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Madeline G. Nagel March 23rd, 2017

Psychopathy and Interests: Implications of Psychopathic Personality Traits for Vocational and Avocational Preferences

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Abstract

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Lykken (1995) proposed that psychopathic traits can be channeled into a variety of paths, in some cases even prosocial ones. Despite scattered evidence that psychopathy is associated with engagement in leadership or high-risk occupations, such as firefighting, law-enforcement, or business (Lilienfeld et al., 2014; Falkenbach & Tsoukalas, 2011), little research has explored the possibility that psychopathic personality traits are associated with a broader array of vocational (i.e., careers) and avocational (i.e., hobbies) interests. Drawing on a community sample recruited through Amazon M-Turk (N = 426), the present study examined the relations between psychopathic traits and both vocational and avocational interests.

The Boldness traits of psychopathy were moderately positively associated with all six of Holland's (1997) RIASEC model of vocational interests as measured by the *O*Net Interests Profiler* (Lewis & Rivkin, 1999), all ten of Lykken and colleagues (1993) combined vocational and leisure interests factors, and four avocational interests factors from the *Leisure Interest Questionnaire* (LIQ ; Hansen, 2002), indicating that boldness traits may be associated with a general interest in a variety of careers and hobbies. In contrast, the Disinhibition, Coldheartedness, and Meanness facets seem to indicate an interest in specific vocations and leisure activities, particularly hands-on, unemotional careers that entail little meaningful social interaction. These specific choices are ostensibly more in line with the popular psychology idea of the successful psychopath. The specificity of these findings was also assessed using general personality traits from the *HEXACO Personality Inventory-Revised* (HEXACO-PI-R; Ashton & Lee, 2008) as well as indices of trait narcissism (NPI; Raskin & Terry, 2008). Extraversion and Openness to Experience were associated across the board with interests, while the Honesty/Humility facet was negatively associated with all of the interests. Both of the narcissism factors were also indicative of interest in all of the vocational and avocational categories. Gender differences and interactions between Boldness and Disinhibition were also assessed, although the findings were negative.

Implications for the utility of these findings in the development of vocational training-based interventions for the antisocial outcomes associated with psychopathic personality were discussed, as were suggestions for future research in this area.

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Psychopathy and Interests: Implications of Psychopathic Personality Traits for Vocational and Avocational Preferences

The ways in which individuals differ in interests and personality traits shape their life choices in powerful ways, influencing what they do for a living, what they do in their spare time, what passions and hobbies they pursue, and even the friends and life partners they select. Although plentiful data indicate that people's personality traits relate and probably contribute to their interests (Barrick, Mount, & Gupta, 2002; Tellegen, 1991), little research has expanded this work beyond normal-range personality constructs. Personality disorders tend to be studied by personality and clinical psychology programs, whereas vocational interests are the domain of counseling and industrial/organizational psychology programs. Due to this traditional divide, we know surprisingly little about how traits of important personality disorders, such as psychopathic personality, relate to individuals' interests. In this study, I intend to bridge this gap by examining how psychopathic personality traits influence not only vocational interests, but avocational interests (i.e., hobbies) as well, and to what extent these patterns are unique to psychopathy or reflective of a larger pattern of normal range traits.

In his influential book on antisocial personality, Lykken (1995) proposed that the maladaptive, dangerous manifestation of psychopathic traits develops from a failure by parents to guide a child with a psychological predisposition for risk-taking and impulsivity into socially acceptable behaviors. If these individuals can find their niche, he argued, then the accompanying negative life outcomes might be avoided. This concept, although foreshadowed in previous literature (e.g., Patterson, DeBaryshe, & Ramsey, 1989), was well outside the mainstream understanding of psychopathic personality. From the earliest descriptions of psychopaths by Hervey Cleckley (1941), psychopathic personality traits were considered to be wholly deviant

and exclusively the hallmark of incarcerated men and to a lesser extent, women. Today, consensus is building that there are a wide variety of manifestations of psychopathic traits that but flourish in many, if not all, in all walks of life (Babiak & Hare, 2006).

The life of Winston Churchill is an excellent illustration of this possibility. As a boy, Churchill was reckless, impulsive, and had all the makings of a fledgling psychopath. Upon entering military school, he found that his fearless nature made him a hero on the polo field. Winning acclaim among his peers in school and later in military service, Churchill's bold, charming nature helped to launch him into a successful career in politics (Lykken, 1995; see also Lilienfeld, Waldman, Landfield, Watts, Rubenzer, & Faschingbauer, 2012).

In contrast to this tale of success, Lykken (1995) described the case of a young career criminal nicknamed "Monster." Without the opportunity to channel his sensation-seeking tendencies into healthy outlets, Monster pursued a life of violence and petty crime after learning that he was quite skilled at it. "What if he had learned instead that he could dominate and be respected on the football field (Lykken, 1995, p. 229)?" Although Churchill's and Monster's paths appear to be widely divergent, they presumably shared what Lykken termed the "genetic talent" to become criminal psychopaths. Their distinctly different paths illustrate the possibility that psychopathic traits can assume many forms, and that psychopathic individuals are not predestined for a lifestyle replete with serious criminal behavior.

Psychopathy

Psychopathy (psychopathic personality) is a constellation of interpersonal, affective, and behavioral features such as superficial charm, social poise, manipulativeness, lack of remorse, and poor impulse control (Cleckley, 1941). Recently, researchers have begun to recognize psychopathy not as a categorical construct, but as a combination of general personality traits that

are continuously distributed on a spectrum (Walters et al., 2007). That is, psychopathic traits are dimensional in nature, and highly psychopathic individuals differ in degree but not kind from those with very low levels of these traits. As such, the traditional divide between "psychopaths" and "non-psychopaths" is a scientifically arbitrary distinction that does not depict a more nuanced reality.

Moreover, whereas research often conceptualizes psychopathy as a monolithic construct, recent studies indicate that a more complex understanding of psychopathy's phenotypic structure is in order. Psychopathy appears to be underpinned by two or more subdimensions, such as interpersonal and affective features on the one hand, and lifestyle and antisocial behavioral features on the other (Walters et al., 2007). One widely-validated model, the triarchic model of psychopathy (Patrick, Fowles & Krueger, 2009), proposes that three major subdimensions underlie psychopathy: a fearlessness and interpersonal potency factor ("Boldness" or "Fearless Dominance"; Benning et al., 2003); a self-absorption, disinhibition, and nonplanfulness factor ("Disinhibition" or "Self-Centered Impulsivity"); and an interpersonal antagonism, remorselessness, and callousness factor ("Meanness"). Some interpret this latter factor as the allied construct of Coldheartedness, which comprises higher levels of emotional detachment and lower levels of interpersonal antagonism than does Meanness (Lilienfeld & Widows, 2005).

These three subdimensions, although intercorrelated, exhibit strikingly different relationships with a variety of adaptive and maladaptive outcomes. Boldness, generally considered to be the most interpersonally adaptive facet of psychopathy (Hall & Benning, 2006), has been linked to a variety of arguably positive lifestyle outcomes, including attaining leadership positions (Lilienfeld et al., 2014), heroism (Smith, Lilienfeld, Coffey, & Dabbs, 2013), police work (Falkenbach & Tsoukalas, 2011), and success in business (Babiak & Hare, 2006). It

has also been found to be negatively associated with certain negative outcomes such as internalizing problems (i.e., depression and anxiety; Blonigen, Hicks, Krueger, & Iacono, 2005). In contrast, Disinhibition and Meanness are often linked to less adaptive outcomes such as internalizing problems (Benning, Patrick, Blonigen, Hicks, & Iacono, 2005); aggression, violence, and other externalizing problems (Edens, Poythress, Lilienfeld, & Test, 2008); substance use (Hopley & Brunelle, 2012); gambling (Rodgers, Viding, & Chamoro-Premuzic, 2013); risky sexual behavior (Kastner & Sellbom, 2012); and attitudes that blame rape victims (Watts, Bowes, Latzman, & Lilienfeld, 2016). The divergent relations between Boldness and Disinhibition with internalizing and externalizing pathologies (Blonigen, Hicks, Krueger, Patrick, & Iacono, 2005), have led some researchers to question the centrality of Boldness to psychopathy (Lynam & Miller, 2012).

Nevertheless, preliminary, albeit inconsistent, research suggests that interactions between Boldness and Disinhibition may produce different "flavors" of psychopathy. Generally speaking, high levels of Boldness and less pronounced levels Disinhibition are considered the hallmark of "successful" psychopathy (Lilienfeld, Watts, & Smith, 2015). Although no interaction effect was established, high Disinhibition but low Boldness are associated with outcomes such as pathological gambling (Maples et al., 2014). Finally, pronounced Boldness and Disinhibition are associated with risky sexual behavior (Kastner & Sellbom, 2012).

Successful Psychopathy

Authors have posited various models to explain the elusive "successful psychopath" (see Lilienfeld, Watts, & Smith, 2015 and Hall & Benning, 2006 for a discussion). The *differential-configuration model* proposes that the successful psychopath displays a slightly different combination (or configuration) of psychopathic traits than the unsuccessful psychopath.

Although still possessing the cold emotional states associated with psychopathy, heightened levels of fearlessness and Boldness traits offset by slightly lower levels of Disinhibition help the successful psychopath in ruthless, competitive settings. These facets may also prevent the successful psychopath from impulsively engaging in criminal acts or at least help them to evade detection for their behaviors.

