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Triarchic Model of Psychopathy: Origins, Operationalizations, and Observed Linkages with Personality and General Psychopathology

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Abstract

The triarchic model (Patrick, Fowles, & Krueger, 2009) was formulated to reconcile contrasting conceptions of psychopathy reflected in historic writings and contemporary assessment instruments, and to address persisting unresolved issues in the field. The model conceives of psychopathy as encompassing three distinct but interrelated phenotypic dispositions—disinhibition, boldness, and meanness—with biological referents. These dispositional constructs can be viewed as building blocks for alternative conceptions of psychopathy, and various existing psychopathy measures are presumed to index these constructs to differing degrees. This article summarizes the bases of the triarchic model in the conceptual and empirical literatures on psychopathy, and it describes linkages between the constructs of the model and established structural frameworks for personality and psychological disorders. Alternative methods for indexing the constructs of the model are described, and evidence regarding their interrelations and criterion-related validity is reviewed. Promising aspects of the model for ongoing research on psychopathy are discussed, along with current gaps in knowledge/methods and recommended avenues for future research.

EMERGENCE OF THE TRIARCHIC MODEL OF PSYCHOPATHY

The triarchic model was formulated during a recent period when long-standing, unresolved issues in the study of psychopathy were being revisited and debated. One topic of discussion was the scope and boundaries of psychopathy as a construct and the merits and limitations of differing approaches to operationalizing it. Evidence supporting a dimensional as opposed to typological view of psychopathy (Guay, Ruscio, Knight, & Hare, 2007; Marcus, Johns, & Edens, 2004), along with findings demonstrating contrasting relations of separable factors or facets of psychopathy with various criterion measures (Hare, 2003; Patrick & Bernat, 2009) and distinct variants among high overall psychopathy scorers (Hicks, Markon, Patrick, Krueger, & Newman, 2004; Skeem, Johansson, Andershed, Kerr, & Louden, 2007), raised questions about the unitary versus configural nature of the construct. Alongside this, research with children and adolescents (Salekin, 2006) highlighted key questions regarding the comparability of psychopathy and its facets in youth compared to adults.

Other developments that fueled debate included (a) renewed interest in self-report assessment of psychopathy and questions regarding the content coverage of differing measures of this type in relation to clinical rating instruments (Lilienfeld & Fowler, 2006; Malterer, Lilienfeld, Neumann, & Newman, 2010; Poythress et al., 2010; see also Hare, 1985); (b) contrasting perspectives on the relationship between anxiety and psychopathy (e.g., Hare, 1991, 2003; Hicks & Patrick, 2006; Schmitt & Newman, 1999) and the role of adaptive versus maladaptive features in characterizing it (Hare & Neumann, 2008; Lynam, Hoyle, & Newman, 2006; Patrick, 2006); and (c) growing interest in the topic of "successful" psychopathy and how best to conceptualize and study it (Babiak & Hare, 2006; Hall & Benning, 2006; Ishikawa, Raine, Lencz, Bihrle, & Lacasse, 2001).

A further point that was debated with especial vigor during this period was whether antisocial or criminal behavior should be considered as a defining feature of psychopathy, or instead as a potential consequence or expression (Cooke & Michie, 2001; Cooke, Michie, & Hart, 2006; Cooke, Michie, Hart, &

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Clark, 2004; Hare & Neumann, 2006, 2008, 2010; Skeem & Cooke, 2010). A specific referent for this debate was the Psychopathy Checklist-Revised (PCL-R; Hare, 2003), which emphasizes criminal acts and activities in its scoring criteria. This emphasis was considered by some to depart from Cleckley's (1941/1976) criteria, which focused more on trait-like features, with mention of lawbreaking conduct limited to "inadequately motivated" (i.e., whimsical) antisocial behavior. Similar concerns (e.g., Frances, 1980; Hare, 1983; Hare, Hart, & Harpur, 1991) were raised about the diagnosis of antisocial personality disorder in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*; American Psychiatric Association [APA], 1980, 2000). Other discussion points included the need to separate symptom indicators from clinical outcomes in order to avoid criterion contamination (e.g., Lynam & Derefinko, 2006) and limits on the applicability of crime-oriented diagnostic criteria in nonforensic settings—particularly for identifying "successful" expressions of psychopathy (Babiak & Hare, 2006; Hall & Benning, 2006).

