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Are psychopaths and heroes twigs off the same branch? Evidence from college, community, and presidential samples

Sarah Francis Smith [a,*], Scott O. Lilienfeld [a], Karly Coffey [a], James M. Dabbs [b,†]

[a] Department of Psychology, Emory University, United States
[b] Department of Psychology, Georgia State University, United States

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ABSTRACT

We examine the relation between psychopathy, especially its fearless dominance dimension, and heroism in two undergraduate samples (N = 124 and 119), a community sample (N = 457) and 42 U.S. presidents. The first undergraduate and community sample revealed significant positive correlations between fearless dominance and heroism and altruism toward strangers; the presidential sample provided some evidence for an association between fearless dominance and war heroism. In the second undergraduate sample, fearless dominance was related only to altruism toward strangers; heroism was instead significantly positively correlated with the impulsive antisociality component of psychopathy. These findings raise the possibility that some psychopathic personality traits are modestly associated with heightened levels of heroic altruism, and raise questions for future research on the personality correlates of heroism.

1. Introduction

Psychopathic personality (psychopathy) is a disorder characterized by a pervasive lack of empathy and guilt masked by superficial charm and the outward presence of apparent normalcy. The disorder is often conceptualized using a two factor (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; Harpur, Hare, & Hakstian, 1988), or more recently, a dual process (Hall & Benning, 2006; Fowles & Dindo, 2009) model. Factor 1 traditionally consists of such interpersonal and affective traits as superficial charm, grandiose sense of self-worth, egocentricity, and guiltlessness, whereas Factor 2 assesses the antisocially deviant aspect of the disorder, which includes such characteristics as impulsivity, irresponsibility, and poor behavioral controls. From this perspective, psychopathy is a hybrid condition, with some of its features predisposing toward adaptive behavior but others predisposing toward maladaptive behavior (Hall & Benning, 2006; but see Miller and Lynam (2011), for a contrasting view).

1.1. Successful psychopathy

Of particular interest in this regard are the concepts of 'non-criminal' psychopathy and the allied construct of successful psychopathy (Widom, 1977). Most research evidence suggests that psychopathy lies on a dimension rather than being an all-or-none condition (e.g., Edens, Marcus, Lilienfeld, & Poythress, 2006). 'Non-criminal' psychopaths, most of whom would presumably fall lower on the continuum than criminal psychopaths, seemingly possess the characteristic personality traits of psychopathy without its associated antisocial behaviors. It is even possible that some of the core personality traits of psychopathy, such as superficial charm and fearlessness, could be valuable in some professions (Lykken, 1982; Lykken, 1995), such as corporate business, law, law enforcement, high-contact sports, and politics. If so, at least some features of psychopathy may be tied to successful functioning in some domains of life (Hall & Benning, 2006; Smith & Lilienfeld, 2012).

Much controversy surrounds the idea of 'successful' psychopathy, in particular the question of how one should conceptualize this construct. In general, three main perspectives on 'successful' psychopathy exist: *subclinical manifestation of the condition*, *moderated expression of the full condition*, and a *dual process perspective* (Hall & Benning, 2006). The subclinical model suggests a less severe expression of the condition in which antisocial behavior results from core personality traits; thus, a less severely affected individual will exhibit fewer social transgressions. In the moderated expression model, both successful and unsuccessful psychopathy stem from the same etiology, but moderating factors, such as intelligence, socialization, and socioeconomic status, influence their behavioral expression. Dworkin and Widom (1977) found evidence for this model in a longitudinal study of New England undergraduates. After using the Minnesota Multiphasic Personality Inventory (MMPI) to screen for participants with subclinical levels

* Corresponding author. Address: Room 440, Department of Psychology, Emory University, 36 Eagle Row, Atlanta, Georgia 30322, United States.
† Deceased.
E-mail address: sarah.francis.smith@emory.edu (S.F. Smith).

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of psychopathy and schizophrenia, a 10 year follow-up study revealed that high intelligence and social class were protective factors against antisocial behavior later in life. Finally, the dual process model suggests that the interpersonal affective components of psychopathy are distinct from the antisocial deviant components (Fowles & Dindo, 2009). Thus, an individual can exhibit characteristics of the interpersonal affective dimension, without exhibiting deviant behavior; such a combination could prove adaptive in certain settings. For example, high levels of social and physical fearlessness in the absence of antisocial behavior could predispose to effective political or military leadership (Hall & Benning, 2006; Lilienfeld et al., 2012).

Nevertheless, little systematic research regarding successful psychopathy exists, as much of the conceptualization derives from speculation and clinical lore. Cleckley (1941) classic book, *The Mask of Sanity* was one of the first works to suggest that psychopathic personality does not necessarily imply criminal deviance. In fact, several of Cleckley's case descriptions refer to features of psychopathy (e.g., superficial charm and intelligence, lack of psychotic/neurotic symptoms, and low rates of suicide) that are linked to positive adjustment.

1.2. Psychopathy and heroism: clinical literature

In his seminal writings, Lykken (1982), Lykken (1995) similarly hypothesized that the same disposition, namely fearlessness, that makes psychopaths dangerous in some cases can predispose them to heroic actions in others. Most authors have operationalized heroism as altruism that involves at least some degree of risk to the performer (Franco, Blau, & Zimbardo, 2011). Lykken (1996, p. 29) speculated "that the hero and the psychopath may be twigs on the same genetic branch" in that they share a predisposition toward fearlessness that can be channeled into either socially adaptive or maladaptive outlets depending on as yet unknown variables.

Numerous examples of such individuals can be found in the news. Convicted mass murderer Ted Bundy, often regarded as a quintessential psychopath, for a time worked as a volunteer for a Seattle suicide crisis hotline (Rule, 1980). More recently, in 2004, a 32 year old Australian businessman was hailed a hero for rescuing 20 people in the tsunami that devastated Thailand. He was later arrested for assault and burglary charges; Australian police had been searching for him for two years (Australian Broadcasting Company, 2005). After the 2005 terrorist attacks in London, a 41 year old fireman was given the London Fire Brigade Gold Award for risking his life to save passengers from a bombed bus. He is now serving a 14 year sentence for involvement in a £100 million cocaine ring (The Sun, 2011). Nevertheless, these stories, albeit provocative, are merely anecdotal and do not provide dispositive evidence of a link between heroism and psychopathic traits. At the same time, in the context of discovery (Reichenbach, 1938), they offer preliminary justification for systematic investigation of the psychopathy-heroism link.

Again, little scientific research has examined the relation between psychopathy and heroism, partly reflecting (a) the difficulties in operationalizing heroic behavior and (b) a dearth of research on the correlates and causes of heroism. Recently, Franco et al. (2011) divided the concept of heroism into three categories: *military heroism, civil heroism,* and *social heroism*. Military heroism involves physical risk taking but in the context of duty. War heroes, fire fighters, and police officers who go above and beyond the call of duty would fall into this category. Civil heroism similarly involves significant physical risk, but is not bound to any code of conduct or civil duty. Instead, civil heroes are generally untrained and unprepared to deal with the situations they enter. A civilian entering a burning building to rescue a child would fall into this category. Finally, social heroism, although not associated with overt physical risk, entails interpersonal risk and personal sacrifice. A social hero typically works towards a goal for the greater good of the community but may be ostracized (or in rare cases, even killed) in the process. Martin Luther King, Jr. and Mahatma Gandhi could be considered social heroes. Franco et al. emphasized that heroism is not limited to a select few individuals; according to them, many people are capable of being heroic given the proper circumstances.

In another conceptualization, Farley (2011) distinguished Big H from Small h heroism. Big H heroism largely involves heroic action taken on a grand scale, such as saving another individual's life in a high-risk emergency. This form of heroism may depend largely on situational factors and on being in the right place in the right time, such as encountering an emergency situation. Small h heroism involves everyday instances of altruism, such as donating to charities or helping an elderly person cross the street. In contrast to Big H heroism, Small h heroism is presumably more dependent on personality features that predispose an individual to enduring altruistic behavior. Therefore, Small h heroism may be more appropriate than Big H heroism as a focus of research on the personality correlates of heroic behavior. Nevertheless, to our knowledge no research has examined the validity of Farley's distinction.

1.3. Psychopathy and heroism: research literature

Similarly, although several writers have speculated about potential linkages between psychopathy and heroism, only a few researchers have examined this association empirically. Influenced by the writings of Lykken (1982), Lykken (1996) on psychopathy and heroism, Patrick, Edens, Poythress, Lilienfeld, and Benning (2006) used the Psychopathic Personality Inventory (PPI), a well validated self-report measure of psychopathy, to assess possible correlates of positive adjustment in offenders. Factor analyses of the PPI have often revealed a two factor solution (Benning et al., 2003; but see Neumann, Malterer, and Newman (2008), for a different factor structure). PPI Factor I (PPI-I), called *Fearless Dominance*, consists of three subscales: Social Potency, Fearlessness, and Stress Immunity, and is correlated with several indicators of positive adjustment. Patrick et al. found that PPI-I correlated positively and significantly with scores on the Activity Frequency Inventory (AFI), a self-report measure designed to assess the frequency of heroic actions that are reasonably common in everyday life, such as assisting stranded motorists, calming down an angry crowd, or breaking up a fight in public. PPI Factor II (PPI-II), *Impulsive-Antisociality* (also termed Self-Centered Impulsivity), consists of four subscales: Impulsive Nonconformity, Blame Externalization, Carefree Nonplanfulness, and Machiavellian Egocentricity. In contrast to PPI-I, PPI-II significantly negatively correlated with the AFI. Moreover, the difference between the PPI-I and PPI-II correlations with self-reported heroism was statistically significant. These findings are consistent with Lykken's suggestion of a link between fearlessness and heroism.

Falkenbach and Tsoukalas (2011) compared the psychopathic personality characteristics of ostensible 'hero' samples with those of incarcerated offenders using the PPI. Hero samples consisted of individuals involved in high risk, prosocial occupations, such as police officers and firefighters. As predicted, law enforcement officials scored higher on the PPI-I than did offenders. Perhaps surprisingly, the former group also obtained higher scores on the PPI Coldheartedness subscale, which assesses an absence of guilt and empathy. The reason for the latter finding is unclear, although it could reflect a habituation to the feelings of others that results from working in high risk occupations. One shortcoming of this investigation is the absence of any direct measures of heroism and reliance on occupations as a rough proxy for heroic behavior.