In contrast, the *moderated-expression model* (Lilienfeld, Watts, & Smith, 2015) proposes that, although successful psychopaths most or all of the same traits, these potentially negative traits are protected by other factors that prevent the successful psychopath from engaging in damaging behaviors. According to this model, these "snakes in suits" (Babiak & Hare, 2006) either possess certain traits, like intelligence (Suedfeld and Landon, 1978), or they have experienced chance encounters with business success, one that drew them away from the criminal world. In fact, intelligence has often been proposed as a protective factor against antisocial behavior. Even early clinical reports of psychopathy by Cleckley (1941) posited that high intelligence may set psychopaths apart from common criminals. Boldness has been linked to higher levels of cognitive ability, whereas Disinhibition is associated with cognitive deficits, further supporting the differential outcomes associated with these traits (Sellbom & Verona, 2006). Meta-analysis of the mixed findings on intelligence and psychopathy indicates that intelligence may be protective against the antisocial outcomes associated with Disinhibition, but less so for Boldness (Watts et al., 2016).

The prospect of channeling potentially negative traits into situations in which they are healthy and lead to contributions to society is intriguing. Suedfeld and Landon (1978) noted that, although psychopaths need arousal and are therefore drawn to exciting and often criminal behaviors; prosocial outlets for these impulses are nonetheless often available. Just as

psychopathic traits manifest in myriad ways, there might also be myriad outlets in which these individuals could thrive. Indeed, general personality traits are thought to exert "response penetration" (Tellegen, 1991), and therefore influence a variety of everyday outcomes. The full extent to which specific traits influence outcomes, however, is still unclear. Understanding the role of personality traits in shaping vocational and avocational interests may offer important insights into the extent to which personality may be manifested or be channeled into a variety of life outcomes.

Specificity

General trait models tend to conceptualize individual differences as reflecting varying levels of several core traits. The well-validated and widely-used five-factor model (FFM; Costa & McCrae, 1992) posits that personality can be described on five basic traits, Openness to Experience (i.e., intellectual, imaginative), Conscientiousness (i.e., disciplined, organized), Extraversion (i.e., socially potent, engaging), Agreeableness (i.e., considerate, trustworthy) , and Neuroticism (i.e., emotional instability, negative emotionality). Personality disorders can be conceptualized as specific combinations of these non-pathological personality traits (Samuel & Widiger, 2008).

Although the FFM does not measure psychopathy *per se*, psychopathy can be understood as a combination of general personality traits (Lilienfeld,Watts, Smith, & Latzman, 2015), and researchers have demonstrated that psychopathy can be adequately indexed by composites of certain FFM traits (Miller & Lynam, 2003; Widiger & Lynam, 1998). For example, Boldness is associated with low levels of Neuroticism and Agreeableness and high Extraversion and Openness, whereas Disinhibition is associated with high levels of Neuroticism and low levels of Agreeableness and Conscientiousness (Ross, Benning, Patrick, Thompson, & Thurston, 2009).

Psychopathic personality is not a personality disorder recognized in the main text of the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5; American Psychiatric Association, 2013). Nevertheless, psychopathy is conceptually related to the class of personality disorders known as the "dramatic, emotional and erratic cluster" (or "Cluster B"). This cluster of personality disorders comprises Borderline (BPD), Narcissistic (NPD), Histrionic, and Antisocial Personality Disorders (ASPD). Although each disorder in this cluster exhibits unique manifestations, they load onto a single factor (Zimmerman & Coryell, 1990) and share the FFM traits such as Antagonism (low Agreeableness) and low Conscientiousness (Samuel & Widiger, 2008). Psychopathic personality is often conceptualized as a trait complex closely associated with ASPD. Nevertheless, whereas the ASPD diagnosis hinges primarily on engagement in antisocial or criminal acts whereas psychopathy further necessitates the veneer of superficial charm which comprises the disorder's "mask of sanity" (Cleckley, 1941).

Another separable but closely related construct to psychopathy, narcissism encompasses a lack of empathy towards others, inflated sense of self, and manipulativeness. In addition, individuals with marked narcissistic traits often feel entitled and are preoccupied with fantasies of success (e.g., Miller & Campbell, 2008). Trait narcissism is often conceptualized as a blend of grandiose and vulnerable traits (Cain et al., 2008). This combination of traits is reflected diagnostically as Narcissistic Personality Disorder (American Psychiatric Association, 2013). Although treated as a unitary construct in clinical diagnosis, narcissism is best understood as a multidimensional construct underpinned grandiose and vulnerable subdimensions. Encompassing a dominant, self-centered, outwardly confident demeanor, grandiose narcissism most often comes to the layperson's mind upon hearing the word "narcissistic." In terms of FFM traits, grandiose narcissism is a combination of high Extraversion and low Agreeableness (Miller et al.,

2011). In contrast, vulnerable narcissism is associated with an overly sensitive response to ego threats and tends to manifest in a withdrawn and fragile demeanor; it is associated with high Neuroticism and low Agreeableness (Miller et al., 2011).

Personality and Interests

Given the intertwined nature of personality traits and interests, many psychologists have attempted to create a unified theory of personality traits and vocational interests in the hopes of improving career counseling to optimize vocational fit and improve overall career satisfaction. Vocational interests are a heterogeneous group of outcomes that are challenging to conceptualize. In an influential account, Holland (1997) proposed a six-factor model of vocational interests: Realistic (i.e., hands-on, practical), Investigative (i.e., intellectual, analytical), Artistic (i.e., creative, imaginative), Social (i.e., helping, supportive), Enterprising (i.e., strategic, aggressive) and Conventional (i.e., detail-oriented, meticulous). This model, often shortened to RIASEC, remains the most well-validated and widely-used framework for vocational interests, particularly among industrial-organizational and counseling psychologists, as well as vocational counselors (Lewis & Rivkin, 1999). Although RIASEC interests are highly correlated with personality measures, interests and personality traits are considered two distinct constructs (Mount et al., 2005).

In a three-part study of interests, personality, and intellectual abilities, Ackerman and Heggestad (1997) demonstrated many strong links between personality traits and vocational interests, and that both traits and interests may develop in tandem with intellectual abilities. For example, a person with a highly extraverted personality may express interest in socially engaging careers. That interest is likely strengthened by his or her verbal abilities, which have been honed

though their engagement in social activities. The experience of engaging in social hobbies shapes individuals' personality, making them more extraverted, and so on.

Ackerman and Heggestad (1997) first meta-analyzed 135 studies of personality and intelligence and found that several personality constructs, such as Openness to experience, Well-Being, and Intellectual Engagement were associated with most of the measures of intellectual ability. In the second part of their review, they qualitatively assessed the findings of five studies of RIASEC interests and intellectual ability, concluding that there were several broad associations, such as Investigative career interests being favored by those high in intellectual ability.

Finally, to round out the tripartite approach, they reviewed three studies of personality and vocational interests. Based on the associations derived from these three studies, Ackerman and Heggestad clustered the most strongly correlated constructs from the three broad categories of personality, interests, and skills into four trait complexes. The Social complex contained personality traits such as extraversion, social potency, and wellbeing, as well as Enterprising and Social interests. The Clerical complex contained the personality traits of control, conscientiousness, and traditionalism; interest in conventional careers; and perceptual speed ability. The Science/Math complex combined interests in Realistic and Investigative careers with strong abilities in visual perception and mathematical reasoning. Finally, the Intellectual/Cultural complex combined absorption, intellectual engagement, and openness-to-experience with interests in Investigative and Artistic vocations and idea fluency and crystallized intelligence. These superfactor trait complexes offer a valuable glimpse into how personality and interests intertwine.

Moreover, recent meta-analyses (e.g., Barrick et al., 2003; Larson, Rottinghaus, & Borgen, 2002) have identified several moderate-to-strong relationships between specific RIASEC interests and Five Factor model personality traits, yielding strikingly similar results to those identified by Ackerman and Heggestad (1997). Those high in Extraversion tend to express interest in Social and Enterprising careers, as demonstrated in the Social complex. As identified in the Intellectual/Cultural complex, Openness to Experience is moderately correlated with Artistic and Investigative vocations. Finally, much like the Clerical complex, Conscientiousness is related to Conventional interests. Larson and colleagues (2002) also found a significant association between Conscientiousness and Enterprising careers, whereas Barrick and colleagues (2005) found that low Neuroticism was associated with Investigative interests.

The question remains: How do these interrelated constructs develop? Research on temperament indicates that even infants possess traits which presage adult personality (e.g., Chess & Thomas, 1977). However, the mechanisms by which personality influences these later interests is less clear (Tellegen, 1991). Personality traits guide individuals into situations which influence the formation of their vision for the future. In turn, these interests may shape personality and abilities through choices of environments and experiences (Ickes, Snyder, & Garcia, 1997).

Adding a third dimension to the age-old Nature versus Nurture debate, Experience-Producing Drive Theory (Bouchard, 1997; 2016) posits that selection of environments and situations is the result of genetic factors that give rise to certain individual differences. According to Bouchard, genetic predispositions allow one to “actively select” experiences and in turn, create an ideal environment that not only reflects one’s personality, but shapes it. This process is referred to as active genotype-environment correlation in behavior genetics (Plomin,

DeFries, & Lohelin, 1977). This combination of genetic nature, early nurture, and later personal selection, are thought to work in concert to form adult personality. Thus, this mutual cycle of influences channels individuals into lives that suit them.

For reasons that are unclear, avocational interests have received relatively little attention in the psychological literature. Although generally given short shrift, avocational interests may be influenced by personality traits to a greater extent than with vocational interests are. For instance, occupational choice (but not necessary occupational interests) is surely influenced by a variety of outside factors beyond personality, such as socio-economic status, economic needs, parental and other familial expectations, chance experiences, availability of resources, and cultural expectations of gender (Rojewski & Yang, 1997). Leisure time activities may be more reflective of individual choice and less influenced by social factors, although the latter hypothesis has yet to be systematically explored.