OVERVIEW OF THE TRIARCHIC MODEL

The triarchic model was formulated as a point of reference for reconciling differing historic conceptions of psychopathy and alternative approaches for assessing it, and for addressing long-standing points of contention. Additionally, the model was designed to serve as a vehicle for linking conceptions of psychopathy per se to broader dimensional models of normal personality and psychopathology, and for helping to organize and guide research on the etiology of psychopathy and core processes underlying its observable symptoms. Given limits of space, we provide only a brief overview of the triarchic model here before discussing in more detail notable features of the model and emerging empirical evidence pertaining to it. For more extensive accounts of the model and its conceptual and empirical foundations, readers are referred to other published reviews (Patrick, 2010a, 2013; Patrick et al., 2009; Patrick, Drislane, & Strickland, 2012; see also Skeem, Polaschek, Patrick, & Lilienfeld, 2011).

The triarchic model proposes that psychopathy as described historically and represented in differing assessment devices encompasses three distinct but intersecting symptomatic (phenotypic) constructs: disinhibition, boldness, and meanness. *Disinhibition* entails impulsiveness, weak restraint, hostility and mistrust, and difficulties in regulating emotion. *Meanness* entails deficient empathy, lack of affiliative capacity, contempt toward others, predatory exploitativeness, and empowerment through cruelty or destructiveness. The third construct in the triarchic model, *boldness*, entails proclivities toward confidence and social assertiveness, emotional resiliency, and venturesomeness.

From the perspective of the triarchic model, Cleckley's conception of psychopathy, derived from observations of psychiatric inpatients, emphasized boldness accompanied by disinhibition. By contrast, conceptions based on criminal offender populations—using measures like the PCL-R (Hare, 2003) and its youth-oriented counterparts, the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) and Child Psychopathy Scale (CPS; Lynam, 1997; Lynam et al., 2005)—emphasize tendencies toward meanness and disinhibition. According to the model, individuals high in disinhibition would warrant a diagnosis of psychopathy if also high in boldness and/or meanness, which contribute to a more detached (insouciant-persuasive or callous-predatory) expression of disinhibitory tendencies, but not if high on only one of these tendencies.

Key Features of the Triarchic Model

Basis in the Psychopathy Literature. The constructs of the triarchic model can be related to dimensional models of normal personality and psychopathology. However, the triarchic constructs derive specifically from the literature on psychopathy and thus reflect major descriptive themes highlighted in writings within this area. Lack of inhibitory control (disinhibition) along with predatory exploitativeness (meanness) are emphasized to varying degrees in historic conceptions of psychopathy and have clear referents in literatures on criminal psychopathy and externalizing problems in youth and adulthood. Specific referents for these constructs include separable subdimensions of impulsive/conduct problems (I/CP) and callous-unemotionality (CU) underlying psychopathic tendencies in childhood (Frick & Marsee, 2006; Frick & White, 2008) and corresponding disinhibitory and callous-aggression factors underlying impulse control (externalizing) problems in adulthood (Krueger, Markon, Patrick, Benning, & Kramer, 2007; Patrick, Kramer, Krueger, & Markon, 2013; see also Kendler, Aggen, & Patrick, 2012). Key referents for boldness include the "mask" features of Cleckley's (1941/1976) conception (i.e., ostensible charm and social poise, lack of anxiety or internalizing problems, low suicide risk); low fear accounts of psychopathy by Lykken (1957, 1995) and Hare (1965); and Fowles's (1980) weak behavioral inhibition (a.k.a. anxiety) theory, the fearless dominance factor of the Psychopathic Personality Inventory (PPI; Benning, Patrick, Blonigen, Hicks, & Iacono, 2005; Lilienfeld & Widows, 2005), and developmental research on fearless temperament as a precursor to psychopathy (cf. Fowles & Dindo, 2009). While it should be acknowledged that the role of boldness in psychopathy has itself been the focus of recent debate (e.g., Lilienfeld et al., 2012; Lynam & Miller, 2012; Marcus, Fulton, & Edens, 2012; Miller & Lynam, 2012; Patrick, Venables, & Drislane, 2013; see also Venables, Hall, & Patrick, 2014), it is nonetheless clear that tendencies of this kind have been emphasized in some influential historic accounts.

