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Shauna M. Bowes March 18, 2017

Psychopathic Personality and Depression in Two Large Adult Community Samples: Can Certain Psychopathic Traits Protect Against Depressive Features?

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Abstract

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Given the prevalence of depression in society today, it is essential to identify individual differences in personality that may protect against or confer risk for depressive features. Certain psychopathic traits, such as social charm and fearlessness, may place individuals at decreased risk for depression, whereas others, such as antisociality and recklessness, may place individuals at increased risk. In the present study, I sought to elucidate the associations among the dimensions of psychopathy and depression in two large, mixed-gender North American community samples (n_1=430; n_2=441) recruited via Amazon's Mechanical Turk (MTurk). I used multiple indices of both psychopathy and depression, including two widely used self-report measures of depression and three self-report psychopathy measures.

Consistent with previous research, Boldness features were moderately negatively correlated with depression, whereas Disinhibition features were moderately positively correlated with depression (e.g., Benning et al., 2005). Coldheartedness was negatively associated with depression, although the magnitude of this relation was weak, whereas Meanness was positively related to depression. There were virtually no gender differences in the relations between psychopathy and depression. Moreover, there was little evidence that Boldness features protected against depression in the presence of the disinhibited and mean features of psychopathy.

In addition, psychopathy broadly incremented general personality traits, specifically Extraversion and Neuroticism, in predicting depression, although the incremental contribution was relatively small in magnitude. Finally, psychopathy's differential associations with depression were largely mirrored in the relations among dimensions of psychopathy and other internalizing features, namely anger and anxiety. These findings demonstrate that individual differences in personality are significant predictors of depressive symptoms.

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Background

Introduction

Depression is one of the most common mental disorders in the United States, affecting approximately 6.7% of all U.S. adults in 2015 alone (National Institute of Mental Health, 2016). Because of the prevalence and severity of depression in society, it is important to identify individual differences that may protect against depressive features in predisposed individuals. Perhaps counterintuitively, preliminary research suggests that certain psychopathic personality traits may offer one such protective avenue (e.g., Edens & McDermott, 2010). Psychopathic personality (psychopathy) is a multidimensional construct that comprises a constellation of interpersonal, affective, and behavioral features such as social charm, guiltlessness, impulsivity, callousness, antisociality, and erratic lifestyle. There is clear evidence that psychopathy is a dimensional rather than a taxonic (categorical) construct (e.g., Edens, Marcus, Lilienfeld, & Poythress, 2006), indicating that psychopathy grades along a continuum and can be meaningfully studied in nonclinical, including community, populations. Although underexplored, certain features of psychopathy, such as immunity to stress and fearlessness, may protect against depressive symptoms. In contrast, other psychopathy features, such as disinhibition and emotion dysregulation, may place individuals at increased risk for depression.

With these differential associations in mind, I sought to elucidate the relations among the dimensions of psychopathy and depression in two large samples of North American community members (n_1=430; n_2=441) recruited via Amazon's Mechanical Turk (MTurk), a widely used crowd-sourcing platform. I used multiple indices of each construct, including two widely used measures of depression and three self-report psychopathy measures, to protect against mono-operation bias and build in conceptual replication within samples (Lykken, 1968). Given that

rates of depression are appreciable among individuals with personality disorders (e.g., Corruble et al., 1996), the extent to which specific psychopathic traits protect against or serve as risk factors for depression is of theoretical and practical importance. Such research may inform more effective and individualized treatments for depressive symptoms.

Depression

History. In fourth century B.C., Hippocrates provided an account of what he referred to as the melancholic state, an affective condition caused by the excess of black bile, one of his four posited humors, and the persistence of sadness and fear (Telles-Correia & Marques, 2015). Although Hippocrates' melancholic construct does not reflect current conceptualizations of clinical depression, as the melancholic state largely encapsulated a complex blend of mania, psychosis, sadness, and moroseness, it was the first clinically-oriented description of depressive-like features. Since Hippocrates' characterization of melancholia, the term has been used liberally in a variety of contexts for an array of conditions. Although melancholia has been defined in many ways over the course of 2,400 or so years, the concepts of sadness and despondency remain central to nearly all characterizations of this emotional state. During the 18th century, scholars and physicians began to discuss melancholia in a more clinically concrete manner, with the symptom of "being depressed into deep sadness or melancholy" (cited in Jackson, 2008, p. 444) beginning to assume a central role in medical accounts.

Today, depression is considered a major public health concern, as approximately 350 million people worldwide suffer from depression with an estimated 800,000 individuals committing depression-related suicide every year (WHO, 2016). As one might expect, depressive disorders often take an immense toll on afflicted individuals. For instance, depressive disorders are associated with poor physical health outcomes, such as cardiac problems and inflammatory

pathologies (Barefoot & Schroll, 1996; Vogelzangs et al., 2012), and noncompliance to medical treatments (DiMatteo, Lepper, & Croghan, 2000).

According to modern clinical accounts, depression is an oft debilitating mood disorder characterized by profound sadness, anhedonia (i.e., loss of interest in things once pleasurable), feelings of worthlessness, suicidal ideation, fatigue, hopelessness, and poor concentration. These features affect numerous inter- and intrapersonal domains, such as cognition, mood, and somatic state on a near daily basis (American Psychiatric Association, 2013). Similar to clinical descriptions of the melancholic state, altered mood is the primary feature of depression according to the *American Diagnostic and Statistical Manual of Mental Disorders,* 5th edition (DSM-5).

Current conceptualization. In addition, according to DSM-5 criteria for Major Depressive Disorder, depressive conditions can be characterized by sad mood or anhedonia, and they need not be characterized by the two occurring in conjunction. For instance, depressed individuals may primarily experience anhedonia in lieu of explicit sadness (Gallo & Rabins, 1999), or vice-versa (Luby et al., 2004), although most individuals feeling sadness also experience loss of interest (Kazes et al., 1993). That said, individuals with both anhedonia and sadness may be at an even greater risk than other depressed individuals for experiencing depressive symptoms such as social withdrawal, reactive mood, and social impairment (Smith et al., 2008).

Heterogeneity. Depressive disorders manifest differentially in regards to social, cognitive, and emotional processes (Smith et al., 2008). Latent profile analyses of depression (e.g., Chen et al., 2000) reveal separable subgroups of depressive symptoms, ranging from subthreshold depression with anhedonia to severe depression. Features such as somatic complaints, elevated anhedonia, and low negative affect characterize the former whereas a high

probability of reporting most symptomatic features of depression characterize the latter (Chen et al., 2000; Mora et al., 2012). Individuals with depressive pathology can vary widely in terms of symptom severity, the patterns of risk factors, and the number of symptom clusters (Chen et al., 2000). In addition, factors such as age of onset and severity and recurrence of depressive symptoms across the lifespan can significantly shape the course of an individual's depressive profile (Merikangas, Wicki, & Angst, 1994). Depression, therefore, is almost certainly a multidimensional construct with symptom group and symptom severity heterogeneity across populations.

Dimensionality. In addition, taxometric analyses of depression in both adolescents and adults reveal that depression is continuous in the population (e.g., Hankin et al., 2005; Ruscio & Ruscio, 2000). For instance, in a sample of over 8,000 participants from the National Comorbidity Survey, a dimensional solution for unipolar depression was found in lieu of separable categorical groups (Prisciandaro & Roberts, 2005). Given that depression is heterogeneous and continuous, researchers question whether subclinical or subthreshold depression is distinct from clinical depression (see Solomon, Haaga, & Arnow, 2001, for a review).

Subclinical depression, broadly construed, is characterized by marked features of depression that do not meet DSM-5 thresholds for depressive disorders in terms of number of symptoms, duration of episodes, and/or severity of symptoms (Solomon, Haaga, & Arnow, 2001). Given that depression is dimensional in nature, however, this distinction may be somewhat arbitrary. For instance, most research supports the notion that subclinical depression symptomatically resembles depressive disorders. Subclinical depression correlates with an array of outcomes relevant to clinical depression, such as social and professional impairment (Wells et

al., 1989), family history of Major Depressive Disorder (Kendler & Gardner, 1998), and low self-esteem (Brown et al., 1986). Ruscio & Ruscio (2000) found that there were no qualitative differences between individuals with high depressive symptoms and low depressive symptoms across two large samples and three self-report depression indices. Subclinical depressive features in adolescence also may increase the likelihood of episodes of depressive disorders in adulthood, as one study revealed that adolescents endorsing symptoms of subthreshold depression were two- to three-times more likely to experience a major depressive episode as an adult (Pine et al., 1999). Thus, the distinction between subclinical and clinical depression may be arbitrary.

Personality risk factors. Research has identified several risk factors for depression, including but not limited to childhood sexual abuse (Weiss, Longhurst, & Mazure, 1999), impoverished social support (Brugha et al., 1990), and having either one or two parents affected with a depressive disorder (Lieb et al., 2002). In addition, general personality traits have been shown to confer risk for depressive features. Trait neuroticism (i.e., emotional instability, negative emotionality) moderately and positively correlates with depression, whereas extraversion (i.e., sociability, positive affect) negatively associates with depression (Bagby et al., 1995, 1996); the latter finding is not always replicable and is limited largely to the positive affectivity aspects of extraversion (Chioqueta & Stiles, 2005).

Indeed, many researchers regard depression as a combination of low levels of positive emotionality and high levels of negative emotionality (Keightley et al., 2003; Watson, Clark, & Carey, 1988). In particular, individuals with high levels of neuroticism and/or low levels of extraversion may be at an increased risk for experiencing depression, raising the possibility that the combination of the two (often represented as statistical interaction) may be the best predictor of depressive features (e.g., Gershuny & Sher, 1998). Understanding the role of certain

personality features, like neuroticism and extraversion, in depressive pathologies may be one important avenue through which to inform more effective prevention and treatment efforts (Bagby et al., 1995; Chioqueta & Stiles, 2005).

Psychopathic Personality

History. Psychopathic personality (psychopathy) is a heterogeneous construct that comprises a constellation of interpersonal, affective, and behavioral features, such as superficial charm, callousness, lack of guilt, impulsivity, and delinquency (e.g., Hare, 1993). In his seminal account of psychopathy, Cleckley (1941) described psychopathic individuals as seemingly intelligent, sociable, charming, and poised. Nonetheless, this deceptively polished exterior masks a wide array of affective and behavioral shortcomings, including irresponsibility, aimlessness, egocentricity, and recklessness. Because of this apparent heterogeneity in the presentation of psychopathic features, Karpman (1941/1948) astutely observed that there was a need to separate psychopathy into two unique clinical subtypes that have distinct, separable etiologies (see Fowles & Dindo, 2006 and Patrick, Fowles, & Krueger, 2009, for more modern accounts). The interpersonal and affective features of psychopathy, such as reduced anxiety and guiltlessness, comprise primary (or symptomatic) psychopathy, whereas the behavioral features, such as increased emotional distress, nonplanfulness, and recklessness, comprise secondary (or idiopathic) psychopathy.

Current conceptualization and heterogeneity. Such clinical accounts still hold true in modern empirical conceptualizations of psychopathy, although most of the latter are variable- rather than person-centered. Factor analyses of widely used psychopathy measures, such as the *Levenson Self-Report Psychopathy Scale* (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995) and the *Triarchic Psychopathy Measure* (TriPM; Patrick, 2010), two widely-used self-report

psychopathy measures, have revealed that psychopathy can be parsed into at least three separable components. In their influential triarchic model of psychopathy, Patrick, Fowles, and Krueger (2009) posited that psychopathy comprises three phenotypic dimensions that account for the varied presentations of this condition: Boldness, Disinhibition, and Meanness. These three dimensions are conceptually and empirically related to the constructs of Fearless Dominance, Self-centered Impulsivity, and Coldheartedness, respectively, in the *Psychopathic Personality Inventory-Revised* (PPI-R; Lilienfeld & Widows, 2005), a widely used self-report measure of psychopathy. Because of their substantial overlap (e.g., Drislane, Patrick, & Arsal, 2014), these pairs of constructs (i.e., TriPM Boldness and PPI-R Fearless Dominance, TriPM Disinhibition and PPI-R Self-centered Impulsivity, and TriPM Meanness and PPI-R Coldheartedness) are heretofore referred to in the terms used in the triarchic model of psychopathy (Patrick et al., 2009).

The Boldness subdimension of psychopathy comprises threat insensitivity, stress immunity, interpersonal dominance, and thrill seeking (Benning et al., 2003). Although psychopathy is traditionally viewed as maladaptive (Miller & Lynam, 2012), research suggests that the boldness features of psychopathy also encompass potentially largely adaptive characteristics, such as social poise, self-confidence, and venturesomeness (Lilienfeld, Patrick, Benning, et al., 2012). For instance, individuals high in boldness demonstrate a general lack of distress, even when faced with negative consequences (López et al., 2013; Lykken, 1957), are emotionally stable (Hicks, Patrick, & Newman, 2004), and are generally more resilient than are individuals with low levels of boldness (Block & Block, 1980). Boldness is also related to acts of heroism (Smith, Lilienfeld, Coffey, & Dabbs, 2013) and has been postulated to give rise to adaptive outcomes, such as obtaining leadership or political positions (Hogan, Raskin, & Fazzini,

1990) and experiencing success in these positions (Lilienfeld, Waldman, Landfield, Watts, et al., 2012).

In contrast, Disinhibition encompasses largely maladaptive traits, such as impulsivity, impaired affect regulation, and irresponsibility (Krueger, Markon, Patrick, & Iacono, 2005; Patrick & Bernat, 2009). Disinhibition encompasses "aggressive" and externalizing traits and behaviors, including hostility, distress intolerance, and impatience (Hicks, Patrick, & Newman, 2004; Krueger et al., 2007), and reflects the nexus of impulsivity and negative emotionality (Krueger, 1999; Sher & Trull, 1994). Furthermore, Disinhibition is thought to partially undergird criminality, substance use and abuse, antisocial personality disorder, and acts of deception (Krueger et al., 2007; Smith, Edens, & Vaughn, 2011).

The third and last dimension of the triarchic model, Meanness, is associated with rebelliousness, cruelty, interpersonal antagonism, lack of empathy, and manipulativeness (Patrick et al., 2009). In early accounts of criminal psychopathy, destructive aggression, lovelessness, and guiltlessness were seen as central features of psychopathic personality (McCord & McCord, 1964; Quay, 1964). Environmental factors, such as harsh parenting and abuse, ostensibly influence the development of Mean features (Caspi et al., 2002; Patrick et al., 2009). This construct differs somewhat from the Coldheartedness dimension of the PPI-R, as Meanness emphasizes active antagonism whereas Coldheartedness emphasizes emotional detachment and social isolation. The extent to which this subdimension of psychopathy is best characterized as cold versus mean remains unresolved.

Although the TriPM and PPI-R subdimensions are thought to largely reflect the same constructs conceptually, other psychopathy measures differ in their content coverage of certain psychopathy features. For instance, the *Levenson Self-Report Psychopathy Scale* (LSRP;

Levenson, Kiehl, & Fitzpatrick, 1995) and *Psychopathy Checklist-Revised* (PCL-R; Hare, 1991) are more closely aligned with maladaptive conceptualizations of psychopathy insofar as they are imbued with content that directly assesses overt antisocial behavior and criminality. Broadly, both measures assess a two-factor structure of psychopathy. Factor 1, which corresponds in some ways to Karpman's (1941) primary psychopathy, comprises the interpersonal and affective features of psychopathy, such as egocentricity, callousness, and manipulativeness. In contrast, Factor 2, which corresponds in some ways to Karpman's secondary psychopathy, comprises the antisocial and lifestyle features of psychopathy, such as impulsivity, self-defeating behaviors, and aimlessness. Given this difference in coverage of traits, exclusive reliance on any individual psychopathy measure provides a limited perspective on psychopathy.

Psychopathy and personality. Psychopathy can also be conceptualized as an amalgamation of differing levels of general personality traits. Dimensional models of personality disorders, including those of psychopathy (Widiger & Lynam, 1998), propose that such constructs can be accurately measured along a continuum of adaptive functioning (Costa & Widiger, 1994; Trull & Durrett, 2005) and represent extreme variants of one or more general personality features. One of the most widely used models of general personality traits is the Five Factor Model of personality (FFM; Costa & McCrae, 1990). According to this model, individual differences in personality can be accounted for by differing levels and combinations of five broad domains of traits: Neuroticism (i.e., emotionally unstable, fearful), Extraversion (i.e., sociable, optimistic), Openness to Experience (sometimes termed Intellect; i.e., imaginative, creative), Agreeableness (i.e., generous, good-natured), and Conscientiousness (i.e., organized, diligent).