Psychopathy and Interests

There is limited evidence that psychopathic traits are associated with outcomes such as choice of college major (i.e., business or criminal justice; Wilson & McCarthy, 2011; Clow & Scott, 2007); attainment of leadership positions (Boddy, 2014); and employment in physically risky, ostensibly "heroic" occupations (i.e., police and firefighting; Falkenbach & Tsoukalas, 2011). Recently, a large study of psychopathic traits in the community revealed that psychopathic traits were associated with a wide variety of everyday outcomes. Boldness predicted attainment of managerial positions, Disinhibition and Coldness predicted a lack of religious affiliation, and all three factors predicted lower educational attainment, political conservativism, and employment in a physically risky occupation (Lilienfeld, Latzman, Watts, Smith, & Dutton, 2014). Additionally, businesspeople reported significantly higher psychopathy

total scores than those in mental health careers, a finding driven by significantly higher levels of Disinhibition, rather than Boldness (Lilienfeld et al., 2014).

Psychopathy may also be associated with choice of leisure activities. In fact, the Psychopathic Personality Inventory- Revised (PPI-R; Lilienfeld & Widows, 2005) assesses certain sensation-seeking traits, such as excitement-seeking, by querying about adrenaline-chasing leisure activities such as racecar driving or skydiving. Athletes competing at the highest levels of individual sports tend to have high levels of many traits that mirror psychopathy, such as emotional toughness, low anxiety, self-confidence, aggression, and extraversion (Ogilvie, 1968). Furthermore, some authors (e.g., Lykken, 1995) posited that those with high levels of psychopathic traits may be more prone to engagement in "blood sports", such as hunting.

Relationships between narcissistic traits and career choices have also been demonstrated. In a sample which drew from four broad career types, politicians tended to have higher total narcissism scores and higher scores on the Leadership/ Authority factor of the *Narcissistic Personality Inventory* (NPI; Raskin & Terry, 1998), particularly when compared to professors or librarians (Hill & Yousey, 1998). Religious leaders, while exhibiting roughly equivalent levels of Leadership/Authority, had significantly lower scores on the more interpersonally antagonistic Entitlement/Exploitativeness scale.

A few studies have attempted to elucidate the relationship between vocational interests and the "Dark Triad" of personality, an umbrella construct that comprises psychopathy, narcissism, and Machiavellianism. Despite relying on a short measure of psychopathy, Jonason and colleagues (2014) found that psychopathy was positively associated with Realistic and Enterprising interests. In contrast, Kowalski and colleagues (2017) demonstrated that psychopathy was negatively associated with social career interests, such as teaching or nursing,

and moderately positively related to fields such the sciences or business. In addition, they found that psychopathy scores were negatively associated with healthy workplace behaviors, such as staying organized and on top of tasks. Although these studies provide an interesting glimpse into the relations between pathological personality and vocational outcomes, they are limited by small sample sizes and do not consider the differential correlates of psychopathy subdimensions. As such, the present study focused primarily on the contributions of the extensive work on general personality traits and interests dimensions to formulate fine-grained hypotheses.

Present Study

To date, little research has examined the relationship between psychopathic personality traits and vocational and avocational interests. This study is the first to examine multiple indices of both vocational and avocational interests in relation to psychopathy, and the first to assess these associations at the subdimensional level. Although some research has made preliminary inroads into understanding the relations between psychopathy and vocational interests (Jonason et al., 2014; Kowalski et al., 2017), these studies have treated psychopathy as a unitary construct. No research has examined the relations between separable subdimensions of psychopathy and vocational interests. The subdimensions of psychopathy often correlate in opposite directions with external criteria, and may cancel each other out or obscure important patterns in a total-score approach. Given the *differential-configuration model* of successful psychopathy which posits that successful psychopaths may possess different levels of the essential traits which make up psychopathy (Lilienfeld, Watts, & Smith, 2015), this level of analysis is essential. I addressed this gap in the literature by examining psychopathic traits' relations with (a) vocational and (b) avocational interests, as well as (c) current occupation in a large sample of North American community members.

To better understand the relations between psychopathy and these outcomes, I examined three subsidiary aims in exploratory analyses. First, I explored the role of gender in the relations between psychopathy and interests. Second, I examined interaction effects between psychopathy subdimensions to ascertain the extent to which these traits interact to produce certain patterns of interests. Third, I examined the extent to which these relations are specific to psychopathic traits. To do so, I examined the relations between narcissism and general personality traits, and these same outcomes.

Hypotheses

I proposed several preliminary hypotheses. These hypotheses, along with the methods, were preregistered with the Open Science Framework at https://osf.io/wrwkc.

Vocational interests. For vocational interests, I predicted the following:

1. *Boldness:* Based on its association with extraversion and positive emotionality (Marcus, Fulton, & Edens, 2013; Miller & Lynam, 2011), I expected Boldness features would exhibit moderately positive associations with Social and Enterprising careers and slight positive correlations with Realistic and Investigative careers.
2. *Disinhibition:* In contrast, I hypothesized that Disinhibition features would exhibit a slight positive correlation with artistic interests due to their association with Negative Emotionality (Marcus, Fulton, & Edens, 2013), as well as moderate positive correlation with Realistic and Enterprising interests. Additionally, I suspected that Disinhibition would exhibit a moderately negative correlation with interest Social careers and a slight negative association with detail-oriented Conventional interests.
3. *Coldheartedness:* I expected that Coldheartedness would be moderately positively associated with Realistic career interests and slightly positively associated with

Investigative and Enterprising interests, as these interests facts lack meaningful interpersonal attachment and may even encourage manipulation. Additionally, I predicted that Coldheartedness would be slightly negatively associated with Conventional interests and emotionally expressive Artistic interests, and even more strongly negatively associated with interest Social careers, as these career types would encourage emotional expression or connections with others.

4. *Meanness:* I predicted that the Meanness factor of the TriPM and the factors of the LSRP would be moderately positively associated with pragmatic Realistic interests and ruthless Enterprising interests. Given the fact that Meanness is more interpersonally antagonistic than Coldheartedness, I predicted it would be more negatively associated with Artistic and Social interests than Coldheartedness. Furthermore, I predicted it would be slightly negatively associated with Conventional interests, as they require a careful, attentive attention to detail which those with limited attachment to their work or others may not be interested in maintaining.

Avocational interests. For avocational interests, I predicted the following:

1. *Boldness:* I predicted that Boldness would be positively associated with Athletic, Social, and Outdoor interests, all of which would appeal to fearless, sensation-seeking tendencies, but be unrelated to Artistic interests.
2. *Disinhibition:* I predicted that Disinhibition would be slightly positively associated with Artistic hobbies for the same reasons as Artistic vocations. Furthermore, I expected Disinhibition to be moderately positively associated with Athletic and Outdoor interests as they would like appeal to those who are impulsive, ruthless, and competitive. In

contrast, I expected a slightly negative correlation with Social hobbies as Disinhibition tends to be interpersonally maladaptive.

3. *Coldheartedness/ Meanness:* Finally, I predicted that the callousness factors (Coldheartedness, Meanness, and the two factors of the LSRP) would be moderately positively associated with ruthless, aggressive Athletic interests, unrelated to Outdoor interests, and slightly negatively correlated with Social and Artistic interests which may require meaningful emotional openness.

Specificity of findings. With regards to specificity, I predicted that NPI Leadership/ Authority would exhibit relatively similar associations to PPI-R FD and NPI Entitlement/ Exploitativeness would follow similar patterns to PPI-R SCI, albeit to a lesser extent, as they tend to be associated (Miller, Maples-Keller, & Lynam, 2016). Finally, I predicted that the relation between general personality traits and interests would replicate associations from the literature (e.g., Ackerman & Heggestad, 1997; Barrick et al., 2003; Larson et al., 2002).

Method

Participants and Procedure

Participants (N=426) were community members who completed the study online through Amazon's Mechanical Turk (MTurk). Although still not exactly representative of the US population, MTurk samples tend to yield greater demographic and personality trait variability than those drawn from undergraduate populations (e.g., Miller et al., 2017). The initial sample totaled 512 but 86 were removed on the basis of excessive missing data or for being outliers on the PPI's Inconsistent Responding scale. Participants were reimbursed $3.00 for approximately one hour of their time.

Participants were North American residents, predominantly male (54.4%), and of Caucasian (77.6%), African American (7.2%) or Asian (6.5%) descent. The mean age was 36.53 (SD=12.03). The majority were heterosexual (87.4%), although a few identified as bisexual (5.8%), homosexual (2.6%), and pansexual (1.9%). In terms of religious affiliations, participants were predominantly Christian (48.1%), Atheist (20.8%), and Agnostic (19.3%).

Measures

Personality Pathology. Participants completed two widely-used and well-validated measures of psychopathic personality. The *Psychopathic Personality Inventory-Revised* (PPI-R; Lilienfeld & Widows, 2005) yields two higher-order factors (PPI-R SCI and PPI-R FD), as well as a Coldheartedness (PPI-R C) subscale. The PPI-R focuses less on antisocial behavior and more on the personality trait configuration of psychopathy. From the PPI-R, trait composites based on the *Triarchic Psychopathy Measure* (TriPM; Patrick, 2010) were also extracted (Hall et al., 2014), providing indices of Boldness, Disinhibition, and Meanness.

Additionally, participants completed the *Levenson Self-Report Psychopathy Scale* (LSRP; Levenson, Keihl, & Fitzpatrick, 1995), which focuses more on the maladaptive aspects of psychopathy. This measure yields a selfishness, coldness, exploitativeness factor (Factor 1) and an impulsivity, self-defeating behavior factor (Factor 2).