Links to Neurobiology. Another notable feature of the triarchic model is that its facet constructs also have biobehavioral referents and show reliable associations with relevant neurophysiological indicators. These linkages are par-

ticularly well established for the disinhibition and boldness facets of the model. Disinhibition corresponds to a neurobehavioral dimension of inhibitory control, presumed to reflect frontal-brain-based differences in the capacity to restrain behavior and regulate affect in the service of non-immediate goals (Patrick, Durbin, & Moser, 2012). Consistent with this formulation, disinhibitory tendencies operationalized as externalizing proneness show substantial genetic overlap with performance on lab task measures of executive control (Young et al., 2009), and disinhibition operationalized in this way reliably predicts reduced P3 brain potential response in target detection tasks—also as a function of common genetic influence (Hicks et al., 2007; Yancey, Venables, Hicks, & Patrick, 2013). Reduced P3 brain response has also been demonstrated in relation to disinhibitory (Factor 2; Patrick, Hicks, Krueger, & Lang, 2005) features of psychopathy (Carlson, Thái, & McLaron, 2009; Venables & Patrick, 2014). Notably, higher disinhibition likewise predicts reduced amplitude of the error-related negativity (Hall, Bernat, & Patrick, 2007; Patrick, Durbin, et al., 2012), a brain potential index of online performance monitoring known to reflect activity in the anterior cingulate cortex. Figure 1 illustrates the network of known relationships of this triarchic model construct, conceived of as general externalizing proneness (Krueger et al., 2007; Patrick Durbin, et al., 2012; Patrick, Kramer, et al., 2013; Patrick, Venables, Yancey, et al., 2013), with indicators in multiple assessment domains including brain electrophysiology and cognitive task performance. The figure illustrates that the construct of disinhibition transcends particular domains of measurement (cf. Patrick, Venables, Yancey, et al., 2013) and, along with the other constructs of the triarchic model, connects to general personality trait conceptions in the domain of self-report.

Regarding boldness, this facet of the triarchic model corresponds to a neurobehavioral dimension of threat sensitivity, presumed to reflect individual differences in reactivity of the brain's core defensive system—based in the amygdala and affiliated structures. Consistent with this perspective, PPI fearless dominance—a key self-report referent for the construct of boldness—predicts physiological defensive activation as indexed by potentiation of the startle blink reflex in differing contexts of aversive cuing (Benning, Patrick, & Iacono, 2005; Dvorak-Bertsch, Curtin, Rubinstein, & Newman, 2009). Deficient aversive startle potentiation has also been demonstrated in relation to affective-interpersonal (Factor 1) features of psychopathy as indexed by the PCL-R (Patrick, 1994; Vaidyanathan, Hall, Patrick, & Bernat., 2011). Further, the subscales of the PPI that define its fearless dominance factor operate, along with established scale measures of dispositional fear, as indicators of a broad fear/fearlessness dimension that likewise predicts variations in aversive startle potentiation (Kramer, Patrick, Krueger, & Gasperi, 2012; see also Patrick, Durbin, et al., 2012; Vaidyanathan, Patrick, & Bernat, 2009).