Although the aforementioned findings are consistent with Lykken's (1982) conjecture that fearlessness can predispose to heroic actions, they are preliminary and based on samples of unclear generalizability to the general population; moreover, at least some research points to different conclusions. Levenson (1990) compared convicted drug users displaying antisocial traits with policemen and firefighters who were decorated for heroic actions, as well as with rock climbers. Using the Sensation Seeking Scale (Zuckerman, 1979), Levenson found no evidence that a heroic personality parallel to psychopathy exists. In general, the heroic policemen and firefighters scored near the norms on most scales. The heroes scored well below the norm on measures of thrill and adventure seeking, which have often been tied conceptually and empirically to psychopathy (Zuckerman, 1985). Levenson took this latter finding as evidence against the existence of an underlying disposition to both heroism and psychopathy.

Franco and colleagues similarly raised questions about the claim that heroism is linked to stable individual differences. They used the phrase the "banality of heroism" (Franco et al., 2011, p. 2) to suggest that heroism is largely a result of situational as opposed to personality variables (Franco et al., 2011). From this perspective, psychopathic personality traits may bear little association with heroism given that heroism is primarily a function of chance factors, such as being in the right place at the right time. Nevertheless, this conclusion holds more for Farley's (2011) Large H than Small h heroism. Because the latter is more consistent across time and situations, it may be more likely to reflect longstanding dispositional variables (Epstein, 1979), including psychopathy.

1.4. Hypotheses

In the following four studies, we examine the relation between psychopathy and heroism in four samples: two undergraduate samples, a community sample, and one remarkable sample: the 42 U.S. presidents up to and including George W. Bush (see Participants). Specifically, we hypothesize there will be a positive association between psychopathy and both (a) everyday forms of heroism and (b) more exceptional forms of heroism, namely, war heroism in the presidential sample. Consistent with previous literature, in both cases, we operationalized heroism as altruism entailing at least some degree of risk (see Franco et al., 2011). Such risk can be social, physical, or both.

The construct of everyday heroism involves multiple acts of commonplace heroic behaviors (i.e., Small h heroism). Because everyday heroism consists of repeated acts that occur across many situations, we expected this form of heroism to be more linked to dispositional traits than exceptional heroism. In general, aggregating actions across largely independent situations tends to provide a better assessment of personality traits than does assessing an action in a single situation (Epstein, 1979). Although more exceptional forms of heroism (i.e., Big H heroism), such as that we measured in our presidential sample (see Participants), presumably tends to be less dispositional than Small h heroism, it too may be influenced to some degree by personality traits, especially when it is measured by means of repeated behaviors, such as daring military actions, that extend over months or years.

Consistent with the conjectures of Lykken (1982), Lykken (1995), we expect PPI-I, which assesses the fearless dominance component of psychopathy, to be positively associated with self-reported measures of both everyday and exceptional heroism and closely related forms of altruism, especially altruism toward strangers, which presumably entails at least a modicum of social risk, physical risk, or both. Additionally, we predict measures of fearlessness to be associated with both psychopathy and heroism, and that the link between psychopathy and heroism will be partially mediated by fearlessness given that fearlessness presumably predisposes both constructs (Lykken, 1995). We predicted partial rather than full mediation given that other variables, such as impulsivity, may account for the association between psychopathy and heroism.

We also conducted several exploratory analyses. Specifically, we examined:

1. The links between fearlessness and heroism, on the one hand, and antisocial behavior, on the other.
2. The relation between more specific features of psychopathy as assessed by lower-order PPI subscales (e.g., Fearlessness, Social Potency, Stress Immunity, Impulsive Nonconformity, Coldheartedness) and everyday heroism.
3. The relation of other constructs tied to in previous literature to altruistic behavior, namely, sensation seeking and empathy (see Batson, Ahmad, Lishner, & Tsang 2002; Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Latané & Darley, 1970), to psychopathy and heroism. Specifically, sensation seeking is closely allied to risk taking and could increase individuals' propensity to engage in altruistic actions associated with physical danger. For example, the sensation seeking scores of firefighters are elevated relative to the general population and are comparable to those of prisoners (Zuckerman, 1985). Moreover, empathy has been linked in numerous studies to higher rates of helping (e.g., Batson et al., 2002).

2. Study 1

2.1. Method

2.1.1. Participants

Participants were undergraduates (N = 124) ranging in age from 17 to 45 years of age with a mean of 20.98 (SD = 4.56). The sample was primarily female (66.9%). Data regarding race of this sample were not collected. In this Study, as well as Studies 2 and 3, we conducted moderated multiple regression analyses to examine whether the pattern of results changed as function of age and gender. Because age and gender did not moderate the associations between psychopathy dimensions and any indices of heroism in any of the three studies, we present analyses for the combined samples only.

2.1.2. Measures

2.1.2.1. Heroism and altruism measures. Activity Frequency Inventory (AFI; Lilienfeld, 1998). The AFI was used to assess everyday heroism, that is, heroic actions that are relatively common in daily life. The AFI assesses the frequency of heroic acts (e.g. attempting to resuscitate a physically injured stranger or chasing after a person who had just committed a crime) over an individual's lifetime. For the purposes of this measure, heroism was operationalized as any prosocial activity involving some degree of physical or social risk. The AFI also contains (a) a validity scale consisting of five items that assess highly implausible actions (e.g., "Pulling someone from the jaws of a shark") and (b) a measure of the amount of time the respondent has lived in or near a major city. In the analyses reported here, one participant was excluded on the basis of elevated scores on the AFI validity scale. Item (b) was used as a covariate in subsidiary analyses to exclude the possibility that correlations between the AFI and other measures are due to nonpsychological differences across respondents (e.g., frequency of encounters with crime) in their likelihood of heroic behaviors. In this sample, the AFI correlated moderately with Rushton's altruism scale (r = .41, p < .001), offering evidence for its convergent validity. In this study and in Studies 2 and 3, the AFI was analyzed in two ways given that each index offers somewhat different information. One AFI measure was based on raw (total) scores of heroic actions, and the

other was based on scores recoded into five frequency categories similar to those on Rushton, Chrisjohn, and Fekken (1981)'s self-report altruism scale. Cronbach's alpha for the AFI in this sample was .79 for both raw and transformed scores.

The *Self-Report Altruism Scale* (SRA, Rushton et al., 1981). The SRA is a self-report measure that assesses the frequency with which individuals engage in altruistic behaviors. Items are answered on a 1–5 Likert-type scale (i.e., 1 = Individual never engages in behavior, 2 = Individual has engaged in behavior once, 3 = Individual has engaged in behavior more than one, 4 = Individual engages in the behavior often, 5 = Individual engages in behavior very often). The measure contains two subscales, one measuring altruistic behavior towards strangers (e.g., "I have helped push a stranger's car out the snow/mud", "I have given a stranger a lift in my car"), and the other assessing altruistic behavior towards charities (e.g., "I have given money to a charity", "I have given blood"). Given that helpful behavior toward strangers ostensibly often involves at least some degree of risk, we regarded it as a subsidiary indicator of heroic altruism.

Total scores on the SRA correlate positively with peer ratings of global altruistic behavior as well as other indicators of altruism (e.g., filling out an organ donation card, volunteering to read to the blind, the nurturance scale on the Personality Research Form, taking a first aid course). Additionally, the SRA correlates positively and significantly with a variety of measures of prosocial orientation (Rushton et al., 1981). In this sample, Cronbach's alpha for the stranger and charity subscales were .40 and .71, respectively.

2.1.2.2. Psychopathy and antisocial behavior measures. The *Psychopathic Personality Inventory* (PPI; Lilienfeld & Andrews, 1996) is a self-report measure of psychopathy that focuses on personality traits, attitudes, and dispositions rather than explicit antisocial behaviors. Items are answered on a 1–4 Likert-type scale. The measure consists of eight lower-order scales (i.e., Social Potency, Fearlessness, Stress Immunity, Impulsive Nonconformity, Blame Externalization, Carefree Nonplanfulness, Machiavellian Egocentricity, and Coldheartedness) that some researchers (e.g., Benning et al., 2003; but see Neumann, Malterer, and Newman (2008), for an alternative factor structure) believe coalescence into two largely independent higher-order factors already described, PPI-I (Fearless Dominance) and PPI-II (Impulsive Antisociality). An eighth subscale, Coldheartedness, does not load highly on either PPI higher-order factor and was examined separately in exploratory analyses. PPI total scores positively correlate with peer and interviewer ratings of Cleckley's psychopathy as well as measures of antisocial personality disorder. PPI total scores show negative correlations with self-reported fear, anxiety, and empathy, and positive associations with indices of antisocial, narcissistic, and histrionic traits as well as measures of sensation seeking and behavioral activation (Lilienfeld & Andrews, 1996; Lilienfeld & Widows, 2005).

In this study, an abbreviated, 40 item version of the full (187 item) *Psychopathic Personality Inventory* (PPI; Lilienfeld & Andrews, 1996) was used to assess psychopathic personality traits. This shortened version of the PPI correlates $r = .86$ with the original version. Cronbach's alpha for the PPI subscales were as follows: *Social Potency*, $\alpha = .78$; *Fearlessness*, $\alpha = .72$; *Stress Immunity*, $\alpha = .76$; *Impulsive Nonconformity*, $\alpha = .68$; *Blame Externalization*, $\alpha = .80$; *Carefree Nonplanfulness*, $\alpha = .58$; *Machiavellian Egocentricity*, $\alpha = .56$; and *Coldheartedness*, $\alpha = .57$.

Personality Diagnostic Questionnaire-4 (PDQ-4; Hyler, 1994). The PDQ-4 is a self-report True–False measure that assesses the DSM-IV-TR criteria for Axis II disorders. In this study, we used the Antisocial Personality Disorder (ASPD) subscale of the PDQ-4 to measure antisocial and criminal behavior. This True–False scale contains 22 items and asks participants to respond to a number of statements assessing antisocial behavior, such as "I have no trouble keeping jobs or staying in school," and "Over the past several years, I was physically cruel to animals." Because the base rate of categorical ASPD in our sample was low, we used continuous scores in the analyses. In this sample, Cronbach's alpha for the PDQ-4 ASPD scale was .88.

