes reflected variants that differed with respect to levels of psychopathic characteristics and the subtypes did not exhibit many differences across external correlates. One interpretation of these findings is that this accurately reflects gender differences in psychopathy variants, such that primary and secondary females simply represent differences in the severity of psychopathy. Alternatively, anxiety may not appropriately differentiate between primary and secondary psychopathy subtypes in females, suggesting that the developmental pathways to female psychopathy variants are distinct.

Implications for Theory and Research

The current study has several implications. First, our finding of psychopathy variants is generally consistent with theory (e.g., Karpman,

1941, 1948) and empirical research (e.g., Hicks et al., 2004; Skeem et al., 2007), providing support for investigating psychopathy in noninstitutional populations. Furthermore, small differences between these findings and those in forensic samples, with respect to the profile of traits indicate that psychopathy variants may manifest differently in institutional and noninstitutional settings. Second, research in noninstitutional samples may provide insights into the etiology and course of psychopathy. We found a number of emotional deficits within the psychopathy subtypes, indicating one potential developmental pathway toward psychopathy. Third, our finding that psychopathy was associated with a range of antisocial behaviors, including those not typically assessed in correctional settings, such as risky driving, suggest that the assessment of such traits may also have implications for the potential risks that such individuals pose in the community. Finally, we found gender differences in the expression and correlates of psychopathy subtypes, which may have implications for differential assessment and intervention. For example, the finding that females who endorsed higher levels of psychopathy reported greater neuroticism and agreeableness suggests that they may be more amenable to treatment than males who exhibit higher levels of psychopathy, although future research is needed to examine this issue.

Limitations and Future Directions

Our findings should be viewed in light of the following limitations, which may direct the course of future research. First, the constructs and external correlates were assessed via self-report concurrently. Future studies should examine other concurrent (e.g., performance tasks) and prospective (e.g., violent recidivism) behavioral correlates to further our understanding of psychopathy variants in the community. Second, unlike the PPI, the PPI-SF is not designed to detect deviant responding. The minimization and exaggeration of psychopathic symptoms may affect the ability to accurately identify variants. Therefore, future studies should consider administering measures to assess for such responses. Third, few differences between primary and secondary females suggest there is a need to examine gender-specific correlates and outcomes. Finally, our nonof-

fender sample was drawn from a student population, which is a strength in that a large number of individuals now pursue postsecondary education, resulting in a more diverse population (Salekin, Trobst, & Krioukova, 2001). At the same time, it is important to acknowledge that such a methodology may not capture other important and relevant individuals. As such, future studies should examine more diverse community samples to better understand the etiology, manifestation, and course of psychopathy in the community.

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