Although less well delineated in neurobehavioral terms, the CU component of child psychopathy (a key referent for meanness) shows reliable associations with observed instances of proactive aggression (+), lab behavioral measures of venturesomeness (+) and affective reactivity to stressors (–), and amygdala response to fear face stimuli (–) as indexed by functional neuroimaging (Frick & White, 2008; Marsh et al.,

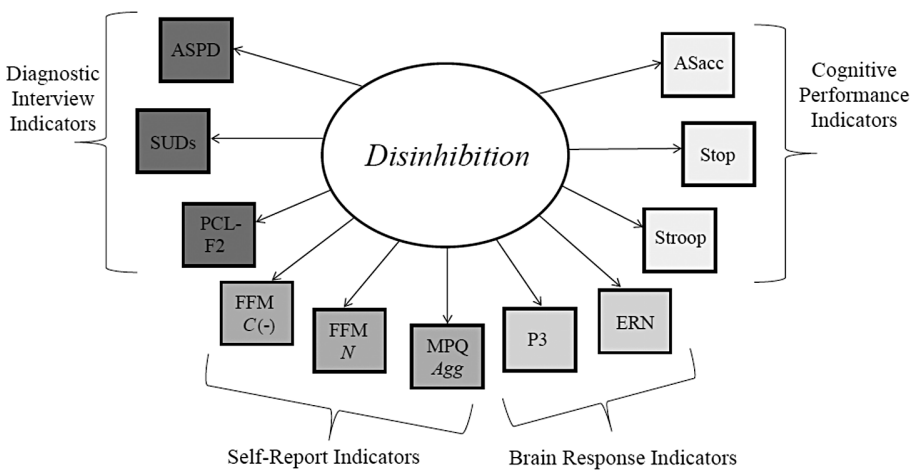

Figure 1 Schematic depiction of known indicators of disinhibition (general externalizing proneness; Krueger et al., 2007; Patrick et al., 2009; Patrick, Venables, Yancey, et al., 2013) from differing domains of measurement (i.e., diagnostic interview, self-report, brain response, cognitive task performance). Abbreviations, accompanied by citations to research demonstrating relations with disinhibition, are as follows: ASPD = antisocial personality disorder; SUDs = substance use disorders (Krueger et al., 2002; Patrick, Durbin, et al., 2012; Patrick, Venables, Yancey, et al., 2013; Venables & Patrick, 2012); PCL-F2 = Factor 2 of the Psychopathy Checklist-Revised (Patrick et al., 2005; Venables & Patrick, 2012); FFM *C* (–) and FFM *N* = Five-Factor Model Conscientiousness (reversed) and Neuroticism, respectively (Poy et al., 2014); MPQ Agg = Aggression scale of the Multidimensional Personality Questionnaire (Patrick, Hicks, Nichol, & Krueger, 2007; Patrick, Venables, Yancey, et al., 2013); P3 = P300 brain potential amplitude, ERN = error-related negativity amplitude (Hall et al., 2007; Nelson et al., 2011; Patrick et al., 2006; Patrick, Durbin, et al., 2012; Patrick, Venables, Yancey, et al., 2013; Yancey et al., 2013); Stroop = Stroop interference task, Stop = stop signal task, ASacc = anti-saccade task (Young et al., 2009).

2008). These findings, together with work demonstrating very strong heritability for the high-CU variant of child conduct disorder (Viding, Blair, Moffitt, & Plomin, 2005), encourage an interpretation of callous-unemotionality or meanness as reflecting a biologically based predatory orientation entailing aggressive resource seeking without concern for others (i.e., disaffiliated agency; Patrick, Drislane, et al., 2012; Patrick et al., 2009). However, further systematic research will be needed to corroborate and refine this conception and determine how it overlaps with and differs from neurobehavioral tendencies associated with boldness and disinhibition.

EMPIRICAL SUPPORT FOR THE TRIARCHIC MODEL

Since its introduction to the literature, a growing number of studies have been published providing empirical support for the triarchic model. The majority of these studies have operationalized phenotypic constructs of the triarchic model using the Triarchic Psychopathy Measure (TriPM; Patrick, 2010b), a 58-item self-report inventory that assesses boldness, meanness, and disinhibition through separate targeted subscales. A total triarchic psychopathy score can also be computed by summing scores across all items. As described in this section, evidence has emerged for the effectiveness of the TriPM scales as indices of the triarchic model constructs. However, it is important to keep in mind the distinction between measure and model. The TriPM provides one means for operationalizing constructs of boldness, meanness, and disinhibition. However, like any manifest measure, it contains limitations, and other operationalizations have been developed as discussed below that exhibit distinct strengths relative to the TriPM (e.g., meanness scales that contain more representation of affective sensitivity and social connectedness/detachment items, resulting in better differentiation from counterpart disinhibition scales).