2.2. Results

2.2.1. Main analyses

Table 1 presents the zero-order correlations among the major measures. Consistent with our hypotheses, PPI total scores and PPI-I specifically correlated positively and significantly with both the AFI raw and transformed scores. In contrast, PPI-II was not significantly associated with either raw or transformed AFI scores. A test of the significance of the difference between dependent correlations revealed that this difference was non-significant but in the predicted direction for both AFI raw scores [$t\,(121) = 1.62$, $p = .053$] and transformed scores [$t\,(121) = 1.41$, $p = .081$].

Additionally, the correlation between PPI-I and total SRA scores was positive but fell short of significance, and PPI-I was positively and significantly associated with the SRA-stranger subscale. In contrast, the correlations between PPI-II and SRA scores were non-significant. A test of the significance of the difference between dependent correlations revealed that this difference was significant for SRA total scores [$t\,(121) = 1.69$, $p = .047$], SRA-Charity subscale scores [$t\,(121) = 1.77$, $p = .040$], but not for SRA-Stranger subscale scores [$t\,(121) = .816$, $p = .208$].

2.2.2. Exploratory analyses

In exploratory analyses, the correlation between transformed AFI scores and ASPD scale scores was positive and approached significance (see Table 1). Although ASPD scores were not associated with total SRA or SRA-Charity subscale scores, as expected ASPD scores were significantly positively associated with the SRA-Stranger subscale.

We also examined the associations between PPI subscales and heroism indicators (see Table 1). PPI Social Potency and Blame Externalization were significantly and positively associated with AFI transformed scores. PPI Carefree Nonplanfulness was significantly negatively associated with AFI raw scores. The correlation between PPI Carefree Nonplanfulness and AFI transformed scores approached significance and was in the predicted direction. Additionally, PPI Social Potency was positively and significantly associated with total SRA scores. PPI Carefree Nonplanfulness and Coldheartedness were negatively and significantly associated with total SRA scores. PPI Social Potency was also positively and significantly associated with the SRA-Charity subscale, whereas PPI Carefree Nonplanfullness and Coldheartedness were negatively and significantly associated with the SRA-Charity subscale. Finally, PPI Social Potency, Impulsive Nonconformity, and Fearlessness were positively and significantly associated with the SRA-Stranger subscale.

3. Study 2

3.1. Method

3.1.1. Participants

Participants were undergraduates ($N = 125$) ranging in age from 17 to 25 years with a mean of 18.43 years ($SD = 1.18$). The sample was primarily male (62.9%) and Caucasian (72.6%). The rest of the sample was Asian (8.1%), African American (6.5%), Hispanic (6.5%), or Other (6.5%).

Table 1
Correlations among scales in Study 1.

Measure	AFI (transformed)	SRA total	SRA-charity scale	SRA-stranger scale
ppi-total	.19*(.24)**	.00	−.09	.20*
PPI-I	.28**.(.29)**	.17°	.11	.23**
PPI-II	.04(.12)	−.04	−.11	.13
PPI social potency	.29**(.31***)	.30**	.27**	.25**
PPI fearlessness	.24**(.25)***	.08	.04	.16°
PPI stress immunity	.01(−.02)	−.06	−.10	.03
PPI blame externalization	.15(.19)*	.04	.04	.02
PPI carefree nonplanfulness	−.19*(−.15)$^{\circ}$	−.29**	−.37***	−.06
PPI impulsive nonconformity	.11(.14)	.09	.02	.21*
PPI machiavellian egocentricity	−.04(.06)	−.01	−.05	.13
PPI coldheartedness	−.07(−.11)	−.29**	−.33***	−.15
PDQ-ASPD	.14 (.17)$^{\circ}$	.05	−.01	.24*

Note. N = 124; PPI = psychopathic personality inventory; PDQ-ASPD = personality diagnostic questionnaire-antisocial personality disorder subscale; AFI = activity frequency inventory; SRA = self-report altruism.
$^{\circ}$ $p < .10$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

3.1.2. Measures

3.1.2.1. Heroism, altruism, and empathy measures. The *Activity Frequency Inventory* (AFI; Lilienfeld, 1998) was used to assess everyday heroism (α = .88). One participant was excluded from analyses due to an elevated score on the AFI validity scale. The *Self-Report Altruism Scale* (SRA; Rushton et al., 1981) was used to measure altruistic and related behaviors (Charity Subscale, α = .57; Stranger Subscale, α = .78). See Study 1 for a more detailed description of these measures.

Questionnaire Measure of Emotional Empathy (Mehrabian & Epstein, 1972). The Questionnaire Measure of Emotional Empathy is a 33 item True–False self-report measure assessing an individual's tendency to respond emotionally to others' experiences (e.g., "It makes me sad to see a lonely stranger in a group"; "I am very upset when I see an animal in pain"). The questionnaire correlates positively with helping behavior and negatively with aggression (Barnett, Howard, King, & Dino, 1981; Mehrabian & Epstein, 1972). A number of researchers have found that high scorers on the Questionnaire Measure of Emotional Empathy tend to exhibit high levels of arousability and heightened social concern (Mehrabian, 1977; Mehrabian & O'Reilly, 1980; Rim, 1974). In this sample, Cronbach's alpha for the Questionnaire Measure of Emotional Empathy was .71.

3.1.2.2. Psychopathy and antisocial behavior measures. Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996). Participants in Study 2 received the full (187) version of the PPI. In this sample, Cronbach's alphas of the PPI subscales were high (*Social Potency*, α = .90; *Fearlessness,* α = .88; *Stress Immunity*, α = .73; *Impulsive Nonconformity*, α = .81; *Blame Externalization*, α = .88; *Carefree Nonplanfulness,* α = .82; *Machiavellian Egocentricity*, α = .87; and *Coldheartedness*, α = .80).

The full PPI (in contrast to the brief version administered in Study 1) also includes three validity scales designed to detect biased or inconsistent responding. The Deviant Responding Scale consists of 10 items aimed at detecting malingering, careless responding, or difficulties in reading comprehension. The Variable Response Inconsistency Scale consists of the sum of the absolute differences between 40 item pairs, measuring a respondent's proclivity to respond inconsistently to items with similar content. In this sample, we eliminated an additional five participants with scores of 50 and above on the Variable Response Inconsistency Scale or scores of 24 and above on the Deviant Responding Scale. Finally, the PPI Unlikely Virtues Scales consist of items designed to detect socially desirable responding (e.g., "On major holidays, I never eat more than I should") and was used as a covariate in subsidiary analyses.

Minnesota Multiphasic Personality Inventory -2 Psychopathic Deviate Scale (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). The Psychopathic Deviate scale is a self-report True–False index used to detect individuals with "psychopathic personality, asocial and amoral type" (McKinley & Hathaway, 1994, p. 167). Many researchers use this scale as an indicator of psychopathy, although most findings suggest that the Psychopathic Deviate scale is primarily a generalized measure of the propensity towards antisocial behavior rather than of the core interpersonal and affective features of psychopathy (Hare, Cox, & Frazelle, 1978; Hawk & Peterson, 1974; Lykken, 1957).

Minnesota Multiphasic Personality Inventory-2 Antisocial Practices Scale (Butcher et al., 1989). The Antisocial Practices Scale is a self-report True–False index used to assess such traits as anti-authority attitudes, dishonesty, selfishness, and exploitativeness. In addition, the scale measures nonviolent antisocial and criminal behaviors often associated with psychopathy. Lilienfeld (1996) suggested that the Antisocial Practices Scale measures many of the core personality characteristics of psychopathy given its correlation with such psychopathic traits as poor impulsivity and fearlessness. In this sample, Cronbach's alpha for the Antisocial Practices Scale was .70.

Self-Reported Delinquent Behavior Questionnaire This measure is a 36 item True–False self-report questionnaire that assesses involvement in a variety of delinquent or antisocial activities, such as cutting classes at school, stealing money, and breaking windows of a house. The questionnaire, originally used in the Cambridge Study of Delinquent Development in the U.K. (West, 1969), was slightly modified in this study for use with American participants (e.g. substituting motorcycle for motorbike and gun for cosh). Additionally, two items (regularly smoking cigarettes under the age of 15 and taking illegal drugs like purple hearts or smoking reefers) were omitted. In our sample, internal consistency (Cronbach's alpha) for the Self-Reported Delinquent Behavior Questionnaire was high (α = .88).

Additionally, the ASPD subscale of the *Personality Diagnostic Questionnaire -4* (PDQ-4; Hyler & Ryder, 1996) was used to measure engagement in antisocial behaviors (α = .70). See Study 1 for a more detailed description of this measure.

3.1.2.3. Anxiety, sensation seeking, and other personality measures. Activity Preference Questionnaire (Lykken, Tellegen, & Katzenmeyer, 1973). This 37-item measure was designed to assess trait fear by presenting participants with pairs of situations, one anxi-

ety-provoking and the other boring or onerous (e.g., taking a roller coaster ride or washing three storm windows on both sides). Respondents must indicate which they least prefer. The measure consists of two scales: Physical Anxiety and Social Anxiety (α = .89; α = .71, respectively). To facilitate comparison with other measures in this sample (e.g., psychopathy), scores on the Activity Preference Questionnaire were reversed, so that higher scores indicated greater fearlessness.

Sensation Seeking Scale – Form V (Zuckerman, Eysenck, & Eysenck, 1978). This 40 item measure assesses sensation seeking by asking respondents to indicate their preference of two opposing situations (e.g. "I like 'wild' uninhibited parties" versus "I prefer quiet parties with good conversation"). Factor analyses of this measure have revealed four subscales: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (DIS), and Boredom Susceptibility (BS) (Ball, Farnill, & Wangeman, 1983; Zuckerman et al., 1978). Cronbach's alphas for the Sensation Seeking Scale subscales were as follows: TAS, α = .84; ES, α = .60; DIS, α = .70; and BS, α = .50.