In an influential treatment, Widiger and Lynam (1998) characterized psychopathy from

the perspective of the FFM. They concluded that psychopathy was best represented by a blend of low Agreeableness and Conscientiousness, and meta-analytic evidence also indicates that this combination of personality traits is consistently associated with psychopathy across studies (Lilienfeld, Watts, Smith, et al., 2015). In addition, psychopathy global scores tend to relate negatively with Neuroticism and positively with Extraversion (Miller et al., 2001). Nonetheless psychopathy's subdimensions relate differentially with general personality traits. In a meta-analysis of the differential associations between psychopathy and general personality, Miller and Lynam (2012) found that Fearless Dominance was negatively associated with Neuroticism and positively associated with Extraversion whereas Self-centered Impulsivity was positively associated with Neuroticism and negligibly associated with Extraversion. Coldheartedness, which often serves as a standalone dimension of psychopathy and reflects guiltlessness and empathic detachment, may reflect a blend of both low Neuroticism and low Extraversion (cited in Lilienfeld, Watts, Smith, et al., 2015), although further research is warranted examining these relations.

Additional meta-analytic evidence supports this pattern of associations. Lilienfeld, Watts, Smith, Berg, and Latzman (2015) found that PCL Factor 1 was positively correlated with Extraversion, although this relation was small in magnitude, and negligibly associated with Neuroticism; in contrast, PCL Factor 2 was negligibly associated with Extraversion and positively associated with Neuroticism, although this relation was small in magnitude. These two factors of psychopathy, in addition to the bold and disinhibited dimensions of psychopathy, appear to fractionate in their associations with both positive and negative emotionality. Given that internalizing constructs, such as depression, are undergirded by high trait Neuroticism and low trait Extraversion, it is particularly interesting that Fearless Dominance is characterized by

the opposite pattern whereas Self-centered Impulsivity is characterized by essentially the same pattern of general personality traits. Such results highlight the possibility that specific facets of psychopathy may encompass depressive features whereas others do not.

On balance, in addition to internalizing symptomology, psychopathy's distinct subdimensions, particularly its bold and disinhibited features, often diverge sharply with an array of conceptually relevant external criteria, including externalizing symptomology and general personality traits (e.g., Blonigen et al., 2005; Lilienfeld, Watts, Smith, et al., 2015). Generally, the bold aspects of psychopathy are negatively or statistically unrelated to external criteria traditionally regarded as central to psychopathy, such as hostility (Falkenbach et al., 2007), substance abuse (Benning et al., 2003), and violence risk (Edens & McDermott, 2010), whereas the disinhibited features of psychopathy are positively related to such constructs. Given that Disinhibition and Meanness are moderately positively correlated (r ~0.40; Patrick, 2010), they typically relate to external correlates in a similar direction (e.g., Sellbom & Phillips, 2013).

Psychopathy and Depression

At first glance, depression and psychopathy essentially appear to be the theoretical opposites of one another. On the one hand, depression is characterized by sadness, guilt-proneness, feelings of worthlessness, lack of motivation, loss of interest, and fatigue. On the other hand, psychopathy, and the Boldness features in particular, is characterized by a lack of negative emotions, callousness, guiltlessness, fearlessness, poor impulse control, sensation seeking, and egocentricity. Furthermore, conceptual and clinical accounts have traditionally posited that low negative emotionality is central to the taxonomy of psychopathy, as psychopathy is ostensibly associated with shamelessness and a general inability to feel self-conscious (Cleckley, 1941; Tangney & Dearing, 2002). Cleckley (1941) proposed that psychopathic

individuals are largely immune to carrying out acts of suicide, and even their threats of suicide are empty promises reflecting their propensity to manipulate and seek attention. Based on these theoretical descriptions, one might argue that psychopathy and depression are "mutually exclusive" constructs (Lovelace & Gannon, 1999, p. 171).

Relations between total scores of psychopathy and depression. Some research supports the idea that depression and psychopathy, although not strictly mutually exclusive, are at least negatively related (Lovelace & Gannon, 1999; Miller et al., 2001; Willemsen et al., 2011). Lovelace and Gannon (1999) analyzed the relationship between depression and psychopathy in a mixed-gender sample of outpatient subjects from a university clinic (N =231) and found that dysthymic (neurotic) depression was negatively associated with psychopathic features (r = -0.21). In addition, Willemsen and colleagues (2011) found that depression and psychopathy were inversely associated in a large male forensic sample (N = 655), at the total (r = -0.50) and facet level (Interpersonal: r = -0.44; Affective: r = -0.61; Lifestyle: -0.40; Antisocial: -0.13).

Nonetheless, identifying psychopathy's differential relations with negative emotionality (e.g., sadness, anxiety, anger) has been a complex and contentious issue, as existing research is decidedly mixed. For instance, studies described earlier indicate that psychopathy total scores were correlated negatively with indices of depression. In contrast, others report the opposite relationship, with total scores of psychopathy positively correlated with depression (Lantrip et al., 2016; Stinson, Becker, & Tromp, 2005). Still, others have found that total scores of psychopathy are not significantly related to features of depression (Douglas et al., 2007; Hare, 2003; Hicks & Patrick, 2006).

Limitations with the existing literature. Studies examining the associations between

psychopathy and depression are marked by an array of potentially significant limitations. Moreover, the statistical effects are sometimes weak, due in part to a variety of factors, such as mono-operation bias and the heterogeneity of psychopathy and depression (see Hicks & Patrick, 2006, for a review). First, in regards to mono-operation bias, relying upon single measures of psychopathy constructs in spite of substantial conceptual disagreement regarding the operationalization of psychopathy (e.g., Lilienfeld, Patrick, Benning, et al., 2012) does not take into account that reported findings may be a function of measure-specific as opposed to more construct-general content that is regarded consensually as relevant to psychopathy. Many of the studies discussed earlier only used one measure of psychopathy when analyzing the relationship between psychopathy and depression. This limitation raises the possibility that the inconsistencies across these studies are due in part to the specific operationalization of psychopathy within individual measures rather than the inherent properties of the construct of psychopathy itself.

Second, many studies have used clinical or forensic populations to address the relationship between psychopathy and depression. Although informative, these studies do not shed light on the extent to which the relations between psychopathy and depression are generalizable to more normative populations that are not marked by confounds associated with clinical or forensic populations. First, studies using clinical and forensic populations, although capturing extreme levels of psychopathy and depression, may exhibit a restricted range of scores for both constructs, thereby decreasing statistical power to detect meaningful effects. Second, these types of samples are marked by a variety of functional impairments by virtue of their constituents being (a) in treatment for psychiatric conditions, (b) serving prison sentences, or (c) both. For instance, forensic populations are, on average, marked by lower levels of intelligence

(DeLisi et al., 2009) and socioeconomic statuses (Dohrenwend et al., 1992). Additionally, both forensic and clinical populations are marked by high rates of co-occurring psychopathological disorders (Bukstein, Glancy, & Kaminer, 1992; Rosler et al., 2009).

Third, the extant literature has also often relied on total psychopathy scores despite psychopathy's multidimensional nature (e.g., Bishopp & Hare, 2008). Because the disinhibited and bold features of psychopathy often fractionate in their relations with theoretically relevant outcomes, ranging from post-traumatic stress disorder (e.g., Sellbom, 2015) to executive functioning (e.g., Lantrip et al., 2016), the differential effects of the subdimensions of psychopathy as they relate to depression can be, in essence, washed out when the two constructs are combined. Thus, suppressor effects may also undergird the variability of results across studies of the relationship between psychopathy and depression total scores (e.g., Verona, Hicks, & Patrick, 2005).

Some research has addressed these aforementioned limitations by incorporating multiple measures of psychopathy and depression (Edens & McDermott, 2010), using community or undergraduate samples (Benning et al., 2005), and/or analyzing the relations between psychopathy subdimensions and depression (Hicks & Patrick, 2006). Such studies are broadly consistent with research that psychopathic features diverge in their relations with measures of depression, such as suicidality, emotional distress, and anger (Benning et al., 2005; Verona et al., 2001).

Differential relations across psychopathy subdimensions. Most studies indicate that the bold and fearless characteristics of psychopathy negatively relate to depression and anxiety (Brislin et al., 2015; Edens & McDermott, 2010; Lantrip et al., 2016; Witt et al., 2009), raising the possibility that boldness is associated with reduced risk for developing depression.

Conceptually, most aspects of the bold features of psychopathy, such as stress immunity and grandiosity, seem to be incongruous with most aspects of depression, such as guilty rumination, anxious self-preoccupation, and social withdrawal (Bagby et al., 1995; Barlow, 2002). Depressed individuals typically exhibit low levels of features like sociability and confidence that are pivotal to the bold and fearless dimensions of psychopathy. Nevertheless, no study has yet to systematically examine the protective nature of boldness against features of depression.

In contrast, the impulsive and antisocial features of psychopathy tend to exhibit positive relations with depression. Psychopathic features such as interpersonal maladjustment, deviance, recklessness, and antagonism (Patrick & Bernat, 2009), all characteristic of the disinhibited and mean dimensions of psychopathy, are moderately positively correlated with depression, anger, and negative emotionality (Benning et al., 2005; Edens & McDermott, 2010). Both Factor 1 and Factor 2 psychopathy, namely the affective/interpersonal and behavioral features of psychopathy, respectively, positively relate to indices of negative emotionality, including anxiety and depression (Pennington et al., 2015).

In particular, features of Disinhibition may be especially salient in regards to suicidal ideation and behaviors, even after controlling for the interpersonal and affective features of psychopathy (Douglas et al., 2007; Verona, Patrick, & Joiner, 2001). In a clinically depressed sample, mean levels of impulsivity, which is one of the core features of Disinhibition, were higher in the subset of patients who had attempted suicide in comparison with patients who had not (Corruble, Damy, & Guelfi, 1999). Pennington and colleagues (2015) demonstrated that individuals with high levels of both secondary psychopathy and depression exhibited the greatest levels of suicidal ideation compared with individuals with low levels of secondary psychopathy. Further, neurobiological evidence suggests that the disinhibited and antisocial features of

psychopathy and suicidal aggression are both characterized by lower levels of serotonin in the serotonergic system (Goldman & Ducci, 2007), suggesting that the disinhibited psychopathy features may confer risk for depression.

Little research has addressed the relationships between Coldheartedness and Meanness, on the one hand, and depression, on the other. Two studies found that Coldheartedness was negatively correlated with depression and anxiety, which conceptually aligns with the construct's associations with general emotional poverty and social detachment (Berg et al., 2015; Edens & McDermott, 2010). Meanness, in contrast, is positively correlated with depression, but this relationship may be driven largely by the overlap between Meanness and Disinhibition (Brislin et al., 2015). Given the paucity of research examining the relations among Coldheartedness and Meanness, on the one hand, and depression, on the other, future research is warranted examining these relations.

Current Study

Given the heterogeneous natures of both psychopathy and depression and the complexities in the literature, I examined how psychopathic traits differentially relate with depressive features in two large community samples (n_1=430; n_2=441). The methodology adopted here affords several statistical advantages. First, as discussed earlier, clinical and forensic samples may be limited in their generalizability to more normative populations. By using a community population, the variability of the scores for both psychopathy and depression are potentially increased, thereby also increasing the generalizability of findings and statistical power for detecting meaningful effects. Relatedly, most evidence indicates that psychopathy and depression are continuous at a latent level (Edens et al., 2006; Hankin et al., 2005), allowing them to be profitably measured and studied in non-clinical populations.

In addition, many studies have assessed psychopathy using only one measure, introducing mono-operation bias. I therefore used multiple measures of both psychopathy and depression to protect against mono-operation bias and build in conceptual (or "constructive," see Lykken, 1968) replication within samples. I also did not rely on total scores of psychopathy in my analyses, but instead analyzed how subdimensions of psychopathy related to features of depression.

Specific Aims and Hypotheses

Relations between psychopathy features and depression. When examining the relations between the dimensions of psychopathy and depression, by and large, the bold features of psychopathy negatively correlate with internalizing features, like depression and anxiety, whereas the disinhibited features positively correlate with internalizing features. Broadly, Coldheartedness seems to correlate negatively with depression, whereas Meanness appears to positively correlate with depression, but there is little evidence to substantiate these latter findings.

Hypotheses: I predict that the bold features of psychopathy will correlate moderately and negatively with depression, whereas the disinhibited features will correlate moderately and positively with depression. Although more exploratory in nature given the small body of research, I predict that Meanness will correlate positively with depression given its overlap with negative emotionality, whereas Coldheartedness will correlate slightly negatively with depression given its association with lack of emotionality.

Gender differences. In addition to examining the relations between features of psychopathy and depression, I will attempt to clarify the role of gender in the relations between psychopathy and depression. The majority of gender differences research linking psychopathy to

depression has focused on mean level differences in traits or symptoms, respectively. Men consistently score higher on psychopathy measures than do women (e.g., Lilienfeld & Hess, 2001) and women score higher on depression measures than do men (e.g., Hankin & Abramson, 2001); these findings are among the most well-replicated gender differences in clinical psychology and psychiatry. Nevertheless, mean level differences do not address how psychopathy and depression manifest across genders, and the literature offers little evidence for gender differences in the relations among the bold and disinhibited features of psychopathy and depression (Benning et al., 2005; Blonigen et al., 2005). No research to date has examined gender differences in the relations between the mean features of psychopathy and depression.

Hypotheses: Given that only two studies have examined gender differences among the dimensions of psychopathy and depression, my hypotheses remain more exploratory in nature. Broadly, I hypothesize that there will be no gender differences in the relationships among the bold and disinhibited features of psychopathy and depression. I have no explicit hypotheses regarding the associations between the mean features of psychopathy and depression.

Specificity. Not only is psychopathy differentially associated with depression, but psychopathy is also differentially associated with other internalizing constructs, such as anxiety, anger, and negative emotionality (e.g., Benning et al., 2005). Research indicates that the patterns of correlations among features of psychopathy and anger and anxiety are similar to those among features of psychopathy and depression. By and large, the disinhibited features of psychopathy positively correlate with both anger and anxiety. In contrast, the bold features of psychopathy negatively correlate with anger and anxiety, although in past research the relations with anger have been statistically non-significant (Benning et al., 2005; Hicks & Patrick, 2006). These results suggest that psychopathy may not necessarily be associated with only one specific

internalizing construct, such as depression, but that it may be tied broadly and non-selectively with global negative emotionality.

Hypothesis: Consistent with the existing research, I predict that the same pattern of associations will manifest in psychopathy's relations with anger and anxiety as in depression.

Boldness as a protective feature. No study has yet to systemically examine how the dimensions of psychopathy interact statistically to predict depression, particularly in regards to Boldness potentially exerting a protective effect when in the presence of Disinhibition or Meanness. In one study analyzing the relations between psychopathy and suicide history, Factor 2 psychopathy positively correlated with suicide history, whereas Factor 1 psychopathy correlated negatively with suicide history, although the latter relation was not statistically significant (Verona, Patrick, & Joiner, 2001). The interaction term (Factor 1 x Factor 2 psychopathy) did not statistically significantly predict depression, indicating that the interpersonal and affective features of psychopathy did not protect against depression in the presence of the antisocial and behavioral features of psychopathy. Nonetheless, this study used an all male forensic sample (N = 313), so the range of psychopathy and depression scores may have been restricted, thereby decreasing the power to detect a significant interaction.

Hypothesis: In accordance with my hypothesis that Boldness will be negatively associated with depression, I predict that Boldness will statistically protect against depressive symptoms in the presence of heightened Disinhibition and/or Meanness (which are presumably correlates and potential risk factors for depression), such that the statistical interactions between Boldness and Disinhibition/Meanness will decrease the magnitude of the associations between the latter traits with depression.

Incremental validity above and beyond general personality. In addition, I examined

the incremental validity of psychopathy above and beyond two relevant personality traits, Neuroticism and Extraversion. Incremental validity analyses suggest that general personality traits account largely for psychopathy's relations with an array of external criteria, ranging from presidential performance (Lilienfeld, Waldman, Landfield, et al., 2012) to substance use (Miller & Lynam, 2003). As discussed earlier, the bold features of psychopathy are associated with high levels of Extraversion whereas the disinhibited features of psychopathy are correlated with high levels of Neuroticism (e.g., Miller & Lynam, 2012). Depression comprises a blend of high trait Neuroticism and low trait Extraversion, particularly in the positive affect domain (e.g., Chioqueta & Stiles, 2005). These findings suggest that, from a trait perspective, the disinhibited features of psychopathy may positively relate to depression due in part to their overlap with high levels of Neuroticism and lower levels of Extraversion; relatedly, the bold features of psychopathy may negatively relate to depression given their opposite associations with general personality traits.