Specificity. Trait narcissism was assessed using the *Narcissistic Personality Inventory* (NPI; Raskin and Terry, 1988), a 40-item scale that yields two factors: Entitlement/ Exploitativeness (NPI EE) and Leadership/ Authority factor (NPI LA). NPI LA overlaps moderately with Boldness psychopathy features , whereas NPI EE is more closely associated with Disinhibition psychopathy features (Ackerman et al., 2011).

General personality traits were assessed using the *HEXACO Personality Inventory-Revised* (HEXACO PI-R; Ashton & Lee, 2008). This 100-item measure expands on the FFM by adding an Honesty-Humility (i.e., unassuming, law-abiding) factor to Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness. The HEXACO's six factor model emerges in cross-cultural factor analyses of personality traits (Ashton & Lee, 2008). Thus, this measure is gaining traction as a culturally-sound assessment of general personality traits.

Interests. Vocational interests were assessed using two instruments, the *O*Net Interests Profiler* (O*NET; Lewis & Rivkin, 1999) and the Minnesota Vocational Interests Test (MVIT; Lykken, Bouchard, McGue & Tellegen, 1993). The O*NET assesses an individual's career interests and yields six scores based on Holland's (1997) RIASEC model. The MVIT is a 100-item inventory in which interest in engagement in a variety of occupations is rated on a Likert-scale.

Avocational interests were measured using the *Leisure Interests Questionnaire* (LIQ; Hansen, 1998) and the Minnesota Leisure-Time Activity Survey (MLTAS: Lykken et al., 1993). The LIQ yields scores on 20 activity scales that broadly coalesce into four leisure activity factors (Hansen & Scullard, 2002): Artistic/Intellectual (e.g., writing, crafting); Athletic (e.g., sports, competition); Social (e.g., traveling, socializing); and Outdoor (e.g., camping, hunting). The MLTAS is a 120-item inventory of hobbies and avocational activities that participants rate on how often they would engage in each activity if time and money were not a concern.

Analogous to the Ackerman and Haggestad (1993) superclusters, Lykken and colleagues (1993) demonstrated that the items from the MVIT and MLTAS coalesced factor-analytically into 39 vocational-avocational interest factors subsumed by 11 higher-order "superfactors." These superfactors, presented in Figure 1, represent related clusters of interests and skills such as

an affinity for thrill-seeking over safer pastimes, or an interest in agrarian activities. Although the original paper built the factors using measures of talents and opinions in addition to the vocational and avocational interests inventories, the factors held together quite well. One superfactor (Self-Esteem) and six subfactors (Well Adjusted, Irritable/Neurotic, Attractive Personality, Hardworking, Persuasive, and Mental Vigor) had to be excluded as they contained no vocational or avocational indicators. Consistent with the original study, Chronbach's alphas for the remaining superfactors ranged from α=.56 ("Charm") to α=.94 ("Artificer") [1].

Data Analysis

First, I examined zero-order correlations between the personality and interest factors. Due to the large number of correlational analyses, I established a more rigorous p-value of $p<.01$ to minimize risk of Type I error. Second, to explore gender differences, I examined the extent to which gender moderated the relations between personality and interests. To do so, I examined the statistical interaction of personality and gender whereby gender was treated as a moderator of the relations between personality and interests. Third, to ascertain the extent to which personality traits interact statistically to produce vocational and avocational interests, I examined the statistical interactions between the psychopathy and narcissism subdimensions in statistically predicting interests. All statistical interaction (moderation) analyses were conducted using the SPSS PROCESS macro (Hayes, 2013) using bootstrapping.

Results

Convention within the psychological literature holds that correlations of .10 are considered "small", correlations of .30 are considered "medium" and correlations of .50 or above are "strong" (Cohen, 1988).

[1] Two superfactors, originally titled "Male Physician" and "Female Physician", were renamed for clarity. The "Male physician" factor was made up of the Medical and Scientist subscales and was renamed "Physician." The "Female physician" factor was made up of the Medical and Interpersonal Warmth subscales and was renamed "Nurse".

Psychopathy and RIASEC Vocational Interests.

Psychopathy scales' associations with the RIASEC dimensions are presented in Table 19. Contrary to hypotheses, psychopathy features broadly construed were related to vocational interests and displayed few discriminating relations with RIASEC dimensions. Put another way, individuals with pronounced psychopathy features across the board indicated a general interest in engagement in most if not all careers. Nevertheless, several specific relations were broadly consistent with predictions.

Boldness features (PPI-R FD, TriPM B) in particular moderately and positively associated with all six RIASEC factors (*r*s ranged from .20, *p*>.001to .38, *p*>.001), suggesting that those with high levels of these features endorsed broad vocational interests. Disinhibition features (PPI-R SCI, TriPM D) were moderate predictors of Realistic, Artistic, Enterprising, and Conventional interests. In contrast, PPI-R C was essentially unrelated to all the interest types, with the exception of a slight negative association with Social interests. The interpersonally antagonistic features (TriPM M and LSRP Factors 1 and 2) were also largely unrelated to vocational interests. Nevertheless, all three were slightly positively correlated with Realistic interests, and TriPM M and LSRP Factor 1 were both slightly positively associated with Enterprising careers.

Vocational and Avocational Interest Superfactors. The pattern of boldness traits' association with interests in general held for the superfactors identified by Lykken and colleagues (1993) as displayed in Table 21.

Boldness traits (PPI-R FD and TriPM B) were small to medium predictors of all interest superfactors (*r*s ranged from *r*=.17, *p*<.001 to *r*=.48, *p*<.001), exhibiting marked associations with rugged, sensation-seeking factors such as Adventurous and Solidarity. PPI-R SCI deviated

slightly from TriPM D, exhibiting slight to moderate positive associations with the Adventurous, Solidarity, Artificer, Religious, Charm, Physician factors, whereas TriPM D only significantly predicted Solidarity and Religious interests.

Once again, PPI-R C, TriPM M and the LSRP factors exhibited little relation with interests, albeit with a few exceptions. The PPI-R C, TriPM M, and LSRP Factor 1 were all slightly positively associated with Adventurous interests, TriPM M and both LSRP factors shared interest in Religious activities, and both PPI-R C and TriPM M were negatively associated with Intellectual pursuits.

Full associations between personality trait predictors and the 39 subfactors that comprise the superfactors are presented in the supplemental materials. Several compelling patterns emerged that are consistent with those of previous studies. Of particular note, all three psychopathy factors, especially Boldness, predicted an interest in "blood sports" (i.e., hunting and fishing; Lykken, 1995), gambling (Mahmut, Homewood, & Stevenson, 2008), and law enforcement and military careers (Falkenbach & Tsoukalas, 2011).

Avocational Interests

Table 23 contains the zero-order correlations between psychopathy traits and the avocational interest factors identified by Hansen and Scullard (2002).

Fearless Dominance and Boldness were moderate to strong predictors of all four avocational interest factors, with strongest associations with Athletic, Social, and Outdoor interests. The other factors were generally unrelated to vocational interests. Coldheartedness and Meanness were slightly positively associated with Outdoor interests and negatively associated with interest in hobbies that encourage artistic expression. Additionally, LSRP Factor 2 predicted distaste for Social activities.

Specificity

Table 20, 22, and 24 illustrate the relations between narcissism and general personality traits and vocational, avocational, and combined interest dimensions.

Narcissism. Both the Leadership/ Authority and the Entitlement/ Exploitativeness factors of the NPI exhibited similar patterns of associations with the RIASEC vocational interests, with this relationship being most pronounced for Enterprising (r_{LA}=.37 and r_{EE}=.36) and Realistic interests (r_{LA}=.28 and r_{EE}=.38). This pattern held for the Lykken and colleagues (1993) vocational and avocational interest superfactors as well. The factors did not discriminate strongly in their associations, although NPI LA seemed to be a stronger predictor of productive, intellectual pursuits such as the Intellectual and Physician factors, as well as the Adventurous factor. In contrast, NPI EE was a stronger predictor of the Religiousness and Charm factors.

With regards to avocational interests, NPI LA was slightly associated with Artistic, Social and Outdoor interests (r=.16, p=.01; r= .28, p<.001 and r=.27, p<.001, respectively) and moderately associated with Athletic interests (r=.32, p<.001). NPI EE was moderately positively associated with Athletic (r=.21, p<.001), Social (r=.20, p<.001), and Outdoor interests (r=.23, p<.001)

General Personality. The present study largely replicated the associations between trait models of personality (HEXACO) and vocational interests (i.e., Larson et al., 2002; Ackerman & Heggestad, 1997). Of the six reported associations between general personality traits and RIASEC dimensions, four were replicated: Social-Extraversion (r=.31, p<.001), Enterprising-Extraversion (r=.32, p<.001), Investigative-Openness (r=.35, p<.001), and Artistic-Openness (r=.42, p<.001). Two correlations from the meta-analyses, Enterprising-Conscientiousness and Conventional-Conscientiousness, failed to replicate.

Several other small to moderate associations were also identified. Honesty-Humility was negatively associated with Realistic, Artistic, Enterprising, and Conventional interests; Emotionality was negatively associated with Realistic interests; Extraversion was slightly positively associated with Realistic, Investigative, Artistic, and Conventional interests; and Agreeableness was slightly positively correlated with Social interests. These findings, presented in Table 20, provide further support for the robust literature supporting the implications of general personality traits for vocational interests.