3.2. Results

3.2.1. Main analyses

Table 2 presents the zero-order correlations among the major measures used in the study. Consistent with our hypotheses, PPI total scores were positively correlated with AFI raw (but not transformed) scores although this relation fell short of significance. Contrary to predictions, PPI-I was not significantly associated with AFI scores, although PPI-II was. A test of the significance of the difference between dependent correlations revealed that this difference was not significant for AFI raw [t (116) = −.930, p = .823] or AFI transformed scores [t (116) = .092, p = .463]. In contrast, PPI total, PPI-I, and PPI-II scores were positively and significantly correlated with scores on the SRA-Stranger subscale. PPI total and PPI-II scores were not significantly related to SRA total scores. PPI-I was positively associated with SRA total scores, although this association fell just short of significance. Neither PPI total, PPI-I, nor PPI-II scores was associated with scores on the SRA-Charity subscale. A test of the significance of the difference between dependent correlations revealed that these differences were not significant for SRA total [t (116) = .646, p = .260], SRA charity [t (116) = .732, p = .232], or SRA stranger scores [t (116) = .095, p = .462].

Total scores on the MMPI Psychopathic Deviate scale were significantly positively correlated with AFI raw scores. The MMPI Psychopathic Deviate scale was correlated positively with AFI transformed scores and approached significance; the MMPI Psychopathic Deviate scale was also positively and significantly associated with scores on the SRA-Stranger subscale.

Total fearlessness, as measured by the Activity Preference Questionnaire, was not significantly related to raw AFI scores although the relation was in the predicted direction (r = .18, p = .11). However, scores on the Activity Preference Questionnaire-Physical subscale were significantly associated with AFI raw but not transformed scores (r = .20, p < .05). Because the relationships among the AFI, Activity Preference Questionnaire, and PPI total scores were not significant, the hypothesis that fearlessness mediated the relationship between psychopathy and heroism was not tested because the conditions for traditional mediation (see Baron & Kenny, 1986) were not met.

3.2.2. Exploratory analyses

Several exploratory analyses were conducted to examine the relations among psychopathy, antisocial behavior, and heroism. Table 2 also presents zero-order correlations among the AFI, SRA, and measures of antisocial behaviors. As can be seen, scores on the MMPI-Antisocial Practices Scale, the Self-Reported Delinquent Behavior Questionnaire, and the ASPD scale of the PDQ-4 were positively and significantly associated with AFI scores. Additionally, scores on the Self-Reported Delinquent Behavior Questionnaire were significantly positively correlated, respectively, with total SRA scores. The ASPD scale was positively but not significantly associated with total SRA scores. The Self-Reported Delinquent Behavior Questionnaire and ASPD were also significantly correlated with scores on the SRA-Stranger subscale.

The relations among the AFI, Questionnaire Measure of Emotional Empathy, and Sensation Seeking Scale were also examined. Empathy, as measured by the Questionnaire Measure of Emotional Empathy, was not significantly associated with raw scores or transformed scores on the AFI (r = .05, ns; r = .04, ns). Total Sensation Seeking Scale scores and the Sensation Seeking-Thrill and Adventure Seeking subscale scores were positively associated with AFI

Table 2
Correlations among psychopathy, heroism, altruism, and antisocial behavior scales in Study 2.

Measure	AFI (transformed)	SRA total	SRA-charity scale	SRA-stranger scale
PPI-total	.16°(.11)	.07	−.02	.25**
PPI-I	.11(.14)	.17°	.11	.24**
PPI-II	.21*(.13)	.10	.03	.23**
PPI social potency	.11(.21)*	.28**	.22*	.27**
PPI fearlessness	.14(.09)	.07	.03	.16°
PPI stress immunity	−.12(−.10)	−.10	−.12	.00
PPI blame externalization	.25**(.24)*	.24*	.26**	.15
PPI carefree nonplanfulness	.01(−.10)	−.13	−.21*	.15
PPI impulsive nonconformity	.22*(.13)	.17°	.12	.26**
PPI machiavellian egocentricity	.14(.10)	.03	−.05	.17°
PPI coldheartedness	−.19*(−.24)**	−.39***	−.49***	−.11
MMPI-Pd	.19*(.16)°	.15	.10	.24**
MMPI-ASP	.19*(.13)	.02	.00	.08
SRDBQ	.35***(.30)**	.19*	.08	.38***
PDQ- ASPD	.36***(.28)**	.18°	.08	.36***

Note. N = 119; AFI = activity frequency inventory; MMPI-ASP = MMPI antisocial practices scale; MMPI-Pd = MMPI psychopathic deviate scale; PPI = psychopathic personality inventory; SRDBQ = self-report delinquent behavior questionnaire; PDQ-ASPD = personality diagnostic questionnaire – antisocial personality disorder scale; SRA = self-report altruism scale.
° p < .10.
* p < .05.
** p < .01.
*** p < .001.

raw scores (r = .21, p < .05; r = .19, p < .05). Scores on the Sensation Seeking-Experience Seeking subscale were positively associated with AFI raw scores (r = .18, p = .08) although this relation fell short of significance.

Several of the eight PPI subscales were predictive of AFI and SRA scores (see Table 2). PPI Blame Externalization was significantly positively associated with both raw and transformed AFI scores. PPI Social Potency was significantly positively associated with AFI transformed scores only, whereas PPI Impulsive Nonconformity was significantly positively associated with AFI raw scores only. Additionally, PPI Coldheartedness was significantly negatively associated with transformed scores on the AFI. PPI Social Potency was significantly positively associated with SRA total, SRA-Charity, and SRA-Stranger scores, PPI Blame Externalization was significantly positively associated with SRA total and SRA-Charity scores, and PPI Coldheartedness was significantly negatively associated with SRA total and SRA-Charity scores.

4. Study 3

4.1. Method

4.1.1. Participants

Participants were North American members of the online community (N = 457) ranging in age from 18 to 73 years of age with a mean of 34.54 (SD = 11.9). The sample was primarily female (62.1%) with a racial breakdown as follows: Caucasian (74.4%), African American (8.1%), Asian (5.9%), Hispanic (2.6%), Biracial (2.4%), American Indian (1.8%), Middle Eastern (.4%), American Hawaiian (.2%), and Other (.4%). Because a subset of the total sample (n = 145) received only some of the measures due to computer malfunction (the internet connection to the web site cut off prematurely for some participants), the sample sizes differ across analyses. Nevertheless, follow-up analyses (t- and χ^2-tests) revealed no significant differences on any of the psychopathy measures, age, or ethnicity between excluded and included participants. Significantly more women received the complete battery of measures than men.

4.1.2. Procedure

Data were collected from participants using Amazon's Mechanical Turk (M-Turk) system, a widely used system allowing secure, rapid, and inexpensive data collection over the internet. Participants were reimbursed $3 for their participation. With a user base of approximately 100,000 individuals, M-Turk hosts surveys posted by researchers to be voluntarily completed by workers for monetary compensation. M-Turk samples are more representative of the U.S. population than undergraduate samples, significantly more diverse than undergraduate samples, and meet acceptable psychometric standards (Buhrmester, Kwang, & Gosling, 2011; Simons & Chabris, 2012). Participants were administered the following questionnaires online using M-Turk.

4.1.3. Measures

4.1.3.1. Heroism, altruism, and empathy measures. The *Activity Frequency Inventory* (AFI; Lilienfeld, 1998) was used to assess everyday heroism (α = .67 [Raw], .85 [Transformed]). Seven participants were excluded from analyses due to elevated or missing scores on the AFI validity scale; three additional participants were eliminated as extreme outliers (more than three standard deviations above the mean) on the AFI total score. The *Self-Report Altruism Scale* (SRA; Rushton et al., 1981) was used to measure altruistic and related behaviors (Charity Subscale, α = .87; Stranger Subscale, α = .74). See Study 1 for a more detailed description of these measures.

4.1.3.2. Psychopathy and antisocial behavior measures. Psychopathic Personality Inventory-Revised (PPI-R; Lilienfeld & Widows, 2005). Participants in Study 3 received the full (154 item) revised version of the PPI. In this sample, Cronbach's alphas of the PPI-R subscales were high (*Social Potency*, α = .91; *Fearlessness*, α = .90; *Stress Immunity*, α = .91; *Impulsive Nonconformity*, α = .87; *Blame Externalization*, α = .91; *Carefree Nonplanfulness*, α = .85; *Machiavellian Egocentricity*, α = .86; and *Coldheartedness*, α = .85). In this sample, we eliminated an additional 15 participants with scores of 50 and above on the Variable Response Inconsistency Scale or scores of 26 and above on the Deviant Responding Scale. The PPI-R Unlikely Virtues Scales was used as a covariate in subsidiary analyses. See Studies 1 and 2 for a more detailed description of the PPI.

Triarchic Psychopathy Measure (TriPM; Patrick, 2010). The TriPM is a newly constructed 58 item self-report measure designed to assess three key dimensions of psychopathy broadly comparable to those of the PPI, namely boldness, disinhibition and meanness (Patrick, Fowles, & Krueger, 2009). We administered the TriPM in Study 3 to provide an additional measure of the core psychopathy constructs assessed by the PPI, thereby addressing the problem of mono-operation bias in Studies 1 and 2 (see Cook & Campbell, 1979). TriPM items are answered on a 1–4 Likert type scale. The Boldness scale (19 items) maps roughly onto the PPI-R construct of Fearless Dominance (Patrick, 2010). The Disinhibition (20 items) and Meanness (19 items) scales are derived from the Externalizing Spectrum Inventory (ESI; Krueger, Markon, Patrick, Benning, & Kramer, 2007) and map roughly onto the PPI-R constructs of Impulsive Antisociality and Coldheartedness, respectively. The Boldness scale is positively associated with the interpersonal facet (e.g. charm, grandiosity, manipulativeness) of the Psychopathy Checklist-Revised (PCL-R) and the Fearless Dominance component of the PPI-R (Patrick, 2010; Sellbom & Phillips, 2012; Stanley, Wygant, & Sellbom, 2013). The Disinhibition scale is positively associated with the lifestyle facet (e.g., impulsivity, irresponsibility) of the PCL-R (Patrick, 2010), and with PPI-R Self Centered Impulsivity (Sellbom & Phillips, 2012; Stanley et al., 2013). Scores on the Meanness scale are positively associated with callous aggression, the affective facet (e.g., shallow affect, lack of remorse) of the PCL-R (Patrick, 2010), and PPI-R Coldheartedness (Sellbom & Phillips, 2012). In this sample, Cronbach's alpha for the TriPM subscales were high (*Boldness*, α = .88; *Disinhibition*, α = .88; *Meanness*, α = .91).