Hypothesis: I hypothesize that features of psychopathy will predict little or no unique variance in depression above and beyond Neuroticism and Extraversion. In essence, I predict that psychopathy's relations with depression will be largely accounted for by Neuroticism and Extraversion.

Method

Overview

In the spirit of replication, I used two large community samples to potentially demonstrate consistent results across both samples. The two samples were similar in terms of participant recruitment and self-report assessment; nonetheless, there were noteworthy differences across the two samples regarding personality and depression indices (see Measures

section for each sample).

Sample 1

Participants and Procedure

Participants were recruited from the community via Amazon's Mechanical Turk (MTurk) (n_1=430). MTurk is an online crowdsourcing platform through which community members are compensated for the completion of research-related tasks. Samples recruited from MTurk tend to be more ethnically diverse than undergraduate populations (Buhrmester et al., 2011), and often capture a wide range of scores for an array of psychological measures, such as depression and anxiety symptoms, similar to those found in clinical and community samples (e.g., Shapiro, Chandler, & Mueller, 2013). In regards to personality traits, MTurk participants also tend to be more neurotic and less agreeable (Behrend et al., 2011) compared to undergraduate populations. Such findings indicate that MTurk is a useful platform for psychological research (e.g., Shapiro et al., 2013). In addition, studies using MTurk generate high-quality data with robust internal consistencies similar to studies using other data collection strategies and platforms (Miller et al., 2017).

All participants completed a battery of questionnaires assessing an array of personality traits, including multiple measures of psychopathy, and depressive symptoms. Participants were predominately female (54%) and white (81%), followed by African-American (7%), Asian (7%), and Hispanic (6%). The average age of participants was 36.53 years (SD = 12.03).

Measures

Psychopathy. Participants completed two widely-used and well-validated psychopathy measures, the *Psychopathic Personality Inventory-Revised* (PPI-R; Lilienfeld & Widows, 2005) and the *Levenson Self-Report Psychopathy Scale* (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995).

The PPI-R is a 154-item self-report inventory designed to assess the personality traits associated with psychopathy rather than overt antisocial behaviors. The measure consists of 8 factor-analytically derived lower-order scales. These scales, with the exception of Coldheartedness, coalesce into two largely independent higher-order factors, Fearless Dominance and Self-Centered Impulsivity. As noted earlier, Coldheartedness does not load on either higher-order factor and is sometimes used as a standalone psychopathy indicator reflecting guiltlessness and lack of sentimentality. Additionally, I extracted composites for the triarchic psychopathy dimensions (Patrick, Fowles, & Krueger, 2009) from the PPI-R based on published formulas (Hall et al., 2014).

The LSRP is a 26-item self-report measure designed to assess psychopathic traits. This measure yields scores on two higher-order factors, Factor 1 and Factor 2. Factor 1 measures selfishness and callousness whereas Factor 2 measures impulsivity and self-defeating lifestyle behaviors. Factor analyses of the LSRP also suggest a three-factor model solution in which psychopathy comprises the domains of Egocentricity, Callousness, and Antisociality. Egocentricity and Callousness encapsulate the interpersonal and affective components of psychopathy, with Egocentricity comprising traits such as manipulativeness and selfishness and Callousness comprising traits such as guiltlessness and deceitfulness. Antisociality encompasses the behavioral and lifestyle features of psychopathy, such as aimlessness and antagonism (Sellbom, 2011).

Depression. To assess the presence of depressive features, participants completed the *Center for Epidemiologic Studies Depression Scale-Revised* (CESD-R; Eaton et al., 2004). The CESD-R is a widely used and accessible index of depression that measures depression symptoms experienced in the past two weeks in epidemiologic and community populations. The 20-item

self-report scale closely maps on to DSM-5 criteria for depression and assesses the probability of meeting criteria for Major Depressive Disorder.

General Personality. All participants completed the *HEXACO Personality Inventory* (HEXACO-PI; Lee & Ashton, 2004). The HEXACO-PI comprises 100 items and assesses 24 facet-level personality trait scales derived from standard lexical studies of personality structure. These scales converge on six broad domains: Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). In addition, the HEXACO includes a standalone indicator of Altruism (vs. Antagonism), which loads on both H and A.

Sample 2

Participants and Procedures

Participants were recruited from the community via Amazon's Mechanical Turk (M-Turk) (n_2=441; for a description of MTurk, see Sample 1 Participants). All participants completed a battery of questionnaires assessing an array of personality traits, including multiple measures of psychopathy and depressive symptoms. Participants were predominately female (58%) and white (78%), followed by African-American (10%), Asian (8%), and Hispanic (6%). The average age of participants was 35.05 years (SD = 10.68).

Measures

Psychopathy. In addition to the PPI-R and LSRP, participants also completed the *Triarchic Psychopathy Measure* (TriPM; Patrick, 2010). The TriPM is a well-validated self-report inventory designed to assess the constructs of the three higher-order factors of psychopathy: Boldness, Disinhibition, and Meanness. Boldness and Disinhibition largely overlap with PPI-R Fearless Dominance and Self-Centered Impulsivity, respectively; Meanness, in

contrast, overlaps only moderately with Coldheartedness, as Meanness more strongly reflects interpersonal antagonism as opposed to emotional detachment.

Internalizing symptomology. In addition to the CESD-R, participants also completed the *Patient-Reported Outcomes Measurement Information System Scales* (PROMIS; Pilkonis et al., 2011). The PROMIS scales are a publicly available item pool assessing physical, mental, and social health developed by the National Institutes of Health (NIH). Participants completed short form versions of three Emotional Distress scales – Anger, Anxiety, and Depression. The *Depression* scale was the primary outcome of interest, and it comprises 8 items assessing negative mood (e.g., sadness, guilt), decreased positive affect (e.g., loss of interest), information-processing deficits (e.g., problems in decision-making), negative views of the self (e.g., self-criticism, worthlessness), and negative social cognition (e.g., loneliness, interpersonal alienation). The *Anger* scale comprises 5 items assessing angry mood (e.g., irritability, reactivity), negative social cognition (e.g., interpersonal sensitivity, envy, vengefulness), and verbal aggression. The *Anxiety* scale comprises 8 items assessing fear (e.g., fearfulness, feelings of panic), anxious misery (e.g., worry, dread), hyperarousal (e.g., tension, nervousness, restlessness), and somatic symptoms related to arousal (e.g., cardiovascular symptoms, dizziness). I used these latter two scales in specificity analyses to explore the extent to which psychopathy's relations with depression were generalizable to other forms of negative emotionality.

General Personality. All participants completed the *Big Five Inventory-44* (BFI-44; John, & Srivastava, 1999). The BFI-44 comprises 44-items and is a well-validated self-report inventory of each of the FFM personality domains of Extraversion, Conscientiousness, Openness, Agreeableness, and Neuroticism.

Results

Tables 1 and 2 display the descriptive statistics and intercorrelations for the psychopathy measures for Samples 1 and 2, respectively, and Table 3 displays this information for the internalizing symptomology measures. The internal consistencies of these measures are also displayed along the diagonals in their respective tables.

Normative Data Comparisons

To evaluate the similarity between our two samples and other samples, I compared the mean depression and psychopathy total scores from the two collected datasets with those from 6 other studies using a one-sample *t*-test for equality of means. The samples in these studies included community, clinical, undergraduate, and forensic participants (Supplemental 1).

CESD-R. I first compared the mean CESD-R total scores from our two samples with those from one other study using both community and undergraduate samples (Van Dam & Earleywine, 2011).

The comparison community sample (N = 6,971) was primarily male (80.7%), Caucasian (89.4%), and middle-aged (M = 30.6 years, SD = 13.1). The comparison undergraduate sample (N = 243) was primarily female (60.3%) and Caucasian (72.8%), and most participants were young-adults (M = 19.6 years, SD = 1.8). Mean depression scores from Sample 1 ($t(429) = 8.95$, $p < 0.001$) and Sample 2 ($t(440) = 4.78$, $p < 0.001$) were significantly higher than the those from the comparison community sample, and the magnitudes of these differences were moderate (ds were 0.48 and 0.22, respectively). In addition, Sample 2's mean ($t(440) = -3.77$, $p < 0.001$, d = 0.19) was significantly different from that of the undergraduate sample, with the mean being larger in the undergraduate population. These findings suggest that mean levels of CESD-R depression in the two samples were somewhat more pronounced than in other published

community samples.

PROMIS Depression. Second, I compared the mean PROMIS depression scores from our two datasets to those from two other studies, one using a clinical sample (Miller, Few, Wilson, et al., 2013) and the other using an undergraduate sample (Miller, Gentile, & Campbell, 2013). The comparison clinical sample (N = 110) was primarily female (73.5%), Caucasian (91%), and middle-aged (M = 36.6 years, SD = 12.7). The comparison undergraduate sample (N = 287) was primarily female (60%) and Caucasian (80%), and most subjects were young-adults (M = 18.9 years, SD = 1.16). Sample 2's mean was significantly smaller than the means of both the clinical ($t(440) = -20.29$, $p < 0.001$) and undergraduate ($t(440) = -3.13$, $p = 0.002$) samples, and the magnitudes of these differences were small to large (ds were 0.88 and 0.15, respectively). These findings suggest that that Sample 2's PROMIS Depression scores were significantly less pronounced than those in the comparison samples.

Psychopathy. In addition, I compared our samples' average PPI-R total scores to those from community (Uzibelo et al., 2012), undergraduate (Miller, Few, Seibert, et al., 2012), and forensic (Copestake, Gray, & Snowden, 2011) populations. The comparison community sample (N = 675) was primarily male (62.5%), Belgian (99.6%), and middle-aged (M = 32.99 years, SD = 13.92). The comparison undergraduate sample (N = 789) was primarily male (54%) and Caucasian (83%), and most participants were young-adults (M = 19.33 years, SD = 2.17). The comparison forensic sample (N = 52) was all male, and most were Caucasian (77%) and middle-aged (M = 38 years, SD = 9.7). The mean PPI-R total score from Sample 1 was significantly larger than the community ($t(429) = 2.14$, $p = 0.033$, $d = 0.11$) and forensic samples ($t(429) = 6.66$, $p < 0.001$, $d = 0.31$) whereas the mean from Sample 2 was only larger than the forensic sample ($t(440) = 1.99$, $p = 0.047$, $d = 0.095$). The mean PPI-R total score from Sample 2 was

significantly smaller than the community sample ($t(440) = -2.41$, $p = 0.016$, $d = 0.13$), and both samples' means were significantly smaller than the undergraduate sample (Sample 1: $t(429) = -4.91$, $p < 0.001$, $d = 0.26$; Sample 2: $t(440) = -9.27$, $p < 0.001$, $d = 0.48$). These findings suggest that our mean psychopathy levels were more pronounced than those of other published samples comprising forensic and community participants.

Replicability Across the Two Samples

Sample moderating the relations between psychopathy and depression. To determine whether I could pool the data across the two samples and report the results for both datasets combined, I examined the statistical interaction between dimensions of psychopathy and sample (dummy-coded as a dichotomous variable) in predicting CESD-R depression. I conducted hierarchical regression analyses in which the psychopathy-by-sample interaction term was entered after the psychopathy and sample main effects using the PROCESS macro (Hayes, 2012). Out of the 7 moderation analyses conducted, 4 were significantly moderated by sample, indicating that there may be noteworthy differences in the relations between psychopathy and depression across the two samples. The significant sample moderation results are denoted in Table 4. Because approximately 60% of the sample moderation analyses were significant, all remaining analyses were conducted and reported separately for the two samples.

Differences in means and variances among primary variables of interest. To examine potential differences between the two samples that may undergird the significant sample moderation effects, I analyzed the differences between sample means and variances for age, psychopathy, and CESD-R depression variables (Supplemental Tables 2 and 3). To do so, I conducted (a) independent samples *t*-tests and (b) Levene's tests of equality of variances for the aforementioned variables. With regard to mean-level differences, out of the 7 psychopathy

variables analyzed, 5 of the means were significantly different across the two samples, with average psychopathy scores being higher in Sample 1 than in Sample 2 (*p*s < 0.05, *d*s ranged from 0.14 to 0.29). In addition, the average CESD-R total score was significantly higher in Sample 1 than in Sample 2 ($t(869) = 3.65$, $p = 0.014$, $d = 0.25$). With regard to differences in variance, only age and CESD-R depression had significantly different variances across the two samples (Age: $F(863) = 8.78$, $p = 0.003$; CESD-R: $F(869) = 9.37$, $p = 0.002$). These analyses suggest that the first sample, overall, was more psychopathic and depressed, but the variability of psychopathy scores was not significantly different across the two samples. The variability of depression, however, was lower in Sample 2, potentially explaining the differences in zero-order correlations between psychopathy and depression across the two samples.

Relations between Psychopathy and Depression

Table 4 displays the zero-order correlations between psychopathy and depression for each sample. The majority of the correlations between the dimensions of psychopathy and depression replicated results from the literature and were consistent across samples and indices of depression.

Psychopathy total scores. In accordance with the literature indicating that total scores of psychopathy measures mask the differential associations among the dimensions of psychopathy and indices of negative emotionality and are often weak predictors of external criteria (e.g., Hicks & Patrick, 2006), PPI-R total scores were inconsistently related to depression across the two samples. In Sample 1, PPI-R total was statistically unrelated to CESD-R depression; in Sample 2, however, PPI-R total was positively correlated with both CESD-R and PROMIS depression, although the magnitudes of these correlations were relatively weak (*rs* ranged from 0.15 to 0.18).

Psychopathy subdimensions. Regarding the dimensions of psychopathy, however, sharp divergences emerged. By and large, the boldness features of psychopathy (i.e., TriPM Boldness, PPI-R Fearless Dominance) were moderately negatively correlated with depression (*rs* ranged from -0.22 to -0.42). The relationship between PPI-R Fearless Dominance and depression appeared to be driven primarily by the PPI-R Stress Immunity and Social Influence subscales, with the latter to a lesser extent, as they were moderately negatively correlated with depression (*rs* ranged from -0.45 to -0.55 and -0.20 to -0.38, respectively). In contrast, the disinhibition features of psychopathy (i.e., TriPM Disinhibition, PPI-R Self-centered Impulsivity) were moderately positively correlated with depression (*rs* ranged from 0.27 to 0.46). The relationship between Self-centered Impulsivity and depression appeared to be driven primarily by the PPI-R Blame Externalization subscale, which was moderately positively correlated with depression (*rs* ranged from 0.41 to 0.47); PPI-R Carefree Nonplanfulness was also moderately positively correlated with depression (*r*s ranged from 0.19 to 0.28), albeit to a lesser extent. In addition, the antisocial and behavioral features of psychopathy (LSRP Antisociality) were moderately positively correlated with depression (*rs* ranged from 0.28 to 0.50).

In spite of these global similarities across the two samples and both measures of depression, there were potentially noteworthy differences between the two samples. First, the relations between PPI-R Coldheartedness and TriPM Meanness, on the one hand, and depression, on the other, were not consistent across samples. In Sample 1, Coldheartedness was slightly negatively associated with depression (r = -0.15) whereas Coldheartedness was not statistically significantly related to either CESD-R or PROMIS depression in Sample 2, although these correlations were still negative in direction (*rs* were -0.04, *ps* were 0.43 and 0.36, respectively). In Sample 2, Meanness was moderately positively correlated with depression (*rs*

ranged from 0.28 to 0.30) whereas Meanness was not statistically significantly related to depression in the first sample, although the direction of this relation was negative (r = -0.07, p = 0.17).

Relative contribution of psychopathy subdimensions. Brislin and colleagues (2015) found that Meanness was positively correlated with indices of depression, but the relation between Meanness and depression was not significant after taking into account its substantial overlap with Disinhibition and, to a smaller extent, Boldness. To address the possibility that Meanness also was related to depression in the present study due largely in part to its overlap with other triarchic dimensions, I conducted multiple regression analyses in which all three triarchic dimensions were entered simultaneously into the same step in predicting depression. After controlling for Boldness and Disinhibition, Meanness no longer was significantly related to depression in Sample 2 (CESD-R: β = 0.03, p = 0.60; PROMIS: β = 0.03, p = 0.64). Interestingly, in Sample 1, Meanness was significantly related to depression after controlling for Boldness and Disinhibition, although the association was negative (β = -0.10, p = 0.04).

Within-sample replicability. Speaking to within-sample replicability, the correlational patterns between psychopathy and depression across the two depression measures in Sample 2 were largely equivalent. (Supplemental 4). The relations between the bold features of psychopathy (i.e., PPI-R Fearless Dominance and TriPM Boldness) and PROMIS depression were stronger than the relations between these psychopathy dimensions and CESD-R depression. These findings suggest a quasi-replication of our findings from Sample 2 using two separate depression measures.