HEXACO personality traits' associations with the Lykken (1993) superfactors are presented in Table 22. Honesty-Humility was slightly negatively associated with all but three of the interest factors. Emotionality was negatively associated with three factors as well: Adventurous, Solidarity, and Religious. Extraversion was a moderate positive predictor of all ten interest factors, and Openness was slightly positively associated with Adventurous, Solidarity, Agrarian, and Physician. In contrast, Agreeableness and Conscientiousness were not significantly associated with any of the interest factors.

Zero-order correlations between HEXACO personality and avocational interests are presented in Table 24. Honesty-Humility was a slight negative predictor of Athletic, Social, and Outdoor interests, and Emotionality was also negatively associated with Athletic and Outdoor. Extraversion and Openness were moderate predictors of all the avocational interest factors. In contrast, Agreeableness and Conscientiousness were largely unrelated to avocational interests, exhibiting only slight relations to Artistic and Social hobbies, although the former was only significantly associated with Agreeableness.

Gender differences in correlational patterns. Of the 96 of the zero-order correlations between personality features and RIASEC vocational interests, only two were significantly

moderated by gender (2.1%). Only five of the 160 zero-order correlations between personality features and Lykken's (1993) superfactors were significantly moderated by gender (3.1%). Furthermore, only four of the 64 zero-order correlations between personality and leisure interests were significantly moderated by gender (6.3%).

Significant moderation effects are denoted by a superscript a in Tables 19, 21, and 23. Both of the significant moderation effects for personality and RIASEC were stronger for females: PPI-R FD and RIASEC Artistic (p=.02; r_{males}=.12, p=.11; $r_{females}$=.34, p<.001), TriPM B and RIASEC Artistic (p=.01; r_{males}=.10, p=.17; $r_{females}$=.34, p<.001,

For five of the Lykken and colleagues (1993) superfactors, the effect was stronger for males: PPI-R SCI and Religious (p=.01; r_{males}=.40, p<.001; $r_{females}$=.14, p=.04); TriPM D and Religious (p=.03; r_{males}=.31, p<.001; $r_{females}$=.06, p=.38); NPI LA and Breadth (p=.03; r_{males}=.31, p<.001; $r_{females}$=.14, p=.04); NPI EE and Breadth (p=.02; r_{males}=.32, p<.001; $r_{females}$=.08, p=.23); and NPI EE and Agrarian (p=.01; r_{males}=.32, p<.001; $r_{females}$=.01, p=.94).

Lastly, two of the relations between personality and leisure interests were stronger for females: PPI-R FD and Artistic (p=.03; r_{males}=.10, p=.19; $r_{females}$=.35, p<.001) and TriPM B and Artistic (p=.03; r_{males}=.07, p=.31; $r_{females}$=.36, p<.001). The other two were stronger for males: eXtraversion and Social (p=.02; r_{males}=.58, p=.00; $r_{females}$=.46, p<.001) and Conscientiousness and Social (p=.03; r_{males}=.33, p<.001; $r_{females}$=.05, p=.52).

Given that a confidence level of p<.05 indicates that Type 1 error will occur approximately 5% of the time, the rarity of these moderation effects, combined with the large number of zero-order correlations conducted, it is likely that most if not all of these gender moderation effects reflect Type I error (furthermore, these comparisons are not statistically independent given the correlations among the interest measures, so the true p level is higher

than .05). Moreover, because the literature on gender differences in the behavioral manifestation of psychopathy is mixed (see Miller, Watts, & Jones, 2011 for a discussion), these scattered positive findings require replication.

Interaction effects. Of the 40 number of tested interactions among psychopathy subdimensions, only two were statistically significant. Boldness was significantly moderated by Disinhibition such that the relation between TriPM B and RIASEC Realistic was stronger at higher levels of TriPM D (p=.05). Fearless Dominance was significantly moderated by Self-Centered Impulsivity in one of the ten Lykken (1993) superfactors, such that the association between PPI-R FD and Physician interests was stronger at lower levels of PPI-R SCI (p=.03). There were no significant interaction effects between psychopathy traits in predicting leisure interests. Again, given that there were only two significant interactions, and these were not replicated across measures of ostensibly identical constructs, these moderation effects are likely due to Type I error.

Discussion

The extent to which personality traits relate to and perhaps influence individual differences in lifestyle outcomes, particularly career interests, has been the subject of great interest in the psychological literature (Ackerman & Heggestad, 1997; Barrick et al., 2003; Larson et al., 2002). Although personality traits and interests are separable constructs (Mount et al., 2005), traits wield a powerful, albeit at times subtle, influence over individuals' life choices (Tellegen, 1991). This maxim is almost certainly true not only for personality traits in the so-called "normal range" but also for those in the pathological realm.

In particular, psychopathic personality traits have long been posited to be useful tools for gaining success in certain professions such as business (Babiak & Hare, 2006), police and firefighting (Falkenbach & Tsoukalas, 2011), or politics (Lilienfeld et al., 2012). Despite theories

regarding the influence of psychopathy on specific occupational choice, the ways in which psychopathy influences other lifestyle choices is still unclear (Lilienfeld et al., 2014). The present study was among the first to examine psychopathic personality traits' association with vocational interests using a variety of measures, and the first to include avocational (leisure) interests as a potentially unique glimpse into individual selection of activities.

Across measures, the findings suggest that the Boldness traits of psychopathy predict general interest in all of the activities, as do both facets of Narcissism. So what makes bold, fearless individuals especially likely to report interest in a broad range of careers and hobbies? General personality traits of Extraversion and Openness to Experience also reflected this general interest in activities. In the present study, as well as several meta-analyses (i.e., Marcus, Fulton, & Edens, 2013; Miller & Lynam, 2011), Boldness has been demonstrated to be associated with Sensation-Seeking, Positive Emotionality, and Extraversion, which is a potent marker of Positive Emotionality. This positive, confident view of oneself and the world, combined with a willingness to try many things may manifest in general self-confidence. Alternatively, the positive, bold demeanor may stem from underlying confidence, or a third, underlying dimension may encourage the development of all of these.

The social cognitive career theory (Lent, Brown, & Hackett, 1994) proposes that personality traits influence career choice via an indirect pathway. On this pathway, personality traits build confidence in one's ability to succeed at a task, which in turn bolsters willingness to pursue that path. In fact, self-confidence has been demonstrated to relate to and perhaps influence college major choice, in that confidence in one's success in a given field was significantly associated with choice of major in that area, above and beyond personality traits alone (Larson, Wu, Bailey, Gasser, Bonitz, & Borgen, 2010). This finding suggests that one

needs not only the traits to succeed, but also the confidence to try new things and then commit to the chosen path. This positive self-concept may also explain why narcissistic personality traits seemingly did not differentiate strongly in their relations with interests. Although they have different patterns of associations, both factors may stem from a similar root of over-inflated self-image.

In contrast, Disinhibition is likely reflecting patterns of interests uninfluenced by general confidence. The interests factors that are associated with Disinhibition tend to be in the realms of Realistic and Conventional careers, which entail little social interaction; Artistic occupations, which are often associated with Openness (i.e., Larson et al., 2002); or Enterprising careers which generally entail highly ambitious, fast-paced occupations in which those high in impulsivity and ruthlessness presumably would thrive. Certain avocational interests, such as rugged Athletic and Outdoor interests also fit this pattern.

The interpersonally antagonistic and callous factors (PPI-R C, TriPM M, LSRP F1, LSRP F2) were not often associated with interests. When they were, they were tied to an interest in ruthless or socially isolated activities or careers. In fact, Coldheartedness and Meanness reflected an active dislike for Artistic hobbies while Factor 2 of the LSRP predicted a distain for social engagements. These findings are more in line with conventional ideas about “psychopaths at work”: cold, calculating individuals who choose careers and hobbies largely devoid of meaningful social engagement (Babiak & Hare, 2006).

Channeling Models. Psychopathic traits relate to and perhaps shape a wide variety of outcomes from political and religious affiliations to educational and leadership attainment (Lilienfeld et al., 2014). Within these patterns, however, there is still substantial variability, as individuals vary in how they adapt their individual traits to best thrive in their environment.

These “characteristic adaptations” are the result of core predispositions being shaped by the environment, including opportunity and experience (Harkness & Lilienfeld, 1997). Choices of how people spend their time, be it at work or play, are reflective of these traits (Ickes, Snyder, & Garcia, 1997). This selection process shapes personality as traits adapt and adjust in response to experiences (Bouchard, 1997). Thus, traits, choices, and environmental opportunities act upon one another in a cycle of pressures which guide individuals down their own, unique paths.

Vocational and avocational interests, however, may be relatively free from these societal pressures and expectations. Although actual occupational choice tends to reflect socio-economic demands, gender expectations, chance experience, or self-efficacy (Lent, Brown, & Hackett, 1994; Rojewski & Yang, 1997), occupational interests may be somewhat more indicative of underlying trait-like predispositions. In much the same vein, avocational interests are generally unrestrained by the same pressures as are career choices.

The question remains as to whether successful psychopaths are qualitatively different from their criminal counterparts. Although there is lively debate as to whether any part of psychopathy can be adaptive (Lilienfeld et al., 2012; Lynam & Miller, 2012), the notion of a successful individual who exhibits high levels of psychopathic traits is pervasive. Two competing theories of successful psychopathy, the differential configuration model and the moderated-expression model, both posit that although successful and unsuccessful psychopaths have the same core traits, specific differences guide them down their distinctive paths. According to the differential configuration model, successful and unsuccessful psychopaths differ in their combinations of Boldness and Disinhibition (Lilienfeld, Watts, & Smith, 2015). According to this model, successful psychopaths, although high in Boldness, exhibit lower levels of Disinhibition than their less successful counterparts. In the present study, Boldness predicted a

broad range of interests in socially acceptable careers and hobbies, which may encourage engagement in non-criminal behaviors. Yet, there were no consistent of statistical interactions between Boldness and Disinhibition, indicating that the influence of Boldness on interests was independent of Disinhibition levels. These findings may run counter to the differential configuration model (Maples et al., 2014).