The TriPM Disinhibition and Meanness scales correspond to item-based factor scales from the brief form of the Externalizing Spectrum Inventory (ESI-BF; Patrick, Kramer, et al., 2013). The full-form ESI (Krueger et al., 2007) was developed to operationalize a hierarchical structural model of the externalizing spectrum of psychopathology. The ESI's 23 content scales load together on a general *externalizing proneness* factor, with residual variances of certain subscales loading also on separate *callous aggression* and *substance abuse* subfactors. The ESI-BF contains shortened versions of all ESI content scales along with item-based scales for indexing the ESI's broad factors. As illustrated in Figure 2, the general Externalizing Proneness and Callous Aggression factor scales of the ESI-BF equate with the TriPM's Disinhibition and Meanness subscales. TriPM Disinhibition includes representation of items from the Problematic Impulsivity, Planful Control, Irresponsibility, Dependability, Impatient Urgency, Boredom Proneness, Theft, Fraud, and Alienation scales of the ESI; the TriPM Meanness scale contains representation of items from the ESI's Empathy, Relational Aggression, Destructive Aggression, Physical Aggression, Excitement Seeking, and Honesty scales. As also shown in Figure 2, the third subscale of the TriPM (Boldness) was developed to index fearless-dominant tendencies associated with the general factor of a structural model of fear and fearlessness inventories, including relevant subscales of the PPI (Kramer et al., 2012). In terms of content, the TriPM Boldness scale assesses fearless tendencies in domains of emotional experience (through items tapping resiliency, self-confidence, and optimism), interpersonal behavior (through items indexing persuasiveness, social assurance, and dominance), and venturesomeness (through items tapping courage, thrill seeking, and tolerance for uncertainty). Studies that have used the TriPM (see next paragraph below, and subsequent two sections) have reported correlations of .4 to .6 between its Meanness and Disinhibition scales. By contrast, scores on the TriPM Meanness and Boldness scales are correlated to a more modest degree (r = .2 to .3), and scores on TriPM Boldness and Disinhibition tend to be uncorrelated or somewhat inversely correlated across differing samples (r = 0 to –.2).

The TriPM has been used in studies with a range of populations, including male and female prisoners, other clinical samples (e.g., residential drug treatment patients), mixed-gender samples of undergraduates, population-representative samples, and adults from the general community (Craig, Gray, & Snowden, 2013; Drislane, Brislin, et al., 2014; Drislane, Patrick, & Arsal, 2014; Drislane, Patrick, Sourander, et al., 2014; Marion et al., 2013; Patrick, 2010b; Poy, Segarra, Esteller, López, & Moltó, 2014; Sellbom & Phillips, 2013; Stanley, Wygant, & Sellbom, 2013; Vieira et al., 2013). Additionally, the TriPM has been translated into a number of foreign languages, including Brazilian-Portuguese, Croatian, Dutch, Finnish, German, Greek, Italian, Portuguese, Spanish, and Swedish. As a result, published studies investigating the triarchic model constructs in international samples have begun to appear (e.g., Drislane, Patrick, Sourander, et al., 2014; Poy et al., 2014), and it is likely that further cross-cultural evidence for the triarchic model phenotypes will accumulate progressively over time.