Structured Clinical Interview for DSM Disorders-II: Personality Questionnaire (SCID-II Personality Questionnaire; Spitzer, Williams, Gibbon, & First, 1990). The SCID-II Personality Questionnaire is a self-report screening tool used to assess the major DSM personality disorders. Participants in Study 3 were administered the ASPD subscale of the SCID-II Personality Questionnaire to assess for engagement in antisocial behavior; again, continuous scores were used in the analyses. In this sample, Cronbach's alpha for the SCID-II Personality Questionnaire ASPD subscale was .71.

4.2. Results

4.2.1. Main analyses

Table 3 presents the zero-order correlations among the major measures used in Study 3. Consistent with our hypotheses, PPI total scores were significantly and positively associated with AFI raw and transformed scores. PPI-I was also significantly positively associated with AFI raw and transformed scores. Also consistent with hypotheses, PPI-II was not significantly associated with AFI scores. A test of the significance of the difference between dependent correlations revealed that this difference between PPI-I and PPI-II was significant for both AFI raw [t (421) = 2.24, p < .05] and AFI transformed scores [t (421) = 3.72, p < .001].

PPI total scores were not significantly associated with SRA total scores or the SRA-Stranger subscale. PPI total scores were signifi-

Table 3
Correlations among scales in Study 3.

Measure	AFI (transformed)	SRA total	SRA charity scale	SRA stranger scale
PPI-total	.13** (.18)***	−.06	−.12**	.06
PPI-I	.20***(.28)***	.23***	.17**	.29***
PPI-II	.05 (.05)	−.20**	−.22***	−.11°
PPI social potency	.18***(.24)***	.22***	.18**	.24***
PPI fearlessness	.13**(.20***)	.02	−.03	.12°
PPI stress immunity	.13**(.18***)	.24***	.20**	.28***
PPI blame externalization	.12*(.08)	−.06	−.09	−.01
PPI carefree nonplanfulness	−.10*(−.11*)	−.21**	−.22***	−.14*
PPI impulsive nonconformity	.11*(.13**)	−.05	−.08	.03
PPI machiavellian egocentricity	.00(.02)	−.25***	−.25***	−.20**
PPI coldheartedness	−.08(−.04)	−.27***	−.30***	−.16**
TriPM boldness	.17***(.27)***	.28***	.24***	.31***
TriPM disinhibition	.04(.04)	−.14*	−.18**	−.04
TriPM meanness	−.03(.02)	−.22***	−.24***	−.12*
ASPD	.16*(.16)*	.00	−.03	.07

Note. AFI = activity frequency inventory; ASPD = antisocial personality disorder SCID-II personality questionnaire; PPI = psychopathic personality inventory. Due to missing data, *N* ranges from 268–453 depending on the analysis conducted.
° $p < .10$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

cantly negatively associated with the SRA-Charity subscale. PPI-I was significantly positively associated with SRA total scores, the SRA-Charity subscale, and the SRA-Stranger subscale. Finally, PPI-II scores were significantly negatively associated with SRA total and SRA-Charity subscale scores. PPI-II was negatively associated with the SRA-Stranger subscale although this relation fell short of significance. A test of the significance of the difference between dependent correlations revealed that the differences between PPI-I and PPI-II were significant for SRA total [t (279) = 5.29, $p < .001$], SRA charity [t (279) = 4.86, $p < .001$], and SRA stranger scores [t (279) = 5.12, $p < .001$].

Also consistent with hypotheses, TriPM Boldness, which roughly maps onto PPI-I (Fearless Dominance), was significantly and positively associated with AFI raw and transformed scores. TriPM Boldness was also significantly positively associated with SRA total, SRA-Charity, and SRA-Stranger subscale scores. TriPM Disinhibition, which is closely associated with PPI-II (Impulsive Antisociality), was not significantly associated with AFI raw or transformed scores. TriPM Disinhibition was significantly negatively associated with SRA total scores and the SRA-Charity subscale. TriPM Disinhibition was not significantly associated with the SRA-Stranger subscale. Finally, TriPM Meanness, which is closely associated with PPI subscale Coldheartedness, was not significantly associated with AFI raw or transformed scores and was significantly negatively associated with SRA total scores, the SRA-Charity subscale, and the SRA-Stranger subscale.

4.2.2. Exploratory analyses

Exploratory analyses were conducted to examine the relations among psychopathy, antisocial behavior, and heroism. Table 3 also presents zero-order correlations among the AFI, SRA, and the ASPD scale of the SCID-II Personality Questionnaire. The ASPD scale was positively and significantly associated with both AFI raw and transformed score. The ASPD scale was not significantly associated with SRA total, SRA-Charity, or SRA-Stranger scores.

Several of the eight PPI subscales were predictive of AFI and SRA scores. PPI Blame Externalization was significantly positively associated with raw AFI scores only. PPI Social Potency was significantly positively associated with both AFI transformed and raw scores. PPI Impulsive Nonconformity was significantly positively associated with AFI raw and transformed scores. PPI Stress Immunity was significantly positively associated with AFI raw and transformed scores. Additionally, PPI Carefree Nonplanfulness was significantly and negatively associated with both AFI raw and transformed scores. PPI Social Potency was significantly positively associated with SRA total, SRA-Charity, and SRA-Stranger scores. PPI Stress Immunity was significantly and positively associated with SRA total, SRA-Charity, and SRA-Stranger scores. PPI Fearlessness was positively associated with the SRA-Stranger subscale although this association fell just short of significance. PPI Machiavellian Egocentricity was significantly negatively associated with SRA total, SRA-Charity, and SRA-Stranger scores. PPI Carefree Nonplanfulness was significantly negatively associated with SRA total, SRA-Charity, and SRA-Stranger scores. Finally, PPI Coldheartedness was significantly negatively associated with SRA total, SRA-Charity, and SRA-Stranger scores.

5. Study 4

5.1. Method

5.1.1. Participants and raters

In Study 4, we used biometric procedures to retrospectively examine the association between U.S. presidents' levels of psychopathic personality traits and rated war heroism (see Lilienfeld et al. (2012) for earlier analyses of this dataset). Raters of presidents' personality traits in this study were 121 experts recruited by Rubenzer and Faschingbauer (2004) to evaluate the personality of the 42 U.S. presidents up to and including George W. Bush; Barack Obama was not included because of the unavailability of FFM data on him from presidential experts (although there were 43 presidencies up to and including George W. Bush, there were only 42 presidents, as Grover Cleveland was elected president twice in nonconsecutive terms). Importantly, these experts were asked to rate their target president's pre-office (see Procedure) personality traits using well-validated personality measures (see Measures of Personality, Psychopathy, and Covariates). Because some raters completed ratings on more than one president, the total number of ratings was 177.

These experts were American biographers, journalists, and scholars who are established authorities on one or a few of the U.S. presidents. They had authored published biographies on each president or had been nominated by other presidential experts as particularly well-informed regarding a given president. The num-

ber of expert raters per president ranged from 1 to 13, with a mean of 4.2 (SD = 2.9; Rubenzer, Faschingbauer, & Ones, 2000).

5.1.2. Measures of personality, psychopathy, and covariates

Revised NEO Personality Inventory (NEO PI-R) Form R. The NEO PI-R is a 240-item questionnaire that assesses the five major dimensions of personality (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) from the FFM (Costa & McCrae, 1992). Nested within each of the five domains are six facet scales, each containing 8 items cast in non-technical language and endorsed on a 5-point Likert-type scale. Support for the NEO PI-R's construct validity is extensive at both the domain and facet levels (Costa & McCrae, 1992; Lynam & Widiger, 2001). As discussed later, scores on all four psychopathy indices were derived from ratings on the NEO PI-R.

In this study, raters (121 presidential experts; see "Raters") completed Form R, an observer-report version of the NEO PI-R "designed to be completed by a family member, friend, acquaintance—or anyone who knows the person well" (Rubenzer & Faschingbauer, 2004, p. 5). In this sample, the internal consistencies (Cronbach's alphas) of the five NEO PI-R domain scales ranged from .91 to .94.

NEO-Derived Prototypes of PPI-I and PPI-II. Witt et al. (2010) used item analytic procedures to derive prototypes for PPI-I, Fearless Dominance (FD), and PPI-II, Impulsive Antisociality (IA), consisting of 17 items each from the NEO PI-R. As expected, the NEO derived prototype of FD was negatively associated with maladjustment behaviors, such as self-harm and detachment as indicated by the Schedule for Adaptive and Nonadaptive Personality (SNAP; Clark, 1993). In contrast, the IA prototype was positively associated with maladaptive behaviors such as self-harm, aggression, and impulsivity. Further corroborating evidence for the validity of these prototypes, FD correlated positively with measures of social, occupational, and recreational functioning, whereas IA correlated negatively with these measures.

FFM-Derived Prototypes of Psychopathy Factors and ASPD. Using a rational/theoretical approach, Derefinko and Lynam (2006); see also Widiger & Lynam, 1998) mapped the 30 facets of the FFM onto the two major factors of the PCL-R. PCL-R Factor I assesses the core interpersonal and affective features of psychopathy, whereas PCL-R Factor 2 assesses an antisocial and impulsive lifestyle. The scores on FFM Factors 1 and 2 (which parallel the corresponding two factors of the PCL-R) are weighted composites of several of the FFM facets, namely, those deemed relevant to psychopathy. For example, FFM Factor 1 is a weighted composite of FFM facets from the domains of neuroticism, extraversion, agreeableness, and conscientiousness, all save for extraversion reversed in scoring (see Derefinko & Lynam, 2006, Table 1, p. 265). These FFM factor scores display good validity; for example, both correlate highly (*r*s between .5 and .6) with total scores on the PPI and the Self-Report Psychopathy Scale (SRP; Hare, Harpur, & Hemphill, 1989), and exhibit significant positive correlations with their respective Factor 1 and Factor 2 scores on the PPI and SRP (Lynam & Derefinko, 2006).

To assess ASPD features, we used scores on the prototype developed by Miller, Lynam, Widiger, and Leukefeld (2001). These authors constructed an expert-generated FFM prototype of psychopathy and the 10 DSM-IV personality disorders by asking experts to rate the prototypical expression of each personality disorder on a 1–5 scale using the 30 facets of the NEO PI-R. Any FFM facet with a mean lower than 2 or higher than 4 was included in each disorder's prototype. Scores that most closely match the expert-generated psychopathy prototype correlate significantly and positively with several laboratory tasks theoretically relevant to psychopathy (e.g., measures of temporal discounting and proactive aggression) and self-reported aggression (Derefinko & Lynam, 2006; Miller & Lynam, 2003). In this study, we used expert-generated psychopathy FFM prototypes of Factors 1 and 2, which parallel the two broad factors of the PCL-R, as well as the FFM prototype for ASPD (see Lynam & Widiger, 2001).