In contrast, the moderated-expression model proposes that this differentiating factor is a non-personality factor such as experience with success or a trait such as intelligence, which moderates how psychopathic traits are expressed in everyday life (Lilienfeld, Watts, & Smith, 2015). This model fits well with anecdotal support for the notion of individuals channeling their psychopathic traits into different lifestyle outcomes. In fact, social, economic, and experiential influences seemed to have guided Sir Winston Churchill and the gang member, "Monster", along two very divergent paths. Although both may have possessed a "genetic talent" for psychopathy, their very different experiences, educations, and family support systems pushed them apart (Lykken, 1995).

Criminal behaviors are often attractive to psychopathic individuals because they tend to crave arousal, yet other outlets may be equally effective for producing the same sensation-seeking rush (Lykken, 1995; Suedfeld & Landon, 1978). The findings of the present study suggest that because Boldness is associated with a wide array of interests, a variety of occupational or avocational outlets could be effective for fulfilling this need. Even though Disinhibition was associated only with a few specific interest factors which place emphasis on low social interaction and ruthlessness, these may be pathways into which those with Lykken's (1995) "genetic talent" might be channeled.

Limitations and Future Directions. Despite its strengths, this study was marked by several limitations that should inform future research. Although the use of an MTurk sample may provide more demographic variability than an undergraduate sample (Miller et al., 2017), many participants self-identified as "Professional MTurkers" and many more as "self-employed" or simply "tech". This finding suggests that the limited variability in occupational choice may have engendered limited variability of interests in this sample. Oversampling for a wider range of occupational choices and interests may provide a clearer picture of these associations.

Although self-reports of psychopathy tend to converge moderately to highly with the scores of informants (Miller, Jones, & Lynam, 2011) and our findings were consistent across measures, there are always concerns about exclusive reliance on self-report measures of personality disorder traits as those high in psychopathy may lack insight into their behavior or refuse to report accurately on it and informant reports do not always exactly agree with self-reports of these traits (see Miller, Jones, & Lynam, 2011 for a discussion). Future studies may benefit from additional types of assessments of personality and interests, such as ratings of personality by friends and family or clinical interview-based assessments.

Additionally, the present study included no longitudinal component. Some studies suggest that interests and personality evolve in tandem over time (Roberts, Caspi, & Moffit, 2003). Thus, a longitudinal study may be better equipped to ascertain the validity of theories concerning the development of both traits and interests.

Furthermore, it remains unclear which general personality traits are mediating the relationship between psychopathic traits and interests. Although Positive Emotionality was proposed as a potential mechanism for the relationship between Boldness facets of psychopathy and endorsement of all the interest factors, statistical mediation analyses are necessary to

determine precisely how much of the relationship is attributable to Positive Emotionality, and how much is unique to Boldness itself.

Lastly, the present study may have implications for understanding how pathological personality traits may be channeled into specific vocations. Nevertheless, actual occupational attainment and occupational interests are quite different constructs, as occupational choice can be limited by a variety of factors (Rojewski & Yang, 1997). Therefore, it will be necessary to determine the extent to which these reported interests mediate the link between psychopathy and actual occupational attainment.

Therapeutic implications. These findings bear several implications for therapeutic interventions. Several authors have conjectured that psychopathic individuals can be channeled into career paths which suit them, thereby keeping them away from criminal pursuits (Lykken, 1995; Suedfeld & Landon, 1993). Preliminary, albeit mixed, evidence from forensic settings suggest that vocational skills training and work-based interventions can reduce recidivism in adult offenders (Wilson, Gallagher, & Mackenzie, 2000) and in-school programs such as "Fast Track" reduce risk of future offending by providing, among other things, vocational and academic skills trainings (Conduct Problems Prevention Research Group, 2011). Nevertheless, these interventions may be limited by a one-size-fits-all approach in which all participants are given the same training, despite marked individual differences in interests.

Given the broad range of interests endorsed by those high in Boldness traits, channeling psychopathic individuals into less maladaptive lifestyles may be less a matter of guiding troubled children into a single career or type of that accommodates these traits, and more a matter of idiographic (individualized) vocational training. In an individual therapeutic setting, clinicians might assess the client's specific interests and design vocational skills training and mentoring to

encourage pursuit of that path. Individually tailored interventions, such as those with a mentoring component similar to Big Brothers/ Big Sisters, are more complex to develop than nomothetic interventions, but they may yield better long-term gains in guiding individuals with incipient psychopathic traits into becoming productive members of society. Considering crime and criminal engagement from a public health perspective, such interventions offer the potential of reducing the societal cost of antisocial behaviors by encouraging more individuals to follow paths like those of Churchill's and fewer the paths like those of Monster.

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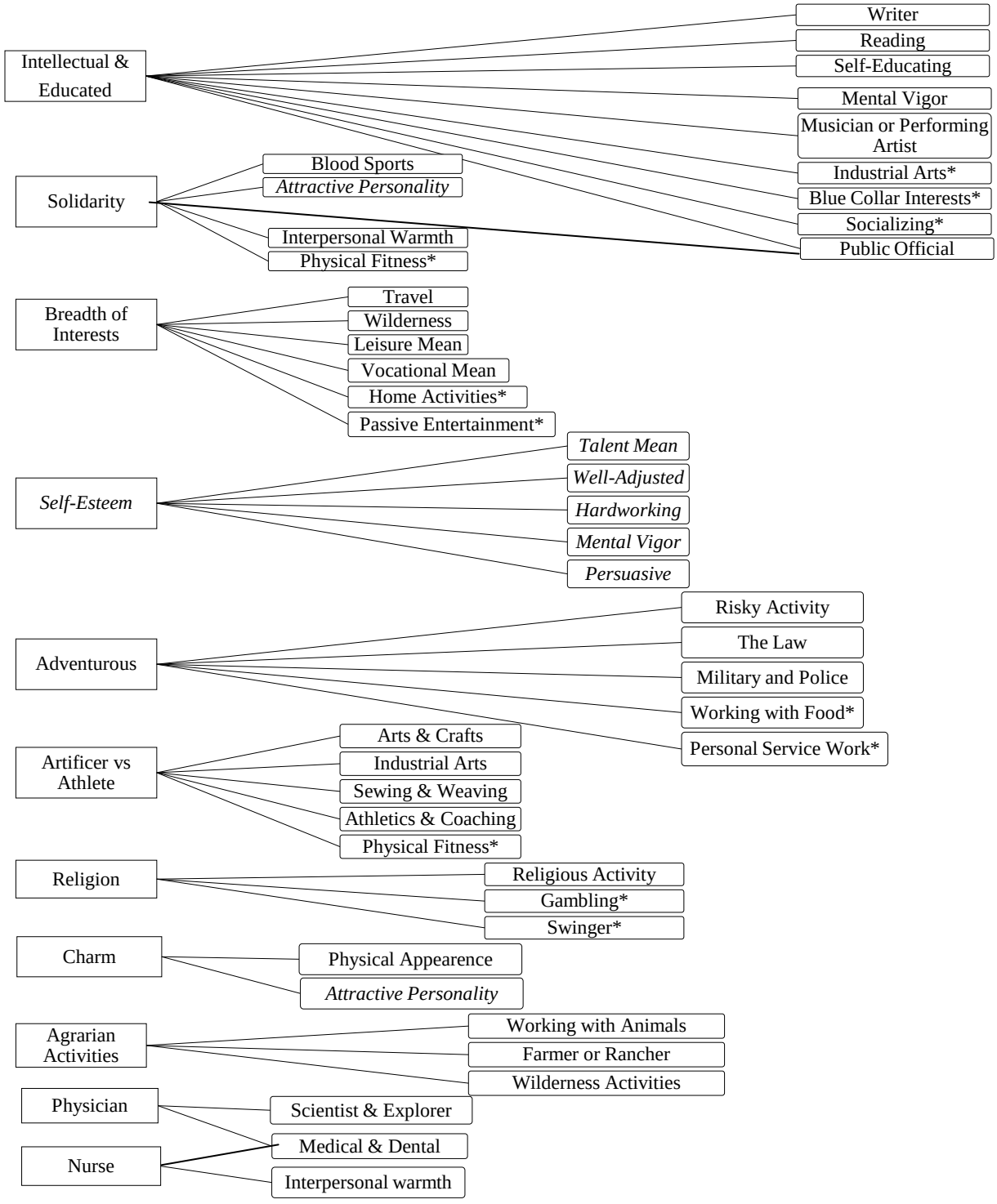
Figure 1. *Structure of the superfactors created by Lykken and colleagues (1993).*



Note: Asterisks denote subfactors which were negatively loaded. Italicized factors were excluded as they contained no items from the MVIT or the MLTAS.