Specificity of the Relations between Psychopathy and Depression

To examine the extent to which psychopathy is selectively related to depression rather

than negative emotionality more broadly, I examined the associations between psychopathy subdimensions and other forms of negative emotionality, namely anger and anxiety. The zero-order correlations between psychopathy subdimensions and anxiety and anger are reported in Table 5. By and large, the correlational patterns among the dimensions of psychopathy and anger and anxiety were similar to those among the dimensions of psychopathy and depression.

More specifically, the bold features of psychopathy moderately negatively related to both anger and anxiety (*rs* ranged from -0.20 to -0.35). Similarly, the relationship between PPI-R Fearless Dominance and anger and anxiety also appeared to be driven primarily by the PPI-R Stress Immunity subscale, which was moderately and negatively correlated with anger and anxiety (*rs* were -0.45 and -0.63, respectively). In contrast, disinhibition features were moderately positively related to both anger and anxiety (*rs* were 0.37 and 0.41, respectively). The relationship between PPI-R Self-centered Impulsivity and both anger and anxiety appeared to be driven primarily by the PPI-R Blame Externalization, Machiavellian Egocentricity, and Rebellious Nonconformity subscales, with the latter two subscales to a lesser extent, as they were moderately positively correlated with anger and anxiety (*rs* were 0.39 to 0.45, 0.29 to 0.35, and 0.25 to 0.31, respectively).

PPI-R Coldheartedness was negatively related to anxiety (r = -0.14), but was not statistically significantly related to anger (r = -0.08, p = 0.12). Meanness, in contrast, was moderately positively associated with both anxiety and anger (*rs* were 0.19 and 0.24, respectively). In addition, the antisocial and behavioral features of psychopathy (LSRP Antisociality) also moderately positively related to both anger and anxiety (*rs* ranged from 0.48 to 0.52).

By and large, the magnitudes of the correlations between the dimensions of psychopathy

and PROMIS depression were significantly larger than the magnitudes of the relations between the dimensions of psychopathy and anxiety (Supplemental 4). PPI-R Fearless Dominance and Coldheartedness were the only two psychopathy dimensions that related more strongly with anxiety than with PROMIS depression. In contrast, the magnitudes of the correlations between PROMIS Depression and anger were broadly similar, with only the bold (i.e., Fearless Dominance and TriPM Boldness) and disinhibited (i.e., Self-centered Impulsivity and TriPM Disinhibition) features more strongly associating with PROMIS Depression than with anger.

Potential Protective Effects of Boldness against Negative Emotionality

To investigate whether the bold features of psychopathy protect against depression in the presence of the disinhibited and mean features of psychopathy, I examined the statistical interaction between Boldness/Fearless Dominance and either (a) Disinhibition/Self-centered Impulsivity or (b) Meanness/Coldheartedness in predicting depression (Table 6). To do so, I conducted hierarchical regression analyses in which the Boldness-by-Disinhibition/Meanness (or Fearless Dominance-by-Self-centered Impulsivity/Coldheartedness) interaction term was entered after the Boldness and Disinhibition/Meanness main effects using the SPSS PROCESS macro (Hayes, 2012).[1]

In more exploratory analyses, I examined the statistical interaction between the mean and disinhibited features of psychopathy in predicting depression, given that the roles of Meanness and Coldheartedness in statistically predicting depression have not been extensively examined. These results are displayed in Table 6. Both the standardized and unstandardized regression coefficients, with their respective standard errors, are provided, given that the standard errors,

[1] I used the Preacher and Hayes' (2004) SPSS PROCESS macro to estimate simple moderation (i.e., statistical interaction) models. PROCESS calculates the product of X and M (the moderator), mean centers all predictor variables, and calculates the proportion of variance in Y uniquely attributable to the moderation of X's effect by M. I interpreted bootstrapped confidence intervals (derived from 5000 bootstrapped samples) to determine whether a significant statistical interaction was present in each moderation model.

and thus the statistical significance, can vary as a result of using one regression coefficient over the other.

On balance, there was little evidence that the bold features of psychopathy protect against depressive symptoms in the presence of the disinhibited and mean features of psychopathy. Out of 24 hierarchical regression analyses across the two samples, only 4 were significant (17%). Furthermore, the significant effects did not replicate across both samples, or even between depression measures in Sample 2. Of the 4 significant effects, only one indicated a protective effect of TriPM Boldness, with lower levels of Boldness increasing the relationship between Disinhibition and CESD-R depression in Sample 1, but this finding did not replicate in Sample 2. Because of the inconsistency of these findings and the hovering of their confidence intervals around zero, it is likely that these effects are attributable to Type I error.

Gender Differences in the Relations between Psychopathy and Negative Emotionality

Gender differences in variances and means. First, I conducted a Levene's test for equality of variances and an independent samples *t*-test for equality of means to analyze differences in variances and means, respectively, between male and female subjects within each sample (Supplemental 5). Consistent with the literature, males exhibited higher levels of psychopathy across both samples, and the magnitudes of these effects were moderate to large in nature (ps < 0.05; ds ranged from 0.21 [Sample 1, LSRP Antisociality] to 0.90 [Sample 1, PPI-R Total]). Contrary to the literature, no significant mean level differences were found between males and females from either sample in regard to depression, anger, or anxiety, and the magnitudes of these effects were below small (ds < 0.10).

Gender moderation. To elucidate potential gender differences in the relations between psychopathy and negative emotionality, the statistical interaction between gender and the

dimensions of psychopathy in predicting negative emotionality was examined again using the moderation module of the SPSS PROCESS macro. In these models, the psychopathy-by-gender interaction term was entered after the psychopathy and gender main effects. Out of 52 models, only 1 was significant (2% of the tests conducted; denoted in Table 4). In Sample 1, gender moderated the relationship between Self-centered Impulsivity and CESD-R depression such that the relationship was stronger in females than in males. Given that only one of these analyses was significant, it is likely that the effect is due to Type I error. Thus, there was little evidence for gender differences in the relations between psychopathy and negative emotionality.

Incremental Validity of Psychopathy's Relations with Negative Emotionality

The relations between general personality traits, assessed by the HEXACO in Sample 1 and BFI in Sample 2, and psychopathy are presented in Supplemental 6 and 7. The relations between general personality traits and depression are presented in Supplemental 8 and 9. To address the possibility that psychopathy subdimensions relate with depression due in part to their relations with general personality traits, especially Neuroticism and Extraversion (i.e., negative and positive emotionality, respectively), I conducted hierarchical regression analyses in which Neuroticism and Extraversion were entered into Step 1 and the dimensions of psychopathy were entered into Step 2. Put more simply, I examined whether dimensions of psychopathy uniquely predicted depression scores after accounting for the contributions of trait positive and negative affect, which are pertinent to both psychopathy and depression (e.g., Bagby et al., 1995). Given the number of tests conducted, I focused on the broad patterns of results (see the full findings in Table 7).

Out of 40 hierarchical regression analyses, twenty-two (55%) were statistically significant such that psychopathy subdimensions incremented positive and negative affect,

suggesting that dimensions of psychopathy largely predict depression scores above-and-beyond Neuroticism and Extraversion. Nonetheless, the vast majority of the results accounted for little additional variance in depression scores after controlling for Neuroticism and Extraversion, as the average additional variance accounted for across the two samples was 3.3% and the largest percentage was a mere 9.0%.

In subsidiary analyses, I conducted hierarchical regression analyses in which the dimensions of psychopathy were entered into Step 1 and Neuroticism and Extraversion were entered into Step 2 (Supplemental 13). I examined whether trait positive and negative emotionality uniquely predicted depression scores after accounting for the contributions of psychopathic features to consider the possibility that the shared variance between psychopathy, on the one hand, and Neuroticism and Extraversion, on the other, best predict depression scores rather than either in isolation. Broadly, in Sample 1, both Neuroticism and Extraversion accounted for a substantial amount of additional variance in depression scores after controlling for features of psychopathy (average ΔR^2 = 28%). In Sample 2, by and large, Extraversion did not significantly increment psychopathy dimensions in the statistical prediction of depression whereas Neuroticism did (ΔR^2 values ranged from 17% to 46%).

Discussion

The role of emotionality, especially negative emotionality, in psychopathy remains a contentious issue (see Hicks & Patrick, 2006, for a review). Depending upon how psychopathy is conceptualized and assessed, the relations between psychopathy and negative emotionality often vary substantially (see Willemsen et al., 2011, for a review). I sought to further elucidate the differential relations among the subdimensions of psychopathy and negative emotionality broadly by examining the associations between features of psychopathy and depression in two

sizeable, mixed-gender community samples. I used multiple indices of both psychopathy and depression to clarify the nature of these associations and avoid mono-operation bias.

Key Findings

The present findings highlight the importance of treating psychopathy as a multidimensional construct. Studies examining the associations between a total score of psychopathy and depression have yielded inconsistent results (Willemsen et al., 2011) because psychopathy subdimensions' differential associations with depression are obscured when psychopathy is operationalized as a unitary total score. The present findings corroborate this methodological concern. Psychopathy total scores were generally unrelated to depression, masking meaningful and pronounced differential relations between psychopathy and depression at the subdimension level. Although the relevance of traits such as boldness, fearlessness, and social dominance in psychopathy is still debated (e.g., Lilienfeld, Patrick, Benning, et al., 2012), it is apparent that reliance on psychopathy total scores, still a prevalent practice in the literature, can be misleading. At the broad subdimension level, Boldness features of psychopathy were negatively correlated with depression whereas the Disinhibition features of psychopathy were positively correlated with depression across both samples and both indices of depression. The relations between Meanness and Coldheartedness, on the one hand, and depression, on the other, did not replicate consistently across the two samples.

More fine-grained personality traits such as Social Influence (Social Potency) and Stress Immunity appeared to undergird the negative associations between Boldness and depression, whereas Blame Externalization and Carefree Nonplanfulness appeared to undergird the positive associations between Disinhibition and depression. Given that depression often comprises impaired interpersonal skills (see Joiner & Timmons, 2009, for a review) and heightened

emotional distress (Kotov, Gamez, Schmidt, & Watson, 2010), it follows that personality features such as sociability and immunity to stress negatively relate to depression. Nonetheless, there was little evidence that the bold features of psychopathy were protective in the relations among subdimensions of psychopathy and depression.

In contrast, Blame Externalization comprises alienation, reactive aggression, and projection of blame onto others (Lilienfeld & Widows, 2005). The finding that Blame Externalization positively relates to depression may be somewhat counterintuitive, given that depression typically comprises features such as intensive rumination (Nolen-Hoeksema, 1991) and internalizing attributional styles (Ingram, 1990). Nonetheless, studies illustrate that depressive features such as guilt- and shame-proneness are associated with externalization of blame in addition to self-blame (Lutwak, Panish, & Ferrari, 2003; Stuewig et al., 2010). Lewis (1971) proposed that an individual's feelings of shame partially stem from a belief that another individual rejects or disapproves of his/her character. To mitigate their shame, individuals may place blame on others rather than themselves.

With regards to Carefree Nonplanfulness, which typically comprises indifference and aimlessness (e.g., Lilienfeld & Widows, 2005), studies indicate that trait impulsivity (subsumed under Disinhibition) is moderately positively correlated with depression (e.g., Clarke, 2006). A study examining how specific forms of impulsivity relate to features of depression and mania demonstrated that nonplanning impulsivity, which is conceptually similar to Carefree Nonplanfulness in its emphasis on future goals, was uniquely associated with depression and not mania, and it was specifically correlated with the hopelessness features of depression (Swann et al., 2008). Thus, individuals with marked inabilities to generate future plans and create meaningful life goals may be at risk for an array of depressive symptoms.

In addition, there was virtually no evidence for gender differences in the relations among the dimensions of psychopathy and depression. Although there is some evidence that features of psychopathy are differentially expressed across gender (e.g., Hamburger et al., 1996; Verona & Vitale, 2006), existing research is decidedly mixed (e.g., Cale & Lilienfeld, 2002; Rutherford et al., 1998). On balance, recent empirical evidence indicates that psychopathy manifests similarly across genders with few consistent significant correlational differences between males and females (e.g., Miller, Watts, & Jones, 2011; Sellbom et al., 2016). Thus, the present study is consistent with the growing evidence that subdimensions of psychopathy manifest similarly across genders in their relations with external criteria, including depression.

Consistent with the view that psychopathy is a configuration of general traits (e.g., Widiger & Lynam, 1998), psychopathy uniquely predicted little additional variance in depression, suggesting that personality primarily accounted for psychopathy's relations with depression. In addition, though, extraversion and neuroticism also predicted depressive features above and beyond psychopathy. That psychopathy incremented general traits and vice versa suggests that the shared variance between psychopathy and certain personality traits, namely positive and negative affect, best predicts depression compared to either psychopathy or general personality traits in isolation. These findings are consistent with research suggesting that the relations among personality traits and depression are multivariate in nature, meaning a combination of different personality traits best predicts depression compared with one personality trait in isolation (e.g., Clark & Watson, 1999).

Limitations

Despite the present study's strengths, there were several limitations. First, I exclusively used self-report measures, rendering the findings susceptible to mono-method bias. Although

there is little evidence to suggest that the validity of self-reported psychopathy is diminished by social desirability response styles (Watts et al., 2016; Willemsen & Verhaeghe, 2012), additional methodologies, such as informant reports, should be used to corroborate the findings. For instance, informant reports of psychopathic traits have been especially useful in the prediction of various externalizing behaviors (e.g., crime, intimate partner violence, alcohol use; Miller, Jones, & Lynam, 2011) insofar as they increment self-reports in their prediction of these behaviors.

Relatedly, there is mixed support for the use of self-report in measuring depression (e.g., Tanaka-Matsumi & Kameoka, 1986). Most research questioning the validity of self-report assessment in depression discusses its limited ability to detect depression diagnoses; nevertheless, research indicates that self-report assessments of depression are valid measures of depression symptoms and are useful in screening for depression in studies (Eaton et al., 2000; Myers & Weissman, 1980; Prusoff, Klerman, & Paykel, 1972). Thus, although there is limited evidence against the use of self-report measures to detect depression in psychological research, additional methodologies, such as clinical ratings, should be used in conceptual replication efforts (e.g., Levin-Aspenson & Watson, 2017).

In addition, due to the present study's cross-sectional design, it is not possible to establish causality in the relations among dimensions of psychopathy and depression. Despite the substantial body of studies examining the causal relationships among different personality traits and depression, there is no one agreed upon causal model (see Klein, Kotov, & Bufferd, 2011, for a review). Although studies consistently indicate that negative emotionality (or the closely related but narrower trait of neuroticism) and personality disorders, broadly construed, confer risk for depression and mood disorders (see Shea & Yen, 2005, for a review), the specific nature of the causal mechanisms that undergird the relations among personality traits and depression

remain to be elucidated.

Second, all participants were recruited via Amazon's MTurk platform. As described earlier, MTurk comprises an array of strengths, including but not limited to greater data collection efficiency and flexibility compared with other recruitment platforms (e.g., Miller et al., 2017). Nonetheless, it also comprises an array of weaknesses. For instance, the most experienced participants, meaning those who have completed a vast amount of MTurk studies, have probably completed the same experimental tasks more than once, which may reduce statistical power to detect effects given that repeated performances on the same instruments tend to result in decreased effect sizes, although this limitation is less of an issue for survey based personality research (Chandler et al., 2015; see Miller et al., 2017, for a review). In general, the limitations surrounding MTurk are not unique to this collection platform, but instead afflict many other recruitment methods, especially those that are online. Thus, the limitations of MTurk do not necessarily detract from its benefits.

Lastly, because I measured depression continuously given the evidence that it is dimensional in nature (e.g., Hankin et al., 2001), it is not possible to make formal depression diagnoses in the present study. Relatedly, I measured depression symptoms and not the remaining criteria required for diagnostic decisions, such as the level of functional impairment or number of inter-episode remissions. I also relied exclusively on community samples to examine the relations among psychopathy dimensions and depression, so the levels of depression were almost certainly less severe than in clinical samples, comprising primarily state rather than trait depression. Thus, the present findings may not extend to clinically significant levels of depression.