Associations with Other Psychopathy Inventories

Available published research provides evidence for the construct validity of the TriPM operationalization of the triarchic model in terms of theory-consistent relationships with widely used inventories of psychopathy and other relevant criterion measures, including *DSM-IV-TR* (APA, 2000) disorder symptoms and normal-range personality traits known to correlate with psychopathic tendencies. Consistent with the hypothesis that the triarchic model constructs are represented in various assessment instruments for psychopathy (Patrick et al., 2009),

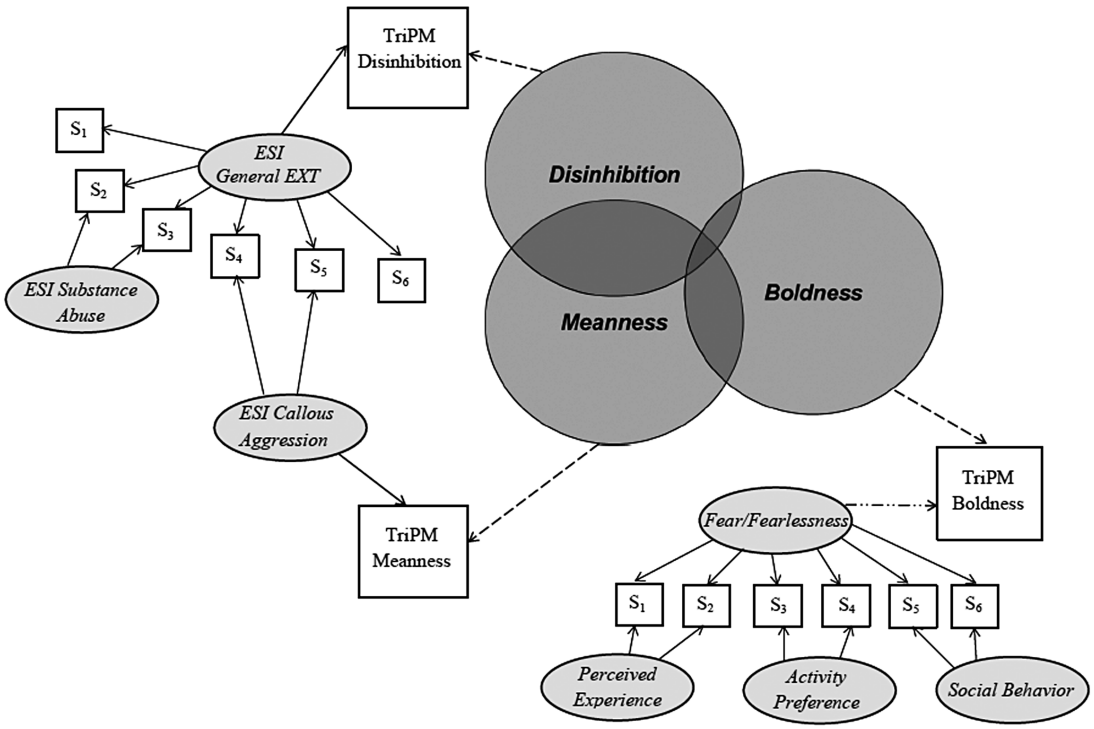

Figure 2 Graphic depiction of relations of subscales of the TriPM with (a) hypothetical constructs specified by the triarchic model of psychopathy and (b) broad factors from biobehavioral models of externalizing psychopathology and dispositional fear/fearlessness. Externalizing and fear/fearlessness models are represented schematically because the number of observed indicators in each model is too numerous to display effectively. TriPM = Triarchic Psychopathy Measure; ESI = Externalizing Spectrum Inventory; EXT = externalizing proneness; S = scale, where the subscript denotes differing scale measures. Latent variables are depicted as ovals; manifest observed variables (scale measures) are depicted as rectangles. The figure conveys that the TriPM scales were designed to index broad dispositional factors corresponding to constructs of the triarchic model in the domain of self-report. TriPM Meanness and Disinhibition scales were developed to index the general externalizing and callous aggression factors, respectively, of the ESI structural model (Patrick, Kramer, et al., 2013). The third subscale of the TriPM, Boldness, was created to assess fearless-dominant tendencies in relation to the general factor (reversed) of a structural model of self-report fear and fearlessness measures (Kramer et al., 2012). The structural models of the externalizing psychopathology and dispositional fear domains that served as referents for development of the TriPM scales are depicted as bifactor models, in which all scale indicators in each case load onto a general factor (EXT and fear/fearlessness, respectively), with residual variance in particular subscales loading as well on separate content-based subfactors.