Table 1. *Psychopathy Factors Descriptives and Inter-scale Correlations*

	m(sd)	FD	B	SCI	D	C	M	F1	F2
PPI-R FD	103.59(21.66)	α=.94	**.97**	**.16**	-.05	**.37**	**.36**	**.28**	*-.11*
TriPM B	53.63(11.85)		α=.89	*.11*	-.08	**.33**	**.31**	**.23**	**-.15**
PPI-R SCI	142.52(26.13)			α=.94	**.88**	**.35**	**.54**	**.59**	**.62**
TriPM D	35.95(7.31)				α=.82	**.27**	**.41**	**.42**	**.66**
PPI-R C	34.82(8.04)					α=.88	**.94**	**.55**	**.20**
TriPM M	38.29(8.46)						α=.87	**.66**	**.32**
LSRP F1	30.04(9.57)							α=.92	**.64**
LSRP F2	19.30(5.39)								α=.81

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$.
PPI-R= Psychopathic Personality Inventory-Revised; FD= Fearless Dominance; SCI=Self-Centered Impulsivity; C= Coldheartedness; TriPM= Triarchic Personality Measure; B=Boldness; D= Disinhibition; M= Meanness; LSRP= Levenson Self-Report Psychopathy Measure; F1= Factor 1; F2=Factor 2

Table 2. *NPI Descriptives and Inter-scale Correlations*

	m(sd)	TOTAL	LA	EE
1	11.37(8.45)	α=.92	**.87**	**.87**
2	3.19(2.90)		α=.86	**.63**
3	2.87(3.15)			α=.83

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$.
NPI= Narcissistic Personality Inventory; LA= Leadership/Authority; EE=Entitlement/ Exploitativeness

Table 3. *HEXACO Descriptives and Inter-scale Correlations*

	m(sd)	Honesty/ Humility	Emotionality	eXtraversion	Agreeableness	Conscientiousness	Openness
1	55.03(11.49)	α=.73	*.12*	-.06	**.47**	**.24**	**.14**
2	50.95(10.46)		α=.72	**-.32**	-.08	*-.12*	-.07
3	50.25(11.64)			α=.80	**.35**	**.38**	**.21**
4	50.44(10.25)				α=.80	**.31**	**.16**
5	58.10 (9.55)					α=.76	**.30**
6	56.00(11.02)						α=.82

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$.

Table 4. *Minnesota Intellectual Subscales' Descriptives and Inter-Correlations*

	m(sd)	Writer	Reading	SelfEd	PubOff	Musician	IndArts	BlueCollar	Socializing
1	14.06(4.38)	α=.83	**.50**	**.55**	**.62**	**.60**	**.50**	**.49**	**.33**
2	14.21(4.72)		α=.83	**.69**	**.46**	**.42**	**.47**	**.33**	**.48**
3	15.79(5.28)			α=.83	**.63**	**.52**	**.62**	**.48**	**.70**
4	20.50(6.25)				α=.85	**.51**	**.54**	**.55**	**.50**
5	16.35(4.44)					α=.76	**.54**	**.48**	**.45**
6	21.02(7.31)						α=.88	**.79**	**.48**
7	16.54(5.21)							α=.82	**.35**
8	20.82(6.06)								α=.86

Note: Bolded are significant at $p<.01$.
Self-Ed= Self-Educating; PubOff=Public Official; IndArts= Industrial Arts

Table 5. *Minnesota Breadth Subfactors Descriptives and Intercorrelations*

	m(sd)	MVIT Mean	MLTAS Mean	Travel	Wilderness	Home	Passive
1	1.83(.43)	n/a	**.55**	**.40**	**.45**	**.36**	**.45**
2	2.43(.67)		n/a	**.79**	**.80**	**.74**	**.86**
3	20.73(7.05)			α=.86	**.71**	**.49**	**.69**
4	9.54(3.86)				α=.80	**.48**	**.62**
5	23.15(5.38)					α=.76	**.71**
6	15.55(4.61)						α=.71

Note: Bolded are significant at $p<.01$.
MVIT=Minnesota Vocational Interests Test; MLTAS= Minnestota Leisure Time Activity Survey; Home= Home Activities; Passive= Passive Entertainment

Table 6. *Minnesota Adventurous subscales descriptives and intercorrelations.*

	m(sd)	Risky	Law	Military	Food	Service
1	8.94(3.56)	α=.83	**.49**	**.60**	**.44**	**.53**
2	7.12(2.56)		α=.82	**.70**	**.24**	**.57**
3	5.22(1.86)			α=.74	**.27**	**.52**
4	13.91(4.33)				α=.76	**.42**
5	12.42(3.50)					α=.78

Note: Bolded are significant at $p<.01$.
Risky=Risky Activities; Food=Working with Food; Service= Personal Service Work.

Table 7. *Minnesota Solidarity subscales descriptives and intercorrelations.*

	m(sd)	PubOff	Blood	Warmth[b]	Fitness
1	20.50(6.25)	α=.85	**.51**	**.14**	**.54**
2	10.54(5.43)		α=.90	.12	**.57**
3	n/a			n/a	**.15**
4	11.80(4.45)				α=.78

Note: Bolded are significant at $p<.01$.
b: Interpersonal warmth is a single-item scale.
PubOff=Public Official; Blood=Blood Sports; Warmth= Interpersonal Warmth; Fitness= Physical Fitness.

Table 8. *Minnesota Artificer subscales descriptives and intercorrelations*

	m(sd)	IndArts	Fitness	Arts	Sewing	Athletics
1	21.02(7.31)	α=.88	**.62**	**.72**	**.54**	**.54**
2	11.80(4.45)		α=.78	**.57**	**.37**	**.59**
3	22.40(6.83)			α=.85	**.61**	**.34**
4	4.12(2.13)				α=.76	**.19**
5	24.50(8.38)					α=.89

Note: Bolded are significant at $p<.01$.
IndArts= Industrial Arts; Fitness= Physical Fitness; Arts= Arts and Crafts

Table 9. *Minnesota Religious Subscales descriptives and intercorrelations*

	m(sd)	Religious	Gambling	Swinger
1	16.75(7.30)	α=.91	**.49**	**.37**
2	13.21(6.01)		α=.90	**.63**
3	13.04(4.96)			α=.81

Note: Bolded are significant at $p<.01$.

Table 10. *Minnesota Agrarian subscales descriptives and intercorrelations*

	m(sd)	Animals	Farmer	Wilderness
1	21.24(31.12)	α=.81	**.52**	**.59**
2	5.50(1.99)		α=.82	**.43**
3	9.54(3.86)			α=.80

Note: Bolded are significant at $p<.01$.

Table 11. *Minnesota Physician subscales descriptives and intercorrelations*

	m(sd)	Medical	Scientist
1	10.96(3.57)	α=.86	**.44**
2	11.05(3.16)		α=.74

Note: Bolded are significant at $p<.001$.

Table 12. *Minnesota Nurse subscales descriptives and intercorrelations*

	m(sd)	Medical	Warmth
1	10.96(3.57)	α=.86	**.31**
2	n/a		n/a

Note: Bolded are significant at $p<.01$.

Table 13. *LIQ Factors descriptives and intercorrelations.*

	m(sd)	Artistic	Athletic	Social	Outdoor
1	162.52(36.92)	α=.89	**.67**	**.71**	**.50**
2	115.03(26.38)		α=.85	**.61**	**.70**
3	61.47(15.91)			α=.81	**.48**
4	89.44(23.47)				α=.79

Note: Bolded are significant at $p<.01$.

Table 14. *LIQ Artistic Subscales descriptives and intercorrelations*

	m(sd)	Cultural Arts	Arts & Crafts	Culinary Pursuits	Gardening & Nature	Literature	Dancing	Community Involvement
1	38.52(10.07)	α=.92	**.69**	**.56**	**.70**	**.78**	**.69**	**.67**
2	25.87(7.28)		α=.91	**.54**	**.64**	**.53**	**.60**	**.40**
3	14.31(4.83)			α=.88	**.55**	**.45**	**.41**	**.47**
4	20.87(6.11)				α=.89	**.58**	**.43**	**.49**
5	16.08(5.00)					α=.87	**.50**	**.62**
6	20.08(5.35)						α=.91	**.49**
7	26.53(7.05)							α=.91

Note: Bolded are significant at $p<.01$

Table 15. *LIQ Athletic Subscales descriptives and intercorrelations*

	m(sd)	Collecting	Computer	Individual Sports	Cards & Games	Team Sports	Building & Restoring
1	15.32(4.16)	α=.87	**.47**	**.55**	**.57**	**.60**	**.65**
2	12.26(3.56)		α=.81	**.45**	**.45**	**.41**	**.50**
3	14.84(4.31)			α=.84	**.67**	**.71**	**.62**
4	18.93(4.60)				α.=.81	**.55**	**.57**
5	30.40(9.70)					α.=.95	**.60**
6	22.99(6.37)						α=.91

Note: Bolded are significant at $p<.01$

Table 16. *LIQ Social subscales descriptives and intercorrelations*

	M(sd)	Socializing	Travel	Shopping & Fashion	Partying
1	21.81(6.68)	α=.90	**.61**	**.58**	**.64**
2	14.09(4.38)		α=.88	**.45**	**.50**
3	14.46(4.56)			α=.87	**.49**
4	11.17(3.51)				α=.82

Note: Bolded are significant at $p<.01$

Table1 17. *LIQ Outdoor subscales descriptives and intercorrelations*

	m(sd)	Adventure Sports	Camping	Hunting & Fishing
1	46.35(13.71)	α=.96	**.76**	**.72**
2	19.00(6.14)		α=.90	**.54**
3	23.82(6.31)			α=.90

Note: Bolded are significant at $p<.01$

Table 18. *Correlations between psychopathic, narcissistic and HEXACO personality traits.*