Future Directions

Heterogeneity of depression. As discussed earlier, depression is a heterogeneous construct comprising an array of differential symptom and severity patterns. The length of depressive episodes, and, in turn, the severity of depression, can vary substantially across individuals, with some individuals experiencing very brief, non-recurrent depression (e.g., Short-duration Depressive Episode; American Psychiatric Association, 2013) and others experiencing chronic, recurrent depression (e.g., Persistent Depressive Disorder; American Psychiatric Association, 2013). In the present study, the depression items mapped closely onto DSM-5 symptom criteria for Major Depressive Disorder. These findings suggest that psychopathy relates to depression symptom criteria in potentially important ways.

Nonetheless, research suggests that psychopathic individuals may not experience depression in the same ways that other individuals do (e.g., Willemsen et al., 2011). For example, one study found that total psychopathy scores in a subset of participants who endorsed at least two lifetime depressive symptoms were negatively correlated with the use of sadness words and negligibly associated with the use of negative emotion words and anxiety or anger words in descriptions of depression (Willemsen et al., 2011). In addition, Lovelace and Gannon (1999) found that total psychopathy scores were negatively correlated with dysthymic depression but negligibly correlated with psychotic depression, but this negligible association may be due in part to the low base rate of psychotic depression in the study. Such findings raise the possibility that psychopathy relates to and perhaps shapes the affective experience of depression.

Future research should elucidate the type of depression psychopathic individuals are most likely to experience. From a psychodynamic perspective, psychopathic individuals may be more likely to experience subaffective character spectrum depressive disorders, which are subsumed under characterological depression (e.g., Akiskal et al., 1980), compared with non-psychopathic

individuals, as these forms of depression comprise pre-existing personality disorders, depressive temperament, emotional instability, and family history of psychiatric and/or personality pathologies (e.g., Winokur, 1997). Clinical accounts of patients with characterological depression describe them as pathologically narcissistic, interpersonally manipulative, impulsive and unstable, hostile, and dramatic (Akiskal et al., 1978), and these descriptions are central in most characterizations of psychopathy (e.g., Lilienfeld & Widows, 2005). Thus, characterological forms of depression are most likely secondary to personality traits and disorders (Winokur, 1997).

In contrast, psychopathic individuals may instead experience brief episodes of depression rather than chronic depression. *Dynamic predisposition models* of the relations among personality traits and depression propose that the environment can moderate or mediate the relationship between personality and depression, thus influencing depressive experiences and trait vulnerabilities (e.g., Middledorp et al., 2008; Ormel et al., 2001). Put more simply, personality is not perfectly static across the lifespan (e.g., Roberts & DelVecchio, 2000), and the interplay among trait personality, or temperament, and environmental events can either increase or decrease susceptibility to psychopathological disorders (e.g., Ormel & de Jong, 1999). According to such dynamic models of personality, maladaptive personality traits, like those exhibited in psychopathy, are necessary but not sufficient in causing depressive disorders, as negative environmental events are often required for the manifestation of depression (Klein, Kotov, & Bufferd, 2011).

As such, psychopathic individuals may primarily experience episodes of depression following stressful life events that either restrict their behaviors or breakdown their illusions of grandeur, and their depression may not necessarily recur or persist across the lifespan. For

instance, individuals with antisocial personality disorder, which is closely related to psychopathy (e.g., Patrick & Brislin, 2015), typically experience depression after their impulsive behaviors are constrained in some way, usually through incarceration or legal punishment (Bockian, 2006). Relatedly, individuals with narcissistic personality disorder, which also closely overlaps with psychopathy (e.g., Lynam, 2011), often become depressed when their grandiose self-images are threatened, and these episodes of depression can be reversed if they achieve some modicum of success or admiration (Bockian, 2006).

Clinical applications. Psychopathy has been traditionally regarded as clinically untreatable (e.g., Harris & Rice, 2006). Cleckley (1941) asserted that psychopathic individuals would receive essentially no benefit from therapeutic treatments, as they are generally incapable of generating the emotional bonds necessary for successful therapy. Furthermore, they do not typically experience psychologically uncomfortable emotions, such as guilt, that are often necessary for behavioral change. Nonetheless, meta-analytic evidence suggests that an array of therapeutic approaches might be successful in treating psychopathic traits (Salekin, 2002). For example, cognitive behavioral therapies were successful in treating psychopathy 62% of the time, although it should be noted that this statistic was not derived purely from randomized controlled trials (Salekin, 2002). Nonetheless, a 62% success rate in treating psychopathic individuals is a far more successful outcome than early clinicians had forecasted.

Although these findings suggest that psychopathic individuals can sometimes benefit from psychotherapy, success rates could still be improved. To improve on existing treatment approaches, clinicians should conceptualize psychopathy as multidimensional and therefore heterogeneous. The present findings could inform treatment for psychopathic personality traits, given the differential associations among dimensions of psychopathy and negative emotionality.

Specifically, these findings highlight that psychopathic individuals can experience emotional distress in the forms of depression, anger, and anxiety.

Internalizing pathologies marked by extreme levels of these emotions are associated with well-validated treatment approaches, such as cognitive behavioral therapy and behavioral activation therapy (Dimidjian et al., 2006; Hofmann & Smits, 2008). As such, future studies could integrate such therapies into their practice when treating psychopathic individuals. Psychotherapies targeted for depression may be useful for all psychopathic individuals regardless of whether they exhibit more ostensibly adaptive or maladaptive personality features. Perhaps by reducing negative emotionality in psychopathic individuals, other behavioral symptoms or functional impairments may also be alleviated.

Associations with psychobiological models. Gray's (1976) biobehavioral model posited that most behavior is either activated or inhibited by two opposing neural systems that comprise two orthogonal behavioral sensitivities (i.e., anxiety and impulsivity; Gray, 1972, 1981). The behavioral inhibition system (BIS) corresponds closely to negative emotionality, avoidance, and anxiety, whereas the behavioral activation system (BAS) corresponds closely to positive affect, motivation, and desire (Depue & Zald, 1993; Gray, 1982; Tellegen, 1985). Because depression is characterized by a combination of low positive affect and high negative affect (e.g., Gannon et al., 1992), an overactive BIS and an underactive BAS may underlie the manifestation of depressive symptoms like psychomotor slowing, loss of interest, and social withdrawal (Fowles, 1988; Johnson, Turner, & Iwata, 2003). Moreover, psychopathy has been characterized as a combination of an underactive BIS and an overactive BAS, and this imbalance may allow for hallmark psychopathic features such as physical fearlessness, disinhibition, and reward-seeking (Fowles, 1980/1988; Newman, Wallace, Schmitt, & Arnett, 1997). In terms of BIS and BAS

classifications, psychopathy and depression appear to be largely antagonistic constructs.

Nonetheless, the present study, in addition to existing literature (e.g., Hicks & Patrick, 2006), demonstrates that dimensions of psychopathy fractionate in their relations with depressive features. Dimensions of psychopathy also are differentially correlated with measures of BIS and BAS. Primary psychopathy (i.e., the interpersonal and affective features) comprises low BIS reactivity whereas secondary psychopathy (i.e., the behavioral features) comprises high BAS reactivity (Newman, MacCoon, Vaughn, & Sadeh, 2005; Ross et al., 2007; Ross et al., 2008; Wallace, Malterer, & Newman, 2010). Both dimensions of psychopathy are positively associated with an overactive BAS, but an underactive BIS is significantly associated only with primary psychopathy and not secondary psychopathy (e.g., Ross et al., 2007).

Because dimensions of psychopathy are differentially related to indices of negative emotionality and measures of BIS and BAS, individual differences in BIS/BAS sensitivity may mediate the associations among dimensions of psychopathy and depression. Future research should incorporate self-report BIS/BAS measures (e.g., Carver & White, 1994), and potentially other psychobiological indices (e.g., Cloninger, Svrakic, & Przybeck, 1993), to elucidate how neurobiological systems differentially undergird the correlations among dimensions of psychopathy and depression. Indeed, psychobiological dimensions, like BIS/BAS, may be the core mechanisms through which psychopathy relates to depression.

Etiology. Future research should also use longitudinal designs to assess how psychopathy and depression develop over time. As noted earlier, despite the volumes of research investigating the causal relationships among personality traits and depression, there is no single consensual etiological model (see Klein, Kotov, & Bufferd, 2011, for a review). For instance, some theories, such as the *precursor model*, posit that one construct precedes the other and increases its risk of

development. For example, according to this model, psychopathic traits may develop first and confer risk for depressive symptomology through shared, albeit sequential, etiological processes combined with certain environmental influences (e.g., negative life events, such as interpersonal, legal, or academic problems).

Other frameworks, such as the *continuum/spectrum model* (Klein, Kotov, & Bufferd, 2011), propose that the two constructs share a common etiology, such as mutual levels of BIS/BAS activation, that give rise to both psychopathic traits and depression, and largely overlap along a continuum of functional impairment; in accordance with this model, psychopathy and depression may share risk factors and develop in conjunction with no specific causal order. Behavioral genetic studies lend support for this developmental theory, as one study demonstrated that genetic factors partially mediated the relations among psychopathy subdimensions and internalizing and externalizing pathologies, indicating that shared genetic factors give rise to psychopathic traits, on the one hand, and internalizing and externalizing psychopathology, on the other (Blonigen et al., 2005).

Moreover, there is evidence that primary and secondary features of psychopathy comprise distinct and at least partially independent etiological pathways (e.g., Fowles & Dindo, 2006; Patrick, Fowles, & Krueger, 2009), raising the possibility that the relations among dimensions of psychopathy and depression also arise from separate developmental processes (e.g., Blonigen et al., 2005). Through examining the etiological mechanisms underlying the manifestation of psychopathy and depression, it would be possible to parse shared risk factors from nonshared (i.e., individual) risk factors for dimensions of psychopathy and negative emotionality. Along these lines, Blonigen and colleagues (2005) demonstrated that Boldness was associated with decreased genetic risk for internalizing psychopathology, whereas Disinhibition

was associated with increased genetic risk for externalizing psychopathology. These findings are broadly consistent with the present findings, but also suggest that psychopathic traits and depression may co-occur at a genetic level arising from shared neurobiological mechanisms. Future research should identify shared etiological risk factors for psychopathy and depression and elucidate how the two develop over time.

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Table 1. *Intercorrelations between psychopathy measures in Sample 1.*

Psychopathic Traits	Mean (SD)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. PPI-R Total	281.16 (40.75)	(0.95)									
2. PPI-R Fearless Dominance	103.72 (21.58)	**0.70**	(0.94)								
3. PPI-R Self-Centered Impulsivity	142.59 (26.09)	**0.79**	*0.15*	(0.94)							
4. PPI-R Coldeartedness	34.85 (8.02)	**0.37**	**0.37**	**0.35**	(0.88)						
5. TriPM Boldness[1]	53.68 (11.79)	**0.64**	**0.97**	0.10	**0.33**	(0.82)					
6. TriPM Disinhibition[1]	35.99 (7.35)	**0.60**	-0.05	**0.89**	**0.27**	-0.08	(0.89)				
7. TriPM Meanness[1]	38.31 (8.46)	**0.73**	**0.37**	**0.55**	**0.94**	**0.31**	**0.41**	(0.87)			
8. LSRP Egocentricity	18.67 (6.52)	**0.59**	**0.27**	**0.56**	**0.47**	**0.22**	**0.21**	**0.59**	(0.90)		
9. LSRP Callousness	7.03 (2.67)	**0.55**	**0.24**	**0.51**	**0.51**	**0.19**	**0.40**	**0.58**	**0.65**	(0.74)	
10. LSRP Antisociality	9.67 (3.22)	**0.36**	-0.10*	**0.59**	*0.16*	*-0.13*	**0.60**	**0.28**	**0.60**	**0.42**	(0.77)

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.

LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; TriPM = Triarchic Psychopathy Measure Internal consistencies (Cronbach's alphas) are reported along the diagonal.

[1]In this sample, the TriPM dimensions were derived from the PPI-R.

Table 2. *Intercorrelations between psychopathy measures in Sample 2.*

Psychopathic Traits	Mean (SD)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. PPI-R Total	272.10 (42.41)	(0.95)									
2. PPI-R Fearless Dominance	103.64 (21.34)	**0.69**	(0.93)								
3. PPI-R Self-Centered Impulsivity	135.99 (27.84)	**0.82**	**0.20**	(0.94)							
4. PPI-R Coldeartedness	32.46 (8.29)	**0.57**	**0.31**	**0.33**	(0.88)						
5. TriPM Boldness	48.48 (9.62)	**0.43**	**0.82**	-0.04	**0.21**	(0.87)					
6. TriPM Disinhibition	35.99 (7.35)	**0.60**	0.09	**0.79**	**0.22**	**-0.17**	(0.88)				
7. TriPM Meanness	30.70 (9.33)	**0.71**	**0.28**	**0.68**	**0.71**	0.05	**0.64**	(0.91)			
11. LSRP Egocentricity	17.56 (6.04)	**0.70**	**0.29**	**0.70**	**0.70**	0.07	**0.59**	**0.74**	(0.89)		
12. LSRP Callousness	6.89 (2.65)	**0.56**	**0.29**	**0.44**	**0.44**	0.12*	**0.31**	**0.56**	**0.51**	(0.72)	
13. LSRP Antisociality	9.46 (3.21)	**0.46**	-0.06	**0.71**	*0.17*	**-0.21**	**0.72**	**0.55**	**0.53**	**0.23**	(0.74)

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; TriPM = Triarchic Psychopathy Measure
Internal consistencies (Cronbach's alphas) are reported along the diagonal.

Table 3. *Intercorrelations between internalizing measures in Sample 2.*

Internalizing Constructs	Mean (SD)	(1)	(2)	(3)	(4)
1. CESD-R	13.71 (14.99)[1]	(0.95)[1]			
2. PROMIS Depression	14.68 (7.78)	**0.88**	(0.96)		
3. PROMIS Anxiety	15.60 (7.92)	**0.80**	**0.84**	(0.96)	
4. PROMIS Anger	11.71 (4.34)	**0.66**	**0.67**	**0.65**	(0.92)

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales
Internal consistencies (Cronbach's alphas) are reported along the diagonal.
[1] Mean = 17.69 (SD = 17.13), $\alpha = 0.97$ in Sample 1

Table 4. *Relations between psychopathy and depression.*

Psychopathic Traits	CESD-R Total		PROMIS Depression
(Sample)	**(1)**	**(2)**	**(2)**
PPI-R Total	-0.09	**0.18**[1]	*0.15*
PPI-R Fearless Dominance	**-0.42**[1]	**-0.22**	**-0.28**
Stress Immunity	**-0.55**	**-0.45**	**-0.50**
Social Influence	**-0.38**	**-0.20**	**-0.25**
Fearlessness	-0.09	*0.14*	0.10*
PPI-R Self-Centered Impulsivity	**0.27**[a]	**0.45**	**0.46**
Carefree Nonplanfulness	**0.19**	**0.27**	**0.28**
Machiavellian Egocentricity	0.09	**0.34**	**0.34**
Blame Externalization	**0.41**	**0.44**	**0.47**
Rebellious Nonconformity	0.11*	**0.35**	**0.32**
PPI-R Coldheartedness	*-0.15*[1]	-0.04	-0.04
TriPM Boldness[2]	**-0.40**	**-0.38**	**-0.46**
TriPM Disinhibition	**0.33**	**0.53**	**0.52**
TriPM Meanness	-0.07	**0.30**	**0.28**
LSRP Egocentricity	-0.06	**0.27**	**0.25**
LSRP Callousness	-0.01	0.08	0.10*
LSRP Antisociality	**0.28**	**0.50**[1]	**0.51**

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.

[a] Denotes a significant gender moderation effect.

CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales; TriPM = Triarchic Psychopathy Measure

[1] Denotes significant sample moderation of the relations between psychopathy dimensions and CESD-R total, with the superscript indicating for which sample the effect was stronger

[2] In Sample 1, the TriPM dimensions were derived from the PPI-R.

Table 5. *Relations between psychopathy and negative emotionality (anxiety and anger).*

Psychopathic Traits	PROMIS Anxiety	PROMIS Anger
PPI-R Total	0.06	0.13*
PPI-R Fearless Dominance	**-0.35**	**-0.20**
Stress Immunity	**-0.63**	**-0.45**
Social Influence	**-0.26**	-0.12*
Fearlessness	0.06	0.10*
PPI-R Self-Centered Impulsivity	**0.41**	**0.37**
Carefree Nonplanfulness	**0.20**	*0.15*
Machiavellian Egocentricity	**0.29**	**0.35**
Blame Externalization	**0.45**	**0.39**
Rebellious Nonconformity	**0.31**	**0.25**
PPI-R Coldheartedness	*-0.14*	-0.08
TriPM Boldness[1]	**-0.45**	**-0.28**
TriPM Disinhibition	**0.46**	**0.41**
TriPM Meanness	**0.19**	**0.24**
LSRP Egocentricity	**0.17**	**0.26**
LSRP Callousness	0.01	0.04
LSRP Antisociality	**0.48**	**0.52**

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales; TriPM = Triarchic Psychopathy Measure
[1] In Sample 1, the TriPM dimensions were derived from the PPI-R.