the TriPM shows strong convergence with established self-report inventories of psychopathy designed for use with adults, including the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996; Lilienfeld & Widows, 2005), the Self-Report Psychopathy Scale-III (SRP-III; Paulhus, Hemphill, & Hare, 2009), and the Levenson Self-Report Psychopathy Scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995). In work with male and female undergraduates by Drislane, Patrick, and Arsal (2014), the facet scales of the TriPM accounted for over 62% of the variance in overall scores on the PPI, and approximately 47% of the variance in overall scores on the SRP and the LSRP—sizable associations considering that the maximum potential relationship between two measures with reliabilities of .8 is 64%. The finding of strong convergence with the PPI was also demonstrated by Sellbom and Phillips (2013) in a sample of female incarcerated offenders, where the three TriPM subscales accounted for 61% of the variance in total PPI scores, and by Stanley et al. (2013) in a mixed-gender (~two-thirds male) sample of incarcerated offenders using a short form of the PPI (58% of variance accounted for).

Additionally, in line with the aims of the triarchic model formulation, observed relations of the TriPM scales with these differing psychopathy measures and their factors or facet scales yield insight into similarities and differences in coverage provided by each. Whereas the PPI as a whole includes comparable representation of boldness, meanness, and disinhibition constructs as indexed by the TriPM, overall scores on the SRP-III reflect boldness to a lesser degree than meanness and disinhibition, with total scores on the LSRP indexing meanness and disinhibition only, with no representation of boldness (Drislane, Patrick, & Arsal, 2014; Sellbom & Phillips, 2013). Regarding subdimensions of the PPI, consistent patterns of associations for scores on its two factors with subscales of the TriPM have been reported across differing studies (Drislane, Patrick, & Arsal, 2014; Sellbom & Phillips, 2013; Stanley et al., 2013), despite variations in the nature of samples (undergraduate vs. offender) and versions of the PPI used (i.e., original, revised, or short form; cf. Lilienfeld & Widows, 2005): The Fearless Dominance (FD) factor of the PPI relates very strongly to TriPM Boldness (r ~.8) and only somewhat to TriPM Meanness (~.3), whereas PPI

Self-Centered Impulsivity (SCI, also known as Impulsive Antisociality; Benning, Patrick, et al., 2005) relates quite strongly to Disinhibition, and somewhat less strongly to Meanness (due in particular to representation of Machiavellianism Egocentricity in this factor). Notably, the Coldheartedness subscale of the PPI, which does not load distinctively on either PPI factor, shows a strong selective association with TriPM Meanness. The SRP-III's facet scales each contain elements of all triarchic constructs as indexed by the TriPM, differing only in the extent of representation of each (Drislane, Patrick, & Arsal, 2014). SRP-III Interpersonal Manipulation and Callousness each contain prominent representation of meanness and lesser representation of boldness and disinhibition. SRP-III Erratic Lifestyle contains prominent representation of disinhibition as well as boldness, with lesser representation of meanness. The SRP-III's Criminal Tendencies scale contains moderate representation of disinhibition and meanness, with more modest (but significant) representation of boldness.

The TriPM also shows appreciable convergence with the Youth Psychopathic Traits Inventory (YPI; Andershed, Kerr, Stattin, & Levander, 2002), a measure designed for use with adolescent-aged participants—with TriPM scales accounting for over 37% of variance in overall YPI scores (Drislane, Patrick, & Arsal, 2014). Like the SRP-III, the YPI as a whole indexes meanness and disinhibition as assessed by the TriPM more than boldness. Its Impulsive/Irresponsible factor scale relates most strongly to TriPM Disinhibition and secondarily to Meanness, with only modest representation of Boldness. By contrast, the YPI's Callous/Unemotional scale correlates most with TriPM Meanness, secondarily with Boldness, and only modestly with Disinhibition. The YPI's third factor scale, Grandiose Manipulation, includes more balanced representation of