	NPI LA	NPI EE	H	E	X	A	C	O
PPI-R FD	**.63**	**.49**	**-.29**	**-.67**	**.72**	*.10*	**.19**	**.18**
TriPM B	**.59**	**.41**	**-.23**	**-.65**	**.70**	*.11*	**.22**	**.21**
PPI-R SCI	**.23**	**.45**	**-.59**	-.08	**-.23**	**-.55**	**-.54**	-.08
TriPM D	.02	**.25**	**-.39**	.03	**-.38**	**-.45**	**-.66**	**-.15**
PPI-R C	**.25**	**.38**	**-.43**	**-.60**	.03	**-.27**	**-.18**	**-.24**
TriPM M	**.32**	**.48**	**-.57**	**-.52**	-.02	**-.41**	**-.26**	**-.27**
LSRP F1	**.30**	**.53**	**-.62**	**-.26**	.00	**-.37**	**-.24**	**-.26**
LSRP F2	-.01	**.20**	**-.34**	.06	**-.38**	**-.44**	**-.54**	**-.23**

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$.
PPI-R FD= Psychopathic Personality Inventory- Revised Fearless Dominance; TriPM B= Triarchic Psychopathy Measure Boldness; PPI-R SCI= Psychopathic Personality Inventory-Revised Self-centered Impulsivity; TriPM D= Triarchic Psychopathy Measure Disinhibition; PPI-R C= Psychopathic Personality Inventory- Revised Coldheartedness; TriPM M= Triarchic Psychopathy Measure Meanness; LSRP F1= Levenson Self-Report Psychopathy Factor 1; LSRP F2= Levenson Self-Report Psychopathy Factor 2; NPI LA= Narcissistic Personality Inventory-Leadership/ Authority; NPI EE= Narcissistic Personality Inventory Entitlement/ Explotativeness; H= Honesty/ Humility; E= Emotionality; X= eXtraversion; A= Agreeableness; C= Conscientiousness; O= Openness to Experience

Table 19. *Relations between psychopathic personality traits and RIASEC vocational interests.*

	R	I	A	S	E	C
Boldness						
PPI-R FD	**.34**	**.26**	**.25**[a]	**.25**	**.38**	**.20**
TriPM B	**.33**	**.27**	**.25**[a]	**.23**	**.36**	**.20**
Disinhibition						
PPI-R SCI	**.27**	*.12*	**.20**	*.12*	**.31**	**.23**
TriPM D	**.22**	.07	**.13**	.07	**.22**	**.19**
Coldheartedness/Meanness						
PPI-R C	*.12*	-.09	-.09	**-.13**	.09	-.00
TriPM M	**.16**	-.07	-.04	-.09	**.16**	.06
LSRP F1	**.22**	.02	.03	.04	**.24**	**.17**
LSRP F2	**.13**	-.00	.02	.02	.12	.11

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$
Superscript "a" indicates significant moderation by gender.
R=Realistic; I=Investigative; A=Artistic; S=Social; E=Enterprising; C=Conventional;
PPI-R= Psychopathic Personality Inventory-Revised; FD= Fearless Dominance; SCI=Self-Centered Impulsivity; C= Coldheartedness; TriPM= Triarchic Personality Measure; B=Boldness; D= Disinhibition; M= Meanness; LSRP= Levenson Self-Report Psychopathy Measure; F1= Factor 1; F2=Factor 2.

Table 20. *Relations between other personality traits and RIASEC vocational interests.*

	R	**I**	**A**	**S**	**E**	**C**
Narcissism						
NPI Total	**.33**	**.18**	**.24**	**.25**	**.42**	**.24**
NPI Leadership/Authority	**.28**	**.19**	**.24**	**.25**	**.37**	**.21**
NPI Entitlement/Exploitativeness	**.30**	**.13**	**.21**	**.20**	**.36**	**.21**
General Personality						
Honesty-humility	**-.18**	-.09	**-.17**	-.07	**-.29**	**-.18**
Emotionality	**-.16**	-.02	-.01	.05	*-.12*	.03
eXtraversion	**.21**	**.22**	**.23**	**.31**	**.32**	**.16**
Agreeableness	.02	.09	.06	**.13**	.02	.00
Conscientiousness	-.08	.04	-.04	-.01	-.04	-.01
Openness/Intellect	.09	**.35**	**.42**	.11	.09	.04

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$
R= Realistic; I=Investigative; A=Artistic; S=Social; E=Enterprising; C=Conventional

Table 21. *Relations between Psychopathic Traits and Lykken's (1993) Superfactors*

	Int	Bre	Adv	Sol	Art	Rel	Cha	Agr	Phys	Nurse
Boldness										
PPI-R FD	**.28**	**.27**	**.48**	**.40**	**.29**	**.35**	**.20**	**.28**	**.36**	**.25**
Tripm B	**.29**	**.28**	**.48**	**.38**	**.29**	**.33**	**.17**	**.28**	**.36**	**.24**
Disinhibition										
PPI-R SCI	.08	*.11*	**.22**	**.30**	**.16**	**.29**[a]	**.21**	.07	**.14**	*.11*
Tripm D	-.02	.03	*.12*	**.18**	.09	**.19**[a]	.09	.05	.07	.05
Coldness/Meanness										
PPI-R C	**-.18**	-*.12*	**.21**	.06	-.08	*.10*	-.06	-.02	-.02	-.05
TriPM M	**-.14**	-.07	**.23**	**.13**	-.05	**.17**	.01	-.02	.02	-.01
LSRP F1	-.05	.03	**.21**	**.22**	.04	**.28**[a]	**.16**	.02	*.10*	*.10*
LSRP F2	-.07	-.02	-.06	.10	.01	**.14**	.06	-.00	.02	.04

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$
Superscript "a" indicates significant moderation by gender.
Int= Intellectual; Bre=Breadth; Adv=Adventurous; Sol=Solidarity; Art=Artificer; Rel=Religious; Cha=Charm; Agr=Agrarian; Phys=Physician; PPI-R= Psychopathic Personality Inventory-Revised; FD= Fearless Dominance; SCI=Self-Centered Impulsivity; C= Coldheartedness; TriPM= Triarchic Personality Measure; B=Boldness; D= Disinhibition; M= Meanness; LSRP= Levenson Self-Report Psychopathy Measure; F1= Factor 1; F2=Factor 2

Table 22. *Specificity of the personality relations with Lykken's (1993) Superfactors*

	Int	Bre	Adv	Sol	Art	Rel	Cha	Agr	Phys	Nurse
Narcissism										
NPI Tot	**.33**	**.25**	**.40**	**.43**	**.37**	**.46**	**.34**	**.20**	**.28**	**.24**
NPI L/A	**.33**	**.22**[a]	**.38**	**.39**	**.33**	**.36**	**.26**	**.17**	**.29**	**.23**
NPI E/E	**.25**	**.21**[a]	**.31**	**.39**	**.31**	**.43**	**.35**	**.16**[a]	**.19**	**.18**
General Personality										
Honesty-humility	*-.11*	*-.11*	**-.23**	**-.25**	**-.15**	**-.26**	**-.31**	-.05	**-.17**	**-.17**
Emotionality	-.07	-.00	**-.16**	**-.14**	-.12	**-.14**	*.10*	*-.10*	-.07	.05
eXtraversion	**.34**	**.27**	**.32**	**.31**	**.32**	**.31**	**.24**	**.23**	**.30**	**.26**
Agreeableness	.08	.06	.01	-.01	.08	.04	-.01	.06	.09	.07
Conscientiousness	.09	.07	.02	-.03	.01	-.08	.03	.02	.06	.04
Openness/Intellect	**.42**	**.30**	**.17**	**.19**	**.34**	.03	*.12*	**.26**	**.24**	.08

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$
Superscript "a" indicates significant moderation by gender.
Int= Intellectual; Bre=Breadth; Adv=Adventurous; Sol=Solidarity; Art=Artificer; Rel=Religious; Cha=Charm; Agr=Agrarian; Phys=Physician; NPI=Narcissistic Personality Inventory; L/A= Leadership/Authority; E/E= Entitlement/Exploitativeness

Table 23. *Relations between Psychopathic Traits and LIQ Superfactors*

	Artistic	Athletic	Social	Outdoor
PPI-R FD	**.20[a]**	**.46**	**.35**	**.54**
TriPM B	**.20[a]**	**.43**	**.33**	**.53**
PPI-R SCI	.06	**.18**	-.02	**.19**
TriPM D	.05	*.12*	*-.12*	*.13*
PPI-R C	**-.17**	.11	*-.13*	**.16**
TriPM M	**-.17**	*.14*	*-.12*	**.17**
LSRP F1	-.10	*.13*	-.03	*.13*
LSRP F2	-.09	.02	**-.20**	.03

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$
Superscript "a" indicates significant moderation by gender.
PPI-R= Psychopathic Personality Inventory-Revised; FD= Fearless Dominance; SCI=Self-Centered Impulsivity; C= Coldheartedness; TriPM= Triarchic Personality Measure; B=Boldness; D= Disinhibition; M= Meanness; LSRP= Levenson Self-Report Psychopathy Measure; F1= Factor 1; F2=Factor 2

Table 24. *Specificity of the personality relations with the LIQ Superfactors*

	Artistic	Athletic	Social	Outdoor
Narcissism				
NPI Total	.11	**.32**	**.27**	**.30**
NPI LA	**.16**	**.32**	**.28**	**.27**
NPI EE	.05	**.21**	**.20**	**.23**
General Personality				
Honesty/Humility	-.01	**-.21**	**-.20**	**-.19**
Emotionality	.01	**-.21**	.02	**-.34**
eXtraversion	**.24**	**.33**	**.49[a]**	**.32**
Agreeableness	**.16**	.04	**.14**	.01
Conscientiousness	.03	.02	**.18[a]**	.01
Openness/Intellect	**.48**	**.25**	**.25**	**.24**

Note: Bolded are significant at $p<.01$. Italicized are significant at $p<.05$
Superscript "a" indicates significant moderation by gender.
NPI=Narcissistic Personality Inventory; LA= Leadership/Authority; EE= Entitlement/

Exploitativenessb