Table 6. *Statistical interactions among dimensions of psychopathy in predicting depression.*

Predictor	Interaction term	Outcome	Sample One								Sample Two							
			R^2	ΔR^2	β	SE β	B	SE B	*p*	95% Confidence Interval	R^2	ΔR^2	β	SE β	B	SE B	*p*	95% Confidence Interval
PPI-R Fearless Dominance	**PPI-R Self-centered Impulsivity**	**CESD-R**	0.296	0.005	-0.070	0.002	-0.003	0.002	0.154	-0.008 – 0.001	0.303	0.004	0.064	0.001	0.002	0.001	0.238	-0.001 – 0.005
	PPI-R Coldheartedness		0.181	0.001	0.031	0.006	0.004	0.005	0.443	-0.006 – 0.014	0.060	0.013	0.116	0.004	0.009	0.006	0.113	-0.002 – 0.020
PPI-R Self-centered Impulsivity	**PPI-R Coldheartedness**		0.148	0.010	-0.100	0.006	-0.014	0.006	**0.032**	-0.260 – -0.001	0.246	0.003	0.059	0.003	0.004	0.004	0.372	-0.004 – 0.012
TriPM Boldness[1]	**TriPM Disinhibition**		0.253	0.007	-0.085	0.013	-0.026	0.013	**0.042**	-0.051 – -0.001	0.367	0.002	-0.049	0.007	-0.009	0.008	0.269	-0.024 – 0.007
	TriPM Meanness		0.162	0.000	-0.001	0.010	0.000	0.009	0.158	-0.080 – 0.493	0.244	0.002	-0.042	0.008	-0.007	0.009	0.414	-0.025 – 0.010
TriPM Disinhibition	**TriPM Meanness**		0.161	0.007	-0.088	0.020	-0.038	0.018	**0.037**	-0.074 – -0.002	0.278	0.014	0.138	0.006	0.016	0.007	**0.026**	0.002 – 0.030
PPI-R Fearless Dominance	**PPI-R Self-centered Impulsivity**	**PROMIS Depression**	—	—	—	—	—	—	—	—	0.354	0.354	0.014	0.001	0.000	0.001	0.783	-0.001 – 0.002
	PPI-R Coldheartedness		—	—	—	—	—	—	—	—	0.090	0.090	0.088	0.002	0.004	0.003	0.166	-0.002 – 0.008
PPI-R Self-centered Impulsivity	**PPI-R Coldheartedness**		—	—	—	—	—	—	—	—	0.252	0.252	0.020	0.001	0.001	0.002	0.727	-0.003 – 0.004
TriPM Boldness	**TriPM Disinhibition**		—	—	—	—	—	—	—	—	0.425	0.425	-0.080	0.003	-0.007	0.004	0.050	-0.014 – 0.000
	TriPM Meanness		—	—	—	—	—	—	—	—	0.302	0.302	-0.051	0.004	-0.005	0.004	0.257	-0.013 – 0.003
TriPM Disinhibition	**TriPM Meanness**		—	—	—	—	—	—	—	—	0.268	0.268	0.067	0.003	0.004	0.003	0.172	-0.002 – 0.010

Note: Bolded is $p<0.05$.
CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; PPI-R = Psychopathic Personality Inventory – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales; TriPM = Triarchic Psychopathy Measure
[1] In Sample 1, the TriPM dimensions were derived from the PPI-R.

Table 7. *Incremental validity of psychopathy above and beyond general personality features.*

Predictor	Incremental Predictor	Outcome	Sample One					Sample Two				
			R^2	ΔR^2	β	SE β	*p*	R^2	ΔR^2	β	SE β	*p*
Extraversion, Emotionality/Neuroticism[1]	**PPI-R Total**	**CESD-R**	0.353	0.018	0.158	0.032	*0.001*	0.431	0.050	0.238	0.014	**p<0.001**
	PPI-R Fearless Dominance		0.342	0.007	0.165	0.098	0.029*	0.407	0.026	0.227	0.036	**p<0.001**
	PPI-R Self-centered Impulsivity		0.361	0.027	0.171	0.044	**p<0.001**	0.436	0.055	0.258	0.021	**p<0.001**
	PPI-R Coldheartedness		0.338	0.004	-0.080	0.177	0.114	0.384	0.003	0.056	0.069	0.145
	TriPM Boldness[2]		0.345	0.011	0.189	0.169	*0.008*	0.382	0.000	-0.020	0.087	0.721
	TriPM Disinhibition		0.354	0.019	0.150	0.162	**p<0.001**	0.473	0.090	0.332	0.063	**p<0.001**
	TriPM Meanness		0.335	0.000	-0.005	0.158	0.914	0.419	0.039	0.201	0.059	**p<0.001**
	LSRP Egocentricity		0.335	0.001	-0.027	0.176	0.507	0.423	0.040	0.203	0.095	**p<0.001**
	LSRP Callousness		0.335	0.000	0.018	0.430	0.663	0.394	0.010	0.100	0.218	*0.009*
	LSRP Antisociality		0.342	0.008	0.093	0.367	0.028*	0.415	0.036	0.227	0.210	**p<0.001**
Extraversion, Emotionality/Neuroticism	**PPI-R Total**	**PROMIS Depression**						0.478	0.041	0.216	0.007	**p<0.001**
	PPI-R Fearless Dominance							0.451	0.014	0.165	0.018	*0.001*
	PPI-R Self-centered Impulsivity							0.489	0.052	0.251	0.011	**p<0.001**
	PPI-R Coldheartedness							0.440	0.003	0.058	0.034	0.113
	TriPM Boldness							0.446	0.005	-0.100	0.043	0.060
	TriPM Disinhibition							0.523	0.077	0.308	0.031	**p<0.001**
	TriPM Meanness							0.470	0.033	0.184	0.030	**p<0.001**
	LSRP Egocentricity							0.474	0.031	0.179	0.047	**p<0.001**
	LSRP Callousness							0.452	0.016	0.127	0.107	*0.001*
	LSRP Antisociality							0.474	0.035	0.223	0.103	**p<0.001**

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales; TriPM = Triarchic Psychopathy Measure
[1]In Sample 1, the HEXACO-PI was used in which Extraversion and Emotionality were the two general personality predictors. In Sample 2, the BFI-44 was used in which Extraversion and Neuroticism were the two general personality predictors.
[2] In Sample 1, the TriPM dimensions were derived from the PPI-R.

Appendices

S1. *Comparison of mean depression and psychopathy scores to other study samples.*

Study	Population (Outcome)	Mean (SD)	Sample Size (*N*)	Sample One				Sample Two			
				t	***df***	***p***	***d***	***t***	***df***	***p***	***d***
Depression											
Van Dam & Earleywine (2011)	Community (CESD-R total)	10.70 (11.70)	6,971	8.948	429	**p<0.001**	0.477	4.779	440	**p<0.001**	0.224
Van Dam & Earleywine (2011)	Undergraduate (CESD-R total)	16.40 (13.50)	243	1.565	429	0.118	0.084	-3.767	440	**p<0.001**	0.189
Miller, Few, Wilson, et al. (2013)	Clinical (PROMIS Depression total)	22.20 (9.17)	109	—	—	—	—	-20.285	440	**p<0.001**	0.884
Miller, Gentile, & Campbell (2013)	Undergraduate (PROMIS Depression total)	15.84 (7.28)	287	—	—	—	—	-3.127	440	*0.002*	0.153
Psychopathy											
Uzieblo et al. (2012)	Community (PPI-R total)	276.96 (34.38)	675	2.137	429	0.033*	0.111	-2.409	440	0.016*	0.126
Copestake, Gray, & Snowden (2011)	Forensic (PPI-R total)	268.08 (44.29)	52	6.656	429	**p<0.001**	0.307	1.989	440	0.047*	0.095
Miller, Few, Seibert, et al. (2012)	Undergraduate (PPI-R total)	290.81 (34.75)	789	-4.910	429	**p<0.001**	0.255	-9.268	440	**p<0.001**	0.483

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; PPI-R = Psychopathic Personality Inventory – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales

S2. *Differences between sample demographics for the total sample.*

Outcome	Total Sample							
			Levene's Test for Equality of Variances		*t*-test for Equality of Means			
	Mean (SD)		***F***	***p***	***t***	***df***	***p***	***d***
Sample	(1)	(2)						
Age	36.53 (12.03)	35.05 (10.68)	8.781	*0.003*	1.910	863	0.056	0.130
Psychopathy								
PPI-R Total	281.16 (40.75)	272.10 (42.41)	1.382	0.240	3.215	869	*0.001*	0.218
PPI-R Fearless Dominance	103.72 (21.58)	103.64 (21.34)	0.366	0.546	0.056	869	0.955	0.004
PPI-R Self-Centered Impulsivity	142.59 (26.09)	135.99 (27.84)	3.090	0.079	3.607	869	***p*<0.001**	0.245
PPI-R Coldheartedness	34.85 (8.02)	32.46 (8.29)	1.008	0.316	4.315	869	***p*<0.001**	0.293
LSRP Egocentricity	18.67 (6.52)	17.56 (6.04)	0.579	0.447	2.584	854	0.010*	0.177
LSRP Callousness	7.03 (2.67)	6.89 (2.65)	0.002	0.967	0.763	857	0.445	0.052
LSRP Antisociality	9.67 (3.22)	9.46 (3.21)	1.300	0.255	0.964	856	0.335	0.065
Depression								
CESD-R Depression	17.69 (17.13)	13.71 (14.99)	9.367	*0.002*	3.653	869	0.014*	0.247

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised

S3. *Differences between sample demographics for males and females.*

Outcome	Males								Females							
			Levene's Test for Equality of Variances		*t*-test for Equality of Means						Levene's Test for Equality of Variances		*t*-test for Equality of Means			
	Mean (SD)		***F***	***p***	***t***	***df***	***p***	***d***	Mean (SD)		***F***	***p***	***t***	***df***	***p***	***d***
Sample	(1)	(2)							(1)	(2)						
Age	34.63 (11.06)	33.55 (9.61)	3.932	0.048*	1.004	370	0.316	0.104	38.21 (12.62)	36.07 (11.15)	6.778	0.010*	1.979	484	0.048*	0.180
Psychopathy																
PPI-R Total	299.34 (36.75)	288.65 (38.63)	0.786	0.376	2.741	372	*0.006*	0.284	265.89 (37.45)	260.36 (41.31)	2.108	0.147	1.545	487	0.123	0.140
PPI-R Fearless Dominance	112.61 (20.62)	111.10 (18.94)	1.298	0.255	0.738	372	0.461	0.076	96.48 (19.57)	98.52 (21.53)	2.477	0.116	-1.095	487	0.274	0.099
PPI-R Self-Centered Impulsivity	149.16 (25.61)	141.82 (28.23)	1.715	0.191	2.635	372	*0.009*	0.272	136.85 (25.18)	131.63 (26.73)	2.121	0.146	2.218	487	0.027*	0.201
PPI-R Coldheartedness	37.57 (7.65)	35.73 (7.76)	0.045	0.832	2.305	372	0.022*	0.239	32.56 (7.57)	30.21 (7.89)	0.620	0.431	3.353	487	*0.001*	0.304
LSRP Egocentricity	20.63 (6.68)	19.47 (6.05)	1.610	0.205	1.705	367	0.089	0.182	17.07 (5.92)	16.23 (5.72)	0.001	0.978	1.618	477	0.106	0.144
LSRP Callousness	7.78 (2.75)	7.58 (2.40)	3.133	0.078	0.618	366	0.537	0.077	6.40 (2.45)	6.39 (2.69)	0.922	0.337	0.133	481	0.894	0.004
LSRP Antisociality	10.06 (3.29)	9.89 (3.21)	0.149	0.700	0.470	365	0.639	0.052	9.38 (3.15)	9.17 (3.19)	0.763	0.383	0.758	481	0.449	0.066
Depression																
CESD-R Depression	17.85 (17.90)	13.57 (15.41)	6.025	0.015*	2.473	372	0.014*	0.256	17.57 (16.51)	13.82 (14.76)	3.042	0.082	2.650	487	*0.008*	0.239

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised

S4. *Differences in the magnitudes of correlations between psychopathy and internalizing features in Sample 2.*

Comparisons	**CESD-R vs. PROMIS Depression**		**PROMIS Depression vs. PROMIS Anxiety**		**PROMIS Depression vs. PROMIS Anger**		**PROMIS Anxiety vs. PROMIS Anger**	
	Z	***p***	**Z**	***p***	**Z**	***p***	**Z**	***p***
PPI-R Total	1.229	0.219	3.170	*0.002*	0.492	0.622	-1.665	0.096
PPI-R Fearless Dominance	2.509	0.012*	2.594	*0.009*	-2.019	0.043*	-3.735	**p<0.001**
PPI-R Self-Centered Impulsivity	-0.457	0.648	1.962	0.049*	2.457	0.014*	1.044	0.297
PPI-R Coldheartedness	0.000	1.000	3.518	**p<0.001**	0.976	0.329	-1.429	0.153
TriPM Boldness	3.596	**p<0.001**	-0.397	0.692	-4.829	**p<0.001**	-4.414	**p<0.001**
TriPM Disinhibition	0.480	0.631	2.443	0.015*	3.111	*0.002*	1.341	0.180
TriPM Meanness	0.846	0.398	3.252	*0.001*	1.015	0.310	-1.216	0.224
LSRP Egocentricity	0.838	0.402	2.870	*0.004*	-0.253	0.800	-2.191	0.028*
LSRP Callousness	-0.811	0.402	3.156	*0.002*	1.466	0.143	-0.709	0.478
LSRP Antisociality	-0.473	0.637	1.224	0.221	-0.293	0.770	-1.126	0.260

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales; TriPM = Triarchic Psychopathy Measure

S5. *Mean differences in psychopathy and internalizing features by gender.*

Outcome	Sample One								Sample Two							
	Males	Females	Levene's Test for Equality of Variances		*t*-test for Equality of Means				Males	Females	Levene's Test for Equality of Variances		*t*-test for Equality of Means			
	Mean (SD)		*F*	*p*	*t*	*df*	*p*	*d*	Mean (SD)		*F*	*p*	*t*	*df*	*p*	*d*
Psychopathy																
PPI-R Total	299.34 (36.75)	265.89 (37.45)	0.983	0.322	9.255	424	**p<0.001**	0.902	288.65 (38.63)	260.36 (41.31)	1.687	0.195	7.242	435	**p<0.001**	0.708
PPI-R Fearless Dominance	112.61 (20.62)	96.48 (19.57)	0.402	0.526	8.267	424	**p<0.001**	0.802	111.10 (18.94)	98.52 (21.53)	10.879	*0.001*	6.318	435	**p<0.001**	0.620
PPI-R Self-Centered Impulsivity	149.16 (25.61)	136.85 (25.18)	0.344	0.558	4.982	424	**p<0.001**	0.485	141.82 (28.23)	131.63 (26.73)	0.404	0.525	3.835	435	**p<0.001**	0.371
PPI-R Coldheartedness	37.57 (7.65)	32.56 (7.57)	0.087	0.769	6.769	424	**p<0.001**	0.658	35.73 (7.76)	30.21 (7.89)	0.049	0.826	7.258	435	**p<0.001**	0.705
TriPM Boldness	58.18 (11.31)	50.01 (10.89)	0.367	0.545	7.571	424	**p<0.001**	0.736	51.07 (8.39)	46.72 (9.99)	8.483	*0.004*	4.771	430	**p<0.001**	0.472
TriPM Disinhibition	37.18 (7.02)	34.91 (7.45)	0.310	0.578	3.200	424	**0.001**	0.314	36.55 (10.04)	33.61 (8.93)	2.693	0.102	3.154	416	*0.002*	0.309
TriPM Meanness	41.59 (8.14)	35.55 (7.67)	0.144	0.705	7.884	424	**p<0.001**	0.764	33.97 (9.59)	28.37 (8.41)	5.240	0.023*	6.356	420	**p<0.001**	0.621
LSRP Egocentricity	20.63 (6.68)	17.07 (5.92)	5.563	**0.019**	5.834	424	**p<0.001**	0.548	19.47 (6.05)	16.23 (5.72)	1.427	0.233	5.596	420	**p<0.001**	0.550
LSRP Callousness	7.78 (2.75)	6.40 (2.45)	1.494	0.222	5.455	424	**p<0.001**	0.530	7.58 (2.40)	6.39 (2.69)	2.277	0.132	4.691	423	**p<0.001**	0.467
LSRP Antisociality	10.06 (3.29)	9.38 (3.15)	0.174	0.677	2.185	424	0.029*	0.211	9.89 (3.21)	9.17 (3.19)	0.023	0.879	2.290	422	0.023*	0.225
Internalizing Features																
CESD-R Depression	17.85 (17.90)	17.57 (16.51)	2.043	0.154	0.199	424	0.842	0.019	13.57 (15.41)	13.82 (14.76)	0.216	0.642	-0.173	435	0.863	0.017
PROMIS Depression	—	—	—	—	—	—	—	—	14.81 (7.70)	14.63 (7.89)	0.121	0.728	0.229	435	0.728	0.023
PROMIS Anxiety	—	—	—	—	—	—	—	—	15.21 (7.64)	15.88 (8.09)	0.456	0.826	7.258	435	0.387	0.085
PROMIS Anger	—	—	—	—	—	—	—	—	11.69 (4.66)	11.76 (4.09)	3.597	0.059	-0.163	435	0.870	0.016

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.

CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales; TriPM = Triarchic Psychopathy Measure

S6. *Relations between psychopathy and HEXACO personality in Sample 1.*

HEXACO Scales	PPI-R Total	PPI-R FD	PPI-R SCI	PPI-R C	TriPM B	TriPM DI	TriPM M	LSRP Total	LSRP Factor 1	LSRP Factor 2	LSRP Egocentricity	LSRP Callousness	LSRP Antisociality
Honesty Humility	**-0.62**	**-0.29**	**-0.59**	**-0.44**	**-0.23**	**-0.39**	**-0.57**	**-0.56**	**-0.61**	**-0.33**	**-0.58**	**-0.50**	**-0.34**
Sincerity	**-0.38**	*-0.15*	**-0.40**	**-0.23**	-0.09	**-0.24**	**-0.34**	**-0.37**	**-0.39**	**-0.24**	**-0.36**	**-0.35**	**-0.23**
Fairness	**-0.48**	-0.07	**-0.57**	**-0.39**	-0.03	**-0.49**	**-0.49**	**-0.52**	**-0.51**	**-0.41**	**-0.46**	**-0.47**	**-0.40**
Greed Avoidance	**-0.35**	**-0.23**	**-0.29**	**-0.23**	**-0.20**	*-0.14*	**-0.31**	**-0.30**	**-0.37**	-0.11*	**-0.38**	**-0.23**	*-0.16*
Modesty	**-0.66**	**-0.47**	**-0.49**	**-0.46**	**-0.39**	**-0.28**	**-0.59**	**-0.48**	**-0.57**	**-0.22**	**-0.53**	**-0.47**	**-0.20**
Emotionality	**-0.52**	**-0.66**	-0.08	**-0.60**	**-0.65**	0.02	**-0.52**	*-0.16*	**-0.26**	0.05	**-0.23**	**-0.23**	0.09
Fearful	**-0.54**	**-0.69**	*-0.16*	**-0.35**	**-0.71**	-0.06	**-0.34**	-0.10*	**-0.17**	0.04	*-0.16*	*-0.15*	0.04
Anxiety	**-0.37**	**-0.67**	0.09	**-0.37**	**-0.64**	*0.16*	**-0.28**	-0.03	*-0.14*	**0.18**	*-0.14*	*-0.13*	**0.22**
Dependence	*-0.16*	**-0.28**	0.09	**-0.35**	**-0.31**	*0.14*	**-0.26**	-0.02	-0.08	0.10*	-0.06	-0.03	0.10*
Sentimentality	**-0.46**	**-0.29**	**-0.26**	**-0.70**	**-0.26**	**-0.19**	**-0.66**	**-0.34**	**-0.39**	**-0.17**	**-0.33**	**-0.35**	-0.12*
Extraversion	**0.24**	**0.73**	**-0.23**	0.03	**0.70**	**-0.38**	-0.02	*-0.16*	-0.01	**-0.39**	0.01	-0.02	**-0.35**
Expressiveness	-0.05	**0.48**	**-0.47**	-0.01	**0.47**	**-0.58**	-0.10*	**-0.35**	**-0.20**	**-0.53**	**-0.19**	**-0.21**	**-0.50**
Social Boldness	**0.43**	**0.72**	0.03	*0.15*	**0.72**	*-0.13*	*0.14*	0.01	0.12	**-0.19**	*0.13*	0.09	*-0.15*
Sociability	**0.25**	**0.54**	-0.04	-0.07	**0.52**	*-0.14*	-0.07	-0.02	0.07	**-0.18**	0.09	0.06	*-0.16*
Liveliness	0.08	**0.53**	**-0.31**	0.02	**0.49**	**-0.40**	-0.07	**-0.17**	-0.04	**-0.37**	-0.03	-0.04	**-0.34**
Agreeableness	**-0.35**	0.10*	**-0.55**	**-0.27**	0.11*	**-0.45**	**-0.41**	**-0.43**	**-0.37**	**-0.44**	**-0.34**	**-0.29**	**-0.48**
Forgiveness	**-0.21**	*0.13*	**-0.38**	**-0.19**	*0.13*	**-0.30**	**-0.31**	**-0.27**	**-0.23**	**-0.26**	**-0.20**	**-0.18**	**-0.28**
Gentleness	**-0.38**	-0.03	**-0.46**	**-0.32**	-0.00	**-0.36**	**-0.44**	**-0.44**	**-0.41**	**-0.38**	**-0.37**	**-0.35**	**-0.39**
Flexibility	**-0.26**	0.06	**-0.39**	**-0.19**	0.05	**-0.28**	**-0.29**	**-0.27**	**-0.22**	**-0.28**	**-0.21**	*-0.14*	**-0.32**
Patience	**-0.27**	*0.15*	**-0.49**	**-0.17**	*0.15*	**-0.46**	**-0.28**	**-0.40**	**-0.31**	**-0.46**	**-0.30**	**-0.24**	**-0.52**
Conscientiousness	**-0.29**	**0.19**	**-0.54**	**-0.19**	**0.22**	**-0.67**	**-0.26**	**-0.39**	**-0.24**	**-0.55**	**-0.22**	**-0.29**	**-0.49**
Organization	**-0.17**	*0.16*	**-0.39**	-0.03	*0.17*	**-0.48**	-0.07	*-0.16*	-0.03	**-0.35**	-0.01	-0.10*	**-0.34**
Diligence	*-0.14*	**0.34**	**-0.44**	**-0.20**	**0.36**	**-0.57**	**-0.25**	**-0.38**	**-0.24**	**-0.54**	**-0.23**	**-0.25**	**-0.47**
Perfectionism	*-0.13*	0.10*	**-0.23**	**-0.18**	0.12*	**-0.34**	**-0.18**	**-0.18**	-0.11*	**-0.26**	-0.10*	*-0.16*	**-0.21**
Prudence	**-0.45**	-0.04	**-0.60**	**-0.18**	-0.01	**-0.65**	**-0.30**	**-0.45**	**-0.37**	**-0.50**	**-0.33**	**-0.39**	**-0.46**
Openness	0.00	**0.18**	-0.08	**-0.24**	**0.21**	*-0.15*	**-0.27**	**-0.27**	**-0.26**	**-0.22**	**-0.21**	**-0.21**	*-0.16*
Aesthetic Appreciation	-0.12*	0.03	-0.12*	**-0.29**	0.07	-0.12*	**-0.32**	**-0.25**	**-0.28**	*-0.15*	**-0.26**	**-0.23**	-0.10*
Inquisitiveness	-0.01	**0.18**	-0.11*	**-0.17**	**0.22**	*-0.15*	**-0.22**	**-0.27**	**-0.23**	**-0.26**	**-0.23**	**-0.17**	**-0.21**
Creativity	0.03	**0.22**	-0.08	**-0.19**	**0.22**	*-0.14*	**-0.21**	**-0.20**	**-0.18**	**-0.17**	**-0.17**	**-0.16**	*-0.13*
Unconventionality	0.10*	*0.16*	0.07	*-0.13*	**0.17**	-0.05	-0.11*	*-0.15*	*-0.14*	*-0.13*	*-0.14*	-0.11*	-0.08
Altruism	**-0.57**	*-0.16*	**-0.56**	**-0.65**	-0.12*	**-0.46**	**-0.74**	**-0.59**	**-0.60**	**-0.43**	**-0.54**	**-0.54**	**-0.39**

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.

HEXACO-PI = HEXACO Personality Inventory; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; TriPM = Triarchic Psychopathy Measure.

S7. *Relations between psychopathy and BFI-44 personality in Sample 2.*

Psychopathic Traits	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
PPI-R Total	**0.34**	**-0.46**	**-0.36**	-0.05	**0.16**
PPI-R Fearless Dominance	**0.62**	0.03	0.11*	**-0.54**	**0.28**
PPI-R Self-Centered Impulsivity	0.01	**-0.59**	**-0.61**	**0.39**	0.08
PPI-R Coldheartedness	0.12*	**-0.44**	-0.07	*-0.15*	*-0.15*
TriPM Boldness	**0.63**	**0.18**	**0.30**	**-0.60**	**0.33**
TriPM Disinhibition	-0.04	**-0.52**	**-0.62**	**0.41**	0.00
TriPM Meanness	0.02	**-0.65**	**-0.38**	*0.16*	-0.13*
LSRP Egocentricity	0.11*	**-0.54**	**-0.31**	0.12*	-0.08
LSRP Callousness	*0.16*	**-0.33**	*-0.17*	-0.03	-0.09
LSRP Antisociality	*-0.13*	**-0.62**	**-0.64**	**0.54**	-0.09

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
BFI-44 = Big Five Inventory—44 items; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; TriPM = Triarchic Psychopathy Measure

S8. *Relations between HEXACO personality and depression in Sample 1.*

HEXACO Scales	CESD-R Total
Honesty Humility	-0.03
Sincerity	-0.07
Fairness	**-0.21**
Greed Avoidance	0.08
Modesty	*0.14*
Emotionality	**0.31**
Fearful	**0.21**
Anxiety	**0.50**
Dependence	*0.13*
Sentimentality	0.05
Extraversion	**-0.56**
Expressiveness	**-0.58**
Social Boldness	**-0.32**
Sociability	**-0.34**
Liveliness	**-0.58**
Agreeableness	**-0.27**
Forgiveness	**-0.28**
Gentleness	*-0.16*
Flexibility	**-0.21**
Patience	**-0.20**
Conscientiousness	**-0.23**
Organization	**-0.27**
Diligence	**-0.29**
Perfectionism	0.01
Prudence	-0.12*
Openness	0.01
Aesthetic Appreciation	-0.02
Inquisitiveness	-0.02
Creativity	-0.04
Unconventionality	0.10*
Altruism	-0.12*

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; HEXACO-PI = HEXACO Personality Inventory

S9. *Relations between BFI-44 personality and depression in Sample 2.*

BFI-44 Dimensions	CESD-R Total	PROMIS Depression Total
Extraversion	**-0.24**	**-0.28**
Agreeableness	**-0.41**	**-0.42**
Conscientiousness	**-0.45**	**-0.44**
Neuroticism	**0.61**	**0.66**
Openness	-0.03	-0.06

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
BFI-44 = Big Five Inventory-44 items; CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scale

S10. *Intercorrelations between features of HEXACO personality in Sample 1.*

HEXACO Personality	Mean (SD)	(1)	(2)	(3)	(4)	(5)	(6)
1. Honesty Humility	55.05 (11.46)	(0.87)					
2. Emotionality	50.91 (10.45)	*0.12*	(0.85)				
3. Extraversion	50.32 (11.61)	-0.06	**-0.32**	(0.89)			
4. Agreeableness	50.47 (10.24)	**0.47**	-0.07	**0.35**	(0.87)		
5. Conscientiousness	58.08 (9.55)	**0.23**	-0.12*	**0.38**	**0.31**	(0.85)	
6. Openness	56.02 (10.10)	*0.14*	-0.07	**0.21**	*0.16*	**0.30**	(0.86)

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
HEXACO-PI = HEXACO Personality Inventory
Internal consistencies (Cronbach's alphas) are reported along the diagonal.

S11. *Intercorrelations between features of BFI personality in Sample 2.*

BFI-44 Personality	Mean (SD)	(1)	(2)	(3)	(4)	(5)
1. Extraversion	23.70 (7.57)	(0.89)				
2. Agreeableness	34.89 (6.59)	**0.21**	(0.84)			
3. Conscientiousness	35.60 (6.57)	**0.22**	**0.46**	(0.86)		
4. Neuroticism	21.46 (7.86)	**-0.39**	**-0.47**	**-0.51**	(0.90)	
5. Openness	35.90 (7.21)	**0.31**	0.11*	0.10*	-0.07	(0.80)

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
BFI-44 = Big Five Inventory-44 items
Internal consistencies (Cronbach's alphas) are reported along the diagonal.

S12. *Relations between BFI personality and other internalizing constructs in Sample 2.*

BFI-44 Dimensions	PROMIS Anxiety	PROMIS Anger
Extraversion	**-0.27**	**-0.17**
Agreeableness	**-0.36**	**-0.39**
Conscientiousness	**-0.44**	**-0.32**
Neuroticism	**0.73**	**0.58**
Openness	0.01	-0.05

Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.
BFI-44 = Big Five Inventory-44 items; PROMIS = Patient-Reported Outcomes Measurement Information System Scales

S13. *Incremental validity of general personality above and beyond psychopathy.*

Predictor	Incremental Predictor	Outcome	Sample One					Sample Two				
			R^2	ΔR^2	β	SE β	p	R^2	ΔR^2	β	SE β	p
PPI-R Total	**1. Extraversion**	**CESD-R**	0.353	0.346	-0.529	0.100	***p*<0.001**	0.431	0.398	-0.088	0.083	0.036*
	2. Emotionality/Neuroticism[1]				0.222	0.126	***p*<0.001**			0.594	0.075	**p<0.001**
PPI-R Fearless Dominance			0.342	0.162	-0.609	0.145	***p*<0.001**	0.407	0.361	-0.108	0.093	0.023*
					0.223	0.147	***p*<0.001**			0.698	0.084	**p<0.001**
PPI-R Self-Centered Impulsivity			0.361	0.291	-0.467	0.103	***p*<0.001**	0.436	0.233	-0.045	0.078	0.261
					0.174	0.112	***p*<0.001**			0.501	0.082	**p<0.001**
PPI-R Coldheartedness			0.338	0.316	-0.530	0.103	***p*<0.001**	0.380	0.383	-0.002	0.081	0.965
					0.092	0.144	0.083			0.625	0.075	**p<0.001**
TriPM Boldness[2]			0.345	0.187	-0.619	0.138	***p*<0.001**	0.382	0.238	0.009	0.096	0.852
					0.235	0.144	***p*<0.001**			0.610	0.090	**p<0.001**
TriPM Disinhibition			0.354	0.248	-0.453	0.108	***p*<0.001**	0.473	0.197	-0.049	0.077	0.211
					0.161	0.112	***p*<0.001**			0.464	0.081	**p<0.001**
TriPM Meanness			0.335	0.330	-0.516	0.104	***p*<0.001**	0.419	0.374	-0.035	0.082	0.394
					0.142	0.136	*0.005*			0.598	0.078	**p<0.001**
LSRP Egocentricity			0.335	0.331	-0.517	0.101	***p*<0.001**	0.419	0.351	-0.036	0.080	0.370
					0.138	0.116	*0.001*			0.581	0.078	**p<0.001**
LSRP Callousness			0.335	0.335	-0.513	0.102	***p*<0.001**	0.394	0.388	-0.013	0.083	0.746
					0.150	0.116	*0.001*			0.618	0.078	**p<0.001**
LSRP Antisociality			0.342	0.267	-0.482	0.107	***p*<0.001**	0.415	0.172	-0.021	0.080	0.610
					0.148	0.112	***p*<0.001**			0.484	0.091	**p<0.001**
PPI-R Total	**1. Extraversion**	**PROMIS Depression**	—	—	—	—	—	0.478	0.456	-0.111	0.041	*0.006*
	2. Emotionality/Neuroticism[1]		—	—	—	—	—			0.628	0.037	**p<0.001**