Factor Estimates of Fearless Dominance (FD) and Impulsive Antisociality (IA). To extract measures of fearless dominance (FD) and antisocial impulsivity (IA), we relied on regression-based formulas developed by Ross, Benning, Patrick, Thompson, and Thurston (2009, p. 80), which use the 30 NEO PI-R facets of the FFM to estimate scores on these two dimensions. Ross et al. found that these regression formulas, after double cross-validation within their sample, accounted for between 68% and 79% of the variance in FD and IA scores derived from the PPI.

5.1.2.1. Outcome measure. War Heroism. Using historical ratings derived by Simonton (1986) the 42 US presidents were coded dichotomously for engaging in publicly documented heroic acts during war time prior to their presidency. According to Simonton's rating scheme, presidents who had engaged in war heroism prior to their presidency were George Washington, Andrew Jackson, William Henry Harrison, Theodore Roosevelt, Zachary Taylor, Ulysses S. Grant, and Dwight Eisenhower.

5.1.2.2. Procedure. The 121 expert raters completed a 596-item questionnaire evaluating the personality and behavior of their respective president(s) of focus; this measure contained the NEO-PI-R (Costa & McCrae, 1992), a set of items designed to assess presidential character (Rubenzer & Faschingbauer, 2004), and other items that were not analyzed here because they were not directly pertinent to psychopathy. These experts rated their target president's personality for the 5 years *prior* to his assuming office to minimize criterion contamination in analyses of the associations between personality and presidential performance.

5.2. Results

To account for the nesting of expert raters within presidents and for the fact that the number of raters differed across presidents, we used generalized estimating equations (GEE) to examine the relation between psychopathy dimensions and war heroism. To do so, we used president as a subject variable and rater as a within-subject variable, and examined war heroism (coded dichotomously) using the logit function. We examined both statistical significance and effect size, the latter estimated as χ^2 divided by the number of ratings (177).

Consistent with hypotheses, GEE analyses revealed a significant and positive association between the NEO-derived Fearless Dominance prototype of Ross et al. (2009): χ^2 (1) = 7.11 ($p < .01$; effect size = 4.02%). In contrast, GEE analyses revealed a non-significant negative association between the NEO-derived Impulsive Antisociality prototype of Ross et al.: χ^2 (1) = .243 ($p = .62$, effect size = .14%. Contrary to predictions, the Witt et al. (2010) NEO-derived Fearless Dominance prototype was not significantly associated with war heroism, although the relationship was in the predicted direction: χ^2 (1) = .574 ($p = .45$, effect size = .32%). The relationship between war heroism and the Witt et al. (2010) prototype for Impulsive Antisociality was also non-significant: χ^2 (1) = .001 ($p = .98$, effect size = .00%). The FFM-derived Factor 1 psychopathy prototype was not significantly associated with war heroism, although this relationship was in the positive direction: χ^2 (1) = .701 ($p = .40$, effect size = .40%). The FFM-derived Factor 2 psychopathy prototype was positively associated with war heroism, although the relationship was non-significant: χ^2 (1) = .057 ($p = .81$, effect size = .00%). Finally, the Miller et al. (2001) ASPD prototype was not significantly associated with war heroism: χ^2 (1) = 1.47 ($p = .23$, effect size = .83%).

6. Discussion

In this series of four studies, we sought to elucidate the relations among psychopathy, fearlessness, and heroism. Influenced by the theoretical writings of Lykken (1982), Lykken (1995), we tested the hypothesis that psychopathy, especially the higher-order component of psychopathy relevant to fearlessness (namely, Fearless Dominance), predisposes to heroic behaviors. Additionally, we explored the associations among heroism, antisocial behavior, and other potentially relevant personality features, such as empathy and sensation seeking.

Although our findings were somewhat mixed across studies, they offered preliminary support for our central hypotheses. Our overarching hypothesis, namely the existence of a positive association between psychopathy, especially its fearless dominance component, and heroism, was broadly but not uniformly supported in all four studies. In Studies 1, 3, and 4, PPI-I (Fearless Dominance) was positively and significantly associated with heroism, including everyday heroism and war heroism among the U.S. presidents (although this held for only one operationalization of PPI-I); in contrast, in Study 2, the correlation between PPI-I and everyday heroism was non-significant. In Study 3, a measure of boldness, which is conceptually similar to fearless dominance, was also associated with everyday heroism, offering further convergent support for our central hypothesis. A consistent finding in Studies 1, 2, and 3 was the positive and significant association between PPI-I and altruism toward strangers, which we operationalized as a secondary indicator of everyday heroism given that assisting strangers sometimes involves at least some social and physical risk. This result may be attributable to the relative lack of social and physical anxiety among many high PPI-I scorers (see Benning, Patrick, Blonigen, Hicks, & Iacono, 2005).

Exploratory analyses of the PPI lower-order subscales also yielded several consistent findings. In Studies 1 through 3, PPI Social Potency emerged as a consistent predictor of both everyday heroism and altruistic behavior. Blame Externalization also emerged as a consistent predictor of everyday heroism in Studies 1, 2, and 3, although its associations with altruism were less consistent.

The finding for Social Potency is understandable in view of research evidence that this subscale is linked to low social fearfulness (Lilienfeld & Andrews, 1996), which may make individuals less reluctant to assist others in need. This finding, which was not explicitly predicted, suggests that further attention to the role of social fearlessness in heroic altruism is warranted. Specifically, our results raise the possibility that many people may not help others in crises or even less stressful situations merely because of inhibitions arising from social anxiety. Indeed, at least some evidence suggests that individuals with low levels of fear of negative evaluation are sometimes more likely to assist others in bystander intervention paradigms (Karakashian, Walter, Christopher, & Lucas, 2006), presumably because they are afraid of appearing foolish.

The unpredicted result for Blame Externalization is more difficult to interpret, especially given that this subscale assesses a sense of alienation from others. Indeed, Latane and Darley, (1970) reported a non-significant, although slightly negative, association between self-reported alienation and propensity to intervene in a laboratory emergency (a simulated epileptic seizure in another participant). Interestingly, Curry, Jones Chesters, and Viding (2011) reported that high Blame Externalization scorers were more likely than low scorers to cooperate in a sequential prisoner's dilemma paradigm, although the meaning of this finding is unclear. It is possible that our findings for Blame Externalization reflect the relative disregard of social norms found among many high Blame Externalization scorers, but this hypothesis requires further investigation.

Surprisingly, antisocial behavior tended to be positively associated with heroism across the first three studies, but not in the presidential sample (in the latter case, perhaps owing to restriction of range in antisocial behaviors). Sensation seeking, in particular its Thrill and Adventure Seeking subscale, was also associated with heroism in the one study in which it was examined (Study 2). Taken together, these provocative findings raise the possibility that the same dispositions that give rise to antisocial acts may in some cases also predispose to heroism (see Lykken, 1995).

6.1. Implications

The results of these four studies provide suggestive but somewhat mixed support for Lykken's (1995) hypothesis that psychopathy and heroism are different fruits from the same tree, and that a disposition towards fearlessness – ostensibly assessed by PPI-I and measures of boldness – may predispose to both. Nevertheless, the correlations were modest in magnitude and at times fell short of statistical significance. In addition, the PPI lower-order scale most relevant to Lykken's hypothesis, namely, Fearlessness (which assesses an absence of physical fear), was not consistently related to heroic altruism, raising questions concerning Lykken's hypothesis.

Given the inconsistency in PPI higher-order scale-heroism correlations across the studies, we quantified the magnitudes of the associations across Studies 1 through 3. To do so, we conducted a random effects meta-analysis of the associations between the higher-order PPI dimensions and heroism. The aggregated results showed that PPI-I was associated with AFI scores at $r = .20$ ($p < .001$) for raw scores and .26 ($p < .001$) for transformed scores; in contrast, the corresponding results for PPI-II were $r = .08$ in both cases (with only the finding for transformed scores reaching significance, at $p = .046$). A similar pattern emerged with respect to altruism toward strangers, which we used as a secondary index of heroism. PPI-I was associated with altruism toward strangers at $r = .27$ ($p < .001$), whereas the correlation for PPI-II, or Impulsive Antisociality, was $r = .08$ (ns). These meta-analytic findings suggest that PPI-I is consistently although only modestly associated with prosocial heroism. In contrast, the findings for PPI-II are weaker and less consistent. Nevertheless, as noted earlier, Study 2 yielded a significant relation between PPI-II and heroism.

There are two potential explanations for the significant positive association between PPI-II and prosocial heroism in Study 2. First, because the effect size was modest and sample size relatively small, the association we detected in Study 2 may be unstable and unlikely to replicate. Alternatively, the modest association between PPI-II and prosocial behavior we found in Study 2 may be genuine. Indeed, an examination of Patrick et al.'s (2009) recently formulated triarchic model of psychopathy might help to explain this finding. The authors argued that psychopathy is a conglomeration of the traits of boldness (much like PPI-I Fearless Dominance), disinhibition (much like PPI-II Impulsive Antisociality), and meanness (which may be measured largely by the PPI Coldheartedness subscale). Disinhibition, which comprises impulse control problems such as a desire for instantaneous gratification and lack of foresight, and behavioral restraints, may be of use when attempting to explain the link between psychopathy and heroism. Specifically, individuals with poor impulse control may be more likely to perform heroic behaviors than other individuals because they are also more likely to engage in any potentially interesting or novel activity. If so, these results may suggest that, contrary to our hypotheses, components of psychopathy other than fearless dominance are relevant to heroism. More broadly, these results raise the possibility of multiple dispositional routes to heroism, only one of which may stem from fearless dominance.

Our findings regarding the associations among antisocial behavior, heroism, and some forms of altruism raise important questions regarding assumptions often made in the measurement of prosocial and antisocial behaviors. Some researchers have treated prosocial and antisocial behaviors as located on opposite poles of the same dimension, ostensibly reflecting the same bipolar construct. For example, in a study of psychopathic traits in non-institutionalized populations, Levenson, Kiehl, and Fitzpatrick (1995), administered a scale of antisocial action that included prosocial items (such as lending money to another person, helping another individual struggling in a class, copying notes for another student in lecture) that were reverse- coded and assumed to represent an overall score of antisocial behavior. Nevertheless, our findings suggest that at least some prosocial behaviors, especially those involving at least some modicum of risk, may not lie on opposite poles of a dimension from antisocial behavior. If so, the practice of reverse-coding prosocial items as an indicator of antisocial behavior may in some cases be invalid psychometrically.

6.2. Limitations

Our results must be interpreted in light of several limitations, each of which offers fruitful directions for future research. Our reliance on self-report measures of psychopathy and heroism in Studies 1, 2, and 3 raises questions regarding the generalizability of our findings to other indicators of these constructs. Lilienfeld and Fowler (2006) discussed the pitfalls associated with using self-report measures to assess psychopathic personality traits. First and foremost is dishonesty: Individuals with high levels of psychopathic personality traits are notorious for lying (Hare, 1991/2003), which may compromise the validity of their responses on self-report measures. Nevertheless, it is worth noting that in subsidiary analyses not reported here, the relations among psychopathy, heroism, and altruism in Studies 2 and 3 (in which a measure of socially desirable responding, namely, the PPI Unlikely Virtues scale, was administered), remained virtually unchanged after controlling for social desirability scores. Moreover, a recent meta-analysis reveals that self-report measures of psychopathy, including the PPI, tend to be negatively, not positively, associated with social desirability measures, suggesting that psychopathic individuals often are willing to report on their negative attributes (Ray et al., 2012).

Additionally, psychopaths are notorious for lacking insight into their own psychological problems (Cleckley, 1976). Psychopathic individuals often do not perceive themselves as others perceive them. Nevertheless, in work on undergraduate samples, Miller et al. (2011) found surprisingly high associations between self-reported and other-reported scores on three widely used questionnaires of psychopathy, including the PPI (median r across these measures and their component higher-order factors was .64). Moreover, they found that other-reported psychopathy scores were only slightly higher than self-reported scores, again suggesting that psychopathic individuals can and often will report on their socially undesirable characteristics.

In addition to the problems associated with self-report measures of psychopathy, Studies 1, 2, and 3 relied exclusively on self-report measures to assess heroism and altruism. In contrast, in Study 4, a largely objective measure of heroism, namely previous status of presidents as war heroes, was included. Clearly, the extent to which our findings would generalize to those with more objective indicators of heroism requires clarification. One potential criticism of our finding in Study 4 is that expert raters – despite being asked to evaluate the personality of their target presidents for the five years before they became president – may have been influenced by the knowledge of whether their target president had been a wartime hero. Although this possibility is difficult to exclude entirely, we regard it as somewhat unlikely for two reasons. First, analyses reported elsewhere (Lilienfeld et al., 2012) indicate that PPI-I is broadly associated with a host of presidential correlates that are conceptually unrelated to war heroism, such as public persuasiveness, communication ability, positive relations with Congress, and successful initiation of legislation. Second, subsidiary analyses not reported here suggest specificity of PPI-I to war heroism per se, as opposed to other war-related presidential behaviors. For example, GEE analyses revealed that PPI-I was not significantly associated with a history of leading the nation through war. Although these findings do not entirely exclude the possibility of rater hindsight bias, they suggest that expert raters were not influenced merely by the knowledge that their target presidents had engaged in risky military endeavors.

Other limitations of our findings include modest sample sizes in the first two studies (Study 1, $N = 124$; Study 2, $N = 119$) and samples composed of college students in the first two studies, who may be limited in both their variance of psychopathic personality traits and their opportunities to engage in heroic behaviors. As a consequence, the results of Studies 1 and 2 may underestimate the associations between psychopathic traits and heroism. These shortcomings were remedied to some extent in Study 3, which examined a larger sample ($N = 457$) of community residents, and which offered more compelling support for our central hypotheses.

6.3. Future directions

Our results raise several questions and fruitful directions for future research. One interesting direction would be the study of samples that are more enriched in terms of heroic behavior. For example, examination of the relations among heroism, psychopathy, and antisocial behavior among populations with higher levels of heroism, such as police officers, firefighters, and military personnel (e.g., Navy SEALs), may shed further light on the relations examined here. Examination of such samples could also permit the measurement of more objective indicators of heroism, such as awards, commendations, and medals of honor. In addition, studies of the potential curvilinearity of the relationship between psychopathy and heroism are needed. For example, an intermediate level of fearlessness and/or psychopathy may be associated with the highest rates of heroism, and higher levels of these traits might heighten risk for antisocial behavior. Subsidiary analyses provided preliminary evidence of curvilinear relations between PPI-I and heroism in Study 3 but not the other studies. The negative findings in Studies 1, 2, and 4 must be interpreted in light of the potentially restricted range of PPI-I scores in our college and presidential samples.

Finally, future studies should examine the relations between psychopathy and varying subtypes of heroism, such as Franco et al.'s (2011)*military heroism, civil heroism, and social heroism*, or Farley's (2011) Big H and Small h heroism. These different forms of heroism may be linked to different personality traits associated with psychopathy; for example, military heroism may be preferentially tied to physical fearlessness (assessed largely by the PPI Fearlessness scale), whereas social heroism may be preferentially tied to social fearlessness (assessed largely by PPI Social Potency). A better understanding of these subtypes should allow investigators to better understand the conditions under which psychopathic traits do, and do not, contribute to heroic altruism.

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References

Australian Broadcasting Company (2005). Tsunami 'Good Samaritan' arrested on return home <http://www.abc.net.au/news/2005-01-03/tsunami-good-samaritan-arrested-on-return-home/612220>.

Ball, I. L., Farnill, D., & Wangeman, J. (1983). Factorial invariance across sex of the Form V of the Sensation-Seeking Scale. *Journal of Personality and Social Psychology, 45*, 1156–1159.

Barnett, M. A., Howard, J. A., King, L. M., & Dino, G. A. (1981). Helping behavior and the transfer of empathy. *Journal of Social Psychology, 115*, 125–132.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Batson, C. D., Ahmad, N., Lishner, D. A., & Tsang, J. A. (2002). Empathy and altruism. In C. R. Synder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 485–498). New York: Oxford University Press.

Benning, S. D., Patrick, C. J., Blonigen, D. M., Hicks, B. M., & Iacono, W. G. (2005). Estimating facets of psychopathy from normal personality traits: A step toward community epidemiological investigations. *Assessment, 12*, 3–18.

Benning, S. D., Patrick, C. J., Hicks, B. M., Blonigen, D. M., & Krueger, R. F. (2003). Factor structure of the psychopathic personality inventory: Validity and implications for clinical assessment. *Psychological Assessment, 15*, 340–350.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's mechanical turk a new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*, 3–5.

Butcher, J. N., Dahlstrom, W. G., Graham, J. R., Tellegen, A., & Kaemmer, B. (1989). *Manual for the restandardized Minnesota Multiphasic Personality Inventory: MMPI-1*. Minneapolis, MN: University of Minnesota Press.

Cialdini, R., Brown, S., Lewis, B., Luce, C., & Neuberg, S. (1997). Reinterpreting the empathy-altruism relationship: When one into one equals oneness. *Journal of Personality and Social Psychology, 73*, 481–494.

Clark, L. A. (1993). *Schedule for nonadaptive and adaptive personality*. Minneapolis: University of Minnesota Press.

Cleckley, H. (1941). *The mask of sanity*. England: Mosby; Oxford.

Cleckley, H. (1976). *The mask of sanity* (5th ed.). St. Louis, MO: Mosby.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis for field settings*. Chicago, Illinois: Rand McNally.

Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R. Professional manual*. Odessa, FL: Psychological Assessment Resources, Inc.

Curry, O., Jones Chesters, M., & Viding, E. (2011). The psychopath's dilemma: The effects of psychopathic personality traits in one-shot games. *Personality and Individual Differences, 50*, 804–809.

Derefinko, K. J., & Lynam, D. R. (2006). Convergence and divergence among self-report psychopathy measures: A personality-based approach. *Journal of Personality Disorders, 20*, 261–280.

Dworkin, R. H., & Widom, C. S. (1977). Undergraduate MMPI profiles and the longitudinal prediction of adult social outcome. *Journal of Consulting and Clinical Psychology, 45*, 620–624.

Edens, J. F., Marcus, D. K., Lilienfeld, S. O., & Poythress, N. G. (2006). Psychopathic, not psychopath: Taxometric evidence for the dimensional structure of psychopathy. *Journal of Abnormal Psychology, 115*, 131–144.

Epstein, S. (1979). The stability of behavior: I. On predicting most of the people much of the time. *Personality and Social Psychology, 37*, 1097–1126.

Falkenbach, D., & Tsoukalas, M. (2011). Can adaptive traits be observed in hero populations? In *Poster session presented at biennial meeting of the society for the scientific study of psychopathy*. Montreal, Canada (May).

Farley, F. (2011). The new psychology of heroes and heroism. In *Conversation hour*. Annual Convention of the American Psychological Association. Washington, DC August.

Fowles, D. C., & Dindo, L. (2009). Temperament and Psychopathy A Dual-Pathway Model. *Current Directions in Psychological Science, 18*, 179–183.

Franco, Z. E., Blau, K., & Zimbardo, P. G. (2011). Heroism: A conceptual analysis and differentiation between heroic action and altruism. *Review of General Psychology, 15*, 99–113.

Hall, J. R., & Benning, S. D. (2006). The "successful" psychopath: Adaptive and subclinical manifestations of psychopathy in the general population. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 459–478). New York: Guilford Press.

Hare, R. D. (1991). *The Hare psychopathy checklist – Revised*. Toronto, Ontario: Multi-Health Systems.

Hare, R. D. (2003). *Manual for the Revised Psychopathy Checklist* (2nd ed.). Toronto, Ontario, Canada: Multi-Health Systems.

Hare, R. D., Cox, D. N., & Frazelle, J. (1978). Psychopathy and physiological responses to nonsignal stimuli. *Biological Psychology, 6*, 237–246.

Hare, R. D., Harpur, T. J., & Hemphill, J. F. (1989). *Scoring pamphlet for the report psychopathy scale: SRP-II*. Unpublished document, Simon Fraser University, Vancouver, Canada.

Harpur, T. J., Hakistan, R., & Hare, R. D. (1988). Factor structure of the Psychopathy Checklist. *Journal of Consulting and Clinical Psychology, 56*, 741–747.

Hawk, S. S., & Peterson, R. A. (1974). Do MMPI psychopathic deviancy scores reflect psychopathic deviancy or just deviancy? *Journal of Personality Assessment, 38*, 362–368.

Hyler, S. E. (1994). *PDQ-4 personality questionnaire*. Unpublished scale. New York: New York State Psychiatric Institute.

Karakashian, L. M., Walter, M. I., Christopher, A. N., & Lucas, T. (2006). Fear of negative evaluation affects helping behavior: The bystander effect revisited. *North American Journal of Psychology, 8*, 13–32.

Krueger, R. F., Markon, K. E., Patrick, C. J., Benning, S. D., & Kramer, M. D. (2007). Linking antisocial behavior, substance use, and personality: An integrative quantitative model of the adult externalizing spectrum. *Journal of Abnormal Psychology, 116*, 645.

Latane, B., & Darley, J. M. (1970). *The unresponsive bystander: Why doesn't he help?* New York: Appleton-Century Crofts.

Levenson, M. R. (1990). Risk taking and personality. *Journal of Personality and Social Psychology, 58*, 1073–1080.

Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology, 68*, 151–158.

Lilienfeld, S. O. (1998). *Fearlessness, antisocial behavior, and heroism*. Unpublished manuscript.

Lilienfeld, S. O. (1996). The MMPI-2 antisocial practices content scale: Construct validity and comparison with the Psychopathic Deviate scale. *Psychological Assessment, 8*, 281–293.

Lilienfeld, S. O., & Andrews, B. P. (1996). Development and preliminary validation of a self-report measure of psychopathic personality traits in noncriminal populations. *Journal of Personality Assessment, 66*, 488–524.

Lilienfeld, S. O., & Fowler, K. A. (2006). The self-report assessment of psychopathy: Problems, pitfalls, and promises. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 107–132). New York: Guilford Press.

Lilienfeld, S. O., Waldman, I. D., Landfield, K., Watts, A. L., Rubenzer, S., & Faschingbauer, T. R. (2012). Fearless dominance and the US presidency: Implications of psychopathic personality traits for successful and unsuccessful political leadership. *Journal of Personality and Social Psychology, 103*, 489–505.

Lilienfeld, S. O., & Widows, M. R. (2005). *Professional manual for the psychopathic personality inventory–revised: (PPI-R)*. Lutz, FL: Psychological Assessment Resources.

Lykken, D. T. (1957). A study of anxiety in the sociopathic personality. *Journal of Abnormal and Social Psychology, 55*, 6–10.

Lykken, D. T. (1982). Fearlessness: Its carefree charm and deadly risks. *Psychology Today*, 20–28.

Lykken, D. T. (1995). *The antisocial personalities*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc..

Lykken, D. T. (1996). Psychopathy, sociopathy, and crime. *Society, 34*, 29–38.

Lykken, D.T., Tellegen, A., & Katzenmeyer, C. (1973). *Manual for the Activity Preference Questionnaire (APQ)*. Unpublished manual, Department of Psychiatry, University of Minnesota.

Lynam, D. R., & Derefinko, K. J. (2006). Psychopathy and personality.In: Patrick, C.J. (Ed), Handbook of Psychopathy, 2006, Guilford Press; New York, 107–132.

Lynam, D. R., & Miller, J. D. (2012). Fearless Dominance and Psychopathy. *Personality Disorders: Theory, Research, and Treatment, 3*, 341–353.

Lynam, D. R., & Widiger, T. A. (2001). Using the five factor model to represent the DSM-IV personality disorders: An expert consensus approach. *Journal of Abnormal Psychology, 110*, 401–412.

McKinley, J. C., & Hathaway, S. R. (1944). The Minnesota multiphasic personality inventory. V. Hysteria, hypomania and psychopathic deviate. *Journal of Applied Psychology, 28*, 153–174.

Mehrabian, A. (1977). Individual differences in stimulus screening and arousability. *Journal of Personality, 45*, 237–250.

Mehrabian, A., & Epstein, N. (1972). A measure of emotion empathy. *Journal of Personality, 40*, 525–543.

Mehrabian, A., & O'Reilly, E. (1980). Analysis of personality measures in terms of basic dimensions of temperament. *Journal of Personality and Social Psychology, 38*, 492–503.

Miller, J. D., Jones, S. E., & Lynam, D. R. (2011). Psychopathic traits from the perspective of self and informant reports: Is there evidence for a lack of insight? *Journal of abnormal psychology, 120*(3), 758.

Miller, J. D., & Lynam, D. R. (2003). Psychopathy and the five-factor model of personality: A replication and extension. *Journal of Personality Assessment, 81*, 168–178.

Miller, J. D., Lynam, D. R., Widiger, T. A., & Leukefeld, C. (2001). Personality disorders as extreme variants of common personality dimensions: Can the Five Factor Model adequately represent psychopathy? *Journal of Personality, 69*, 253–276.

Neumann, C. S., Malterer, M. B., & Newman, J. P. (2008). Factor structure of the Psychopathic Personality Inventory (PPI): Findings from a large incarcerated sample. *Psychological Assessment, 20*, 169–174.

Patrick, C. J. (2010). *Operationalizing the triarchic conceptualization of psychopathy: Preliminary description of brief scales for assessment of boldness, meanness, and disinhibition*. Unpublished manual.

Patrick, C. J., Edens, J. F., Poythress, N. G., Lilienfeld, S. O., & Benning, S. D. (2006). Construct validity of the psychopathic personality inventory two factor model with offenders. *Psychological Assessment, 18*, 204–208.

Patrick, C. J., Fowles, D. C., & Krueger, R. F. (2009). Triarchic conceptualization of psychopathy: Developmental origins of disinhibition, boldness, and meanness. *Development and Psychopathology, 21*, 913–938.

Ray, J. V., Hall, J., Rivera-Hudson, N., Poythress, N. G., Lilienfeld, S. O., & Morano, M. (2012). The relation between self-reported psychopathic traits and distorted

response styles: A meta-analytic review. *Personality Disorders: Theory, Treatment, and Researc, 4*, 1–14.
Reichenbach, H. (1938). *Experience and prediction. An analysis of the foundation and structure of knowledge*. Chicago, IL: University of Chicago Press.
Rim, Y. (1974). Correlates of emotional empathy. *Scientia Paedagogica Experimentalis, 11*(2), 197–202.
Ross, S. R., Benning, S. D., Patrick, C. J., Thompson, A., & Thurston, A. (2009). Factors of the psychopathic personality inventory: Criterion-related validity and relationship to the BIS/BAS and five-factor models of personality. *Assessment, 16*, 71–87.
Rubenzer, S. J., & Faschingbauer, T. J. (2004). *Personality, character, and leadership in the White House: Psychologists assess the presidents*. Dulles, VA: Potomac Books.
Rubenzer, S. J., Faschingbauer, T. J., & Ones, D. S. (2000). Assessing the U.S. presidents using the revised NEO personality inventory. *Assessment, 7*, 403–420.
Rule, A. (1980). *The stranger beside me*. New York: Signet.
Rushton, J. P., Chrisjohn, R. D., & Fekken, G. C. (1981). The altruistic personality and the self-report altruism scale. *Personality and Individual Differences, 2*, 293–302.
Sellbom, M., & Phillips, T. R. (2012). An examination of the triarchic conceptualization of psychopathy in incarcerated and nonincarcerated samples. *Journal of Abnormal Psychology, 122*, 208–214.
Simons, D. J., & Chabris, C. F. (2012). Common (mis) beliefs about memory: A replication and comparison of telephone and mechanical turk survey methods. *PloS one, 7*, e51876.
Simonton, D. K. (1986). Presidential personality: biographical use of the Gough Adjective Check List. *Journal of Personality and Social Psychology, 51*(1), 149–160.
Smith, S. F., & Lilienfeld, S. O. (2012). Psychopathy in the workplace: The knowns and unknowns. *Aggression and Violent Behavior, 18*, 204–218.
Spitzer, R. L., Williams, J. B. W., Gibbon, M., & First, M. B. (1990). *Structured clinical interview for the DSM-III-R for personality disorders*. Washington, DC: American Psychiatric Press.
Stanley, J. H., Wygant, D. B., & Sellbom, M. (2013). Elaborating on the Construct Validity of the Triarchic Psychopathy Measure in a Criminal Offender Sample. *Journal of Personality Assessment, 9*, 343–350.
The Sun (2011). *Cocaine 7/7 hero jailed for 14 years* <http://www.thesun.co.uk/sol/homepage/news/3332689/Cocaine-77-hero-jailed-for-14-years.html>.
West, D. J. (1969). *Present conduct and future delinquency; First report of the Cambridge study in delinquent development*. New York, NY: International Universities Press, Inc..
Widiger, T. A., & Lynam, D. R. (1998). Psychopathy as a variant of common personality traits: Implications for diagnosis, etiology, and pathology. In T. Millon, E. Simonson, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behavior* (pp. 171–187). New York, NY: Guilford Press.
Widom, C. S. (1977). A methodology for studying noninstitutionalized psychopaths. *Journal of Consulting and Clinical Psychology, 45*, 674–683.
Witt, E. A., Hopwood, C. J., Morey, L. C., Markowitz, J. C., McGlashan, T. H., Grilo, C. M., et al. (2010). Psychometric characteristics and clinical correlates of NEO-PI-R fearless dominance and impulsive antisociality in the collaborative longitudinal personality disorders study. *Psychological Assessment, 22*, 559–568.
Zuckerman, M. (1979). *Sensation seeking: Beyond the optimal level of arousal*. Hillsdale, NJ: Lawrence Erlbaum.
Zuckerman, M., Eysenck, S. B. G., & Eysenck, H. J. (1978). Sensation seeking in England and America: Cross-cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology, 46*, 139–149.
Zuckerman, M. (1985). Biological foundations of the sensation-seeking temperament. In J. Strelau, F. H. Farley, & A. Gale (Eds.), *The biological bases of personality and behavior. Theories, measurement techniques, and development* (Vol. 1, pp. 97–113). New York, NY US: Hemisphere Publishing Corp/Harper & Row Publishers.