PPI-R Fearless Dominance	—	—	—	—	—	0.451	0.371	-0.109	0.047	0.017*
	—	—	—	—	—			0.707	0.042	**p<0.001**
PPI-R Self-Centered Impulsivity	—	—	—	—	—	0.489	0.281	-0.075	0.039	0.048*
	—	—	—	—	—			0.535	0.041	**p<0.001**
PPI-R Coldheartedness	—	—	—	—	—	0.440	0.439	-0.033	0.040	0.391
	—	—	—	—	—			0.656	0.039	**p<0.001**
TriPM Boldness	—	—	—	—	—	0.446	0.238	0.015	0.047	0.738
	—	—	—	—	—			0.610	0.044	**p<0.001**
TriPM Disinhibition	—	—	—	—	—	0.523	0.252	-0.083	0.038	0.025*
	—	—	—	—	—			0.508	0.040	**p<0.001**
TriPM Meanness	—	—	—	—	—	0.470	0.393	-0.068	0.039	0.080
	—	—	—	—	—			0.604	0.038	**p<0.001**
LSRP Egocentricity	—	—	—	—	—	0.474	0.413	-0.062	0.040	0.110
	—	—	—	—	—			0.620	0.038	**p<0.001**
LSRP Callousness	—	—	—	—	—	0.452	0.442	-0.050	0.040	0.210
	—	—	—	—	—			0.645	0.038	**p<0.001**
LSRP Antisociality	—	—	—	—	—	0.474	0.211	-0.053	0.039	0.172
	—	—	—	—	—			0.521	0.045	**p<0.001**

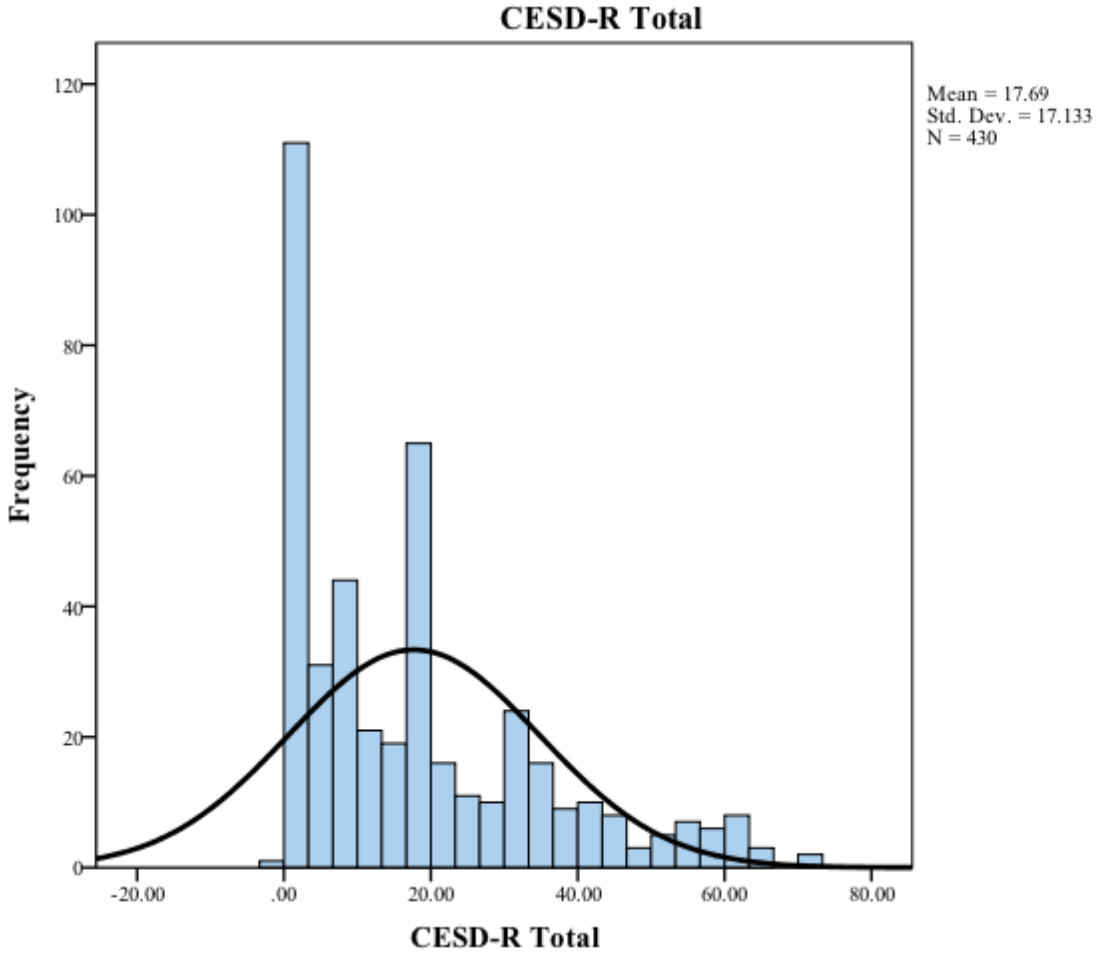
Note: Bolded is $p<0.001$, italicized is $p<0.01$, and * is $p<0.05$.

CESD-R = Center for Epidemiologic Studies Depression Scale – Revised; LSRP = Levenson Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory – Revised; PROMIS = Patient-Reported Outcomes Measurement Information System Scales; TriPM = Triarchic Psychopathy Measure

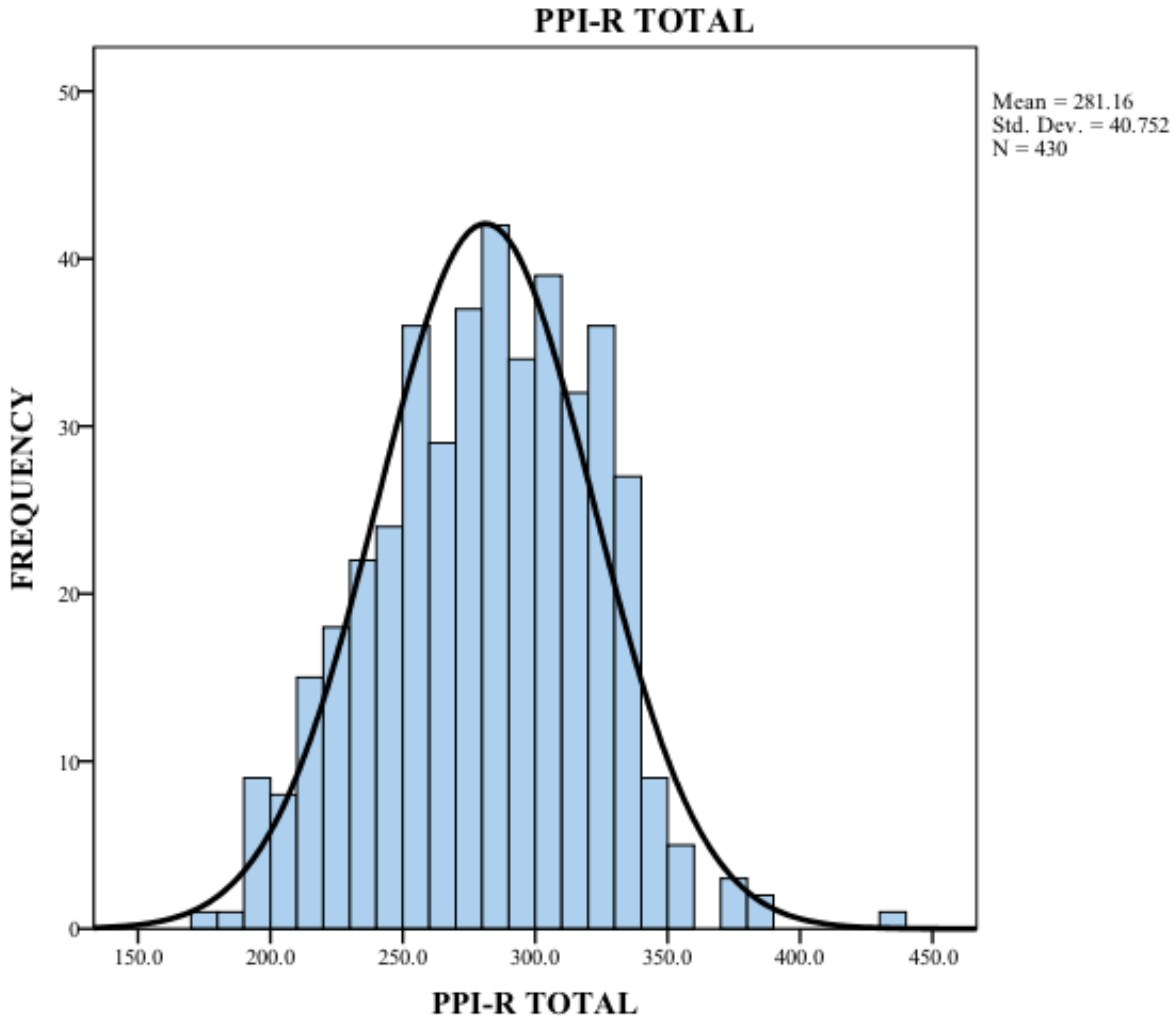
[1]In Sample 1, the HEXACO-PI was used in which Extraversion and Emotionality were the two general personality predictors. In Sample 2, the BFI-44 was used in which Extraversion and Neuroticism were the two general personality predictors.

[2] In sample 1, the TriPM dimensions were derived from the PPI-R.

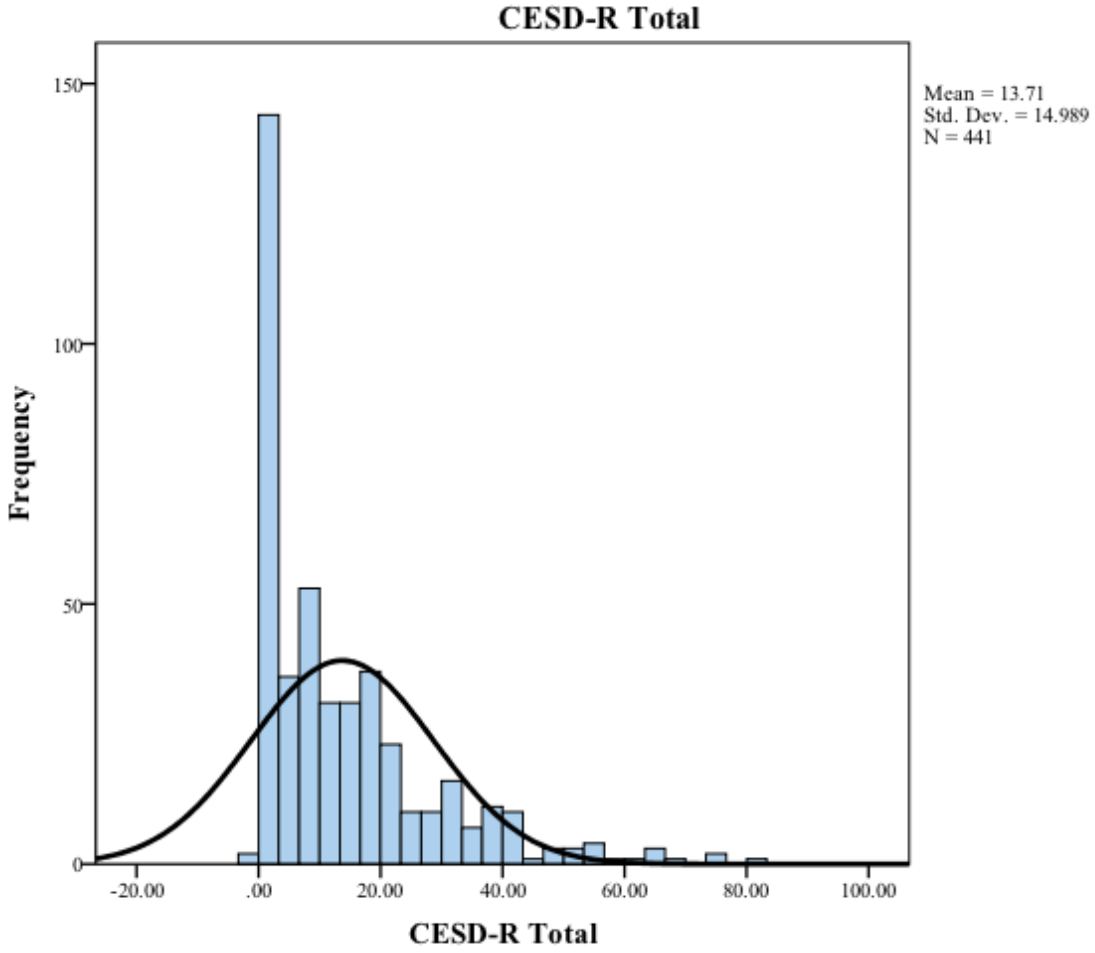
S14. *Distribution of CESD-R total scores in Sample 1.*



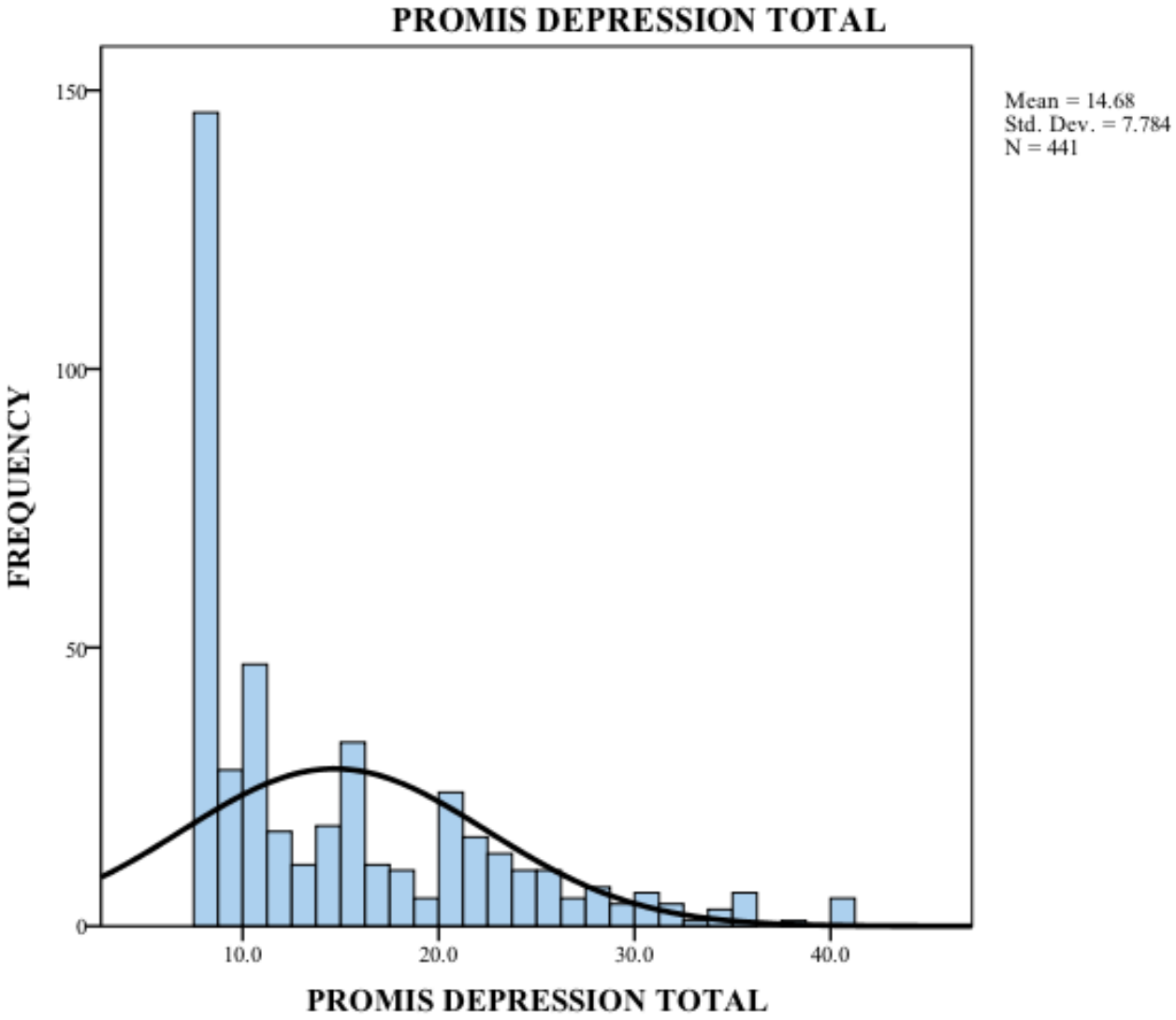
S15. *Distribution of PPI-R total scores in Sample 1.*



S16. *Distribution of CESD-R total scores in Sample 2.*



S17. *Distribution of PROMIS Depression total scores in Sample 2.*



S18. *Distribution of PPI-R total scores in Sample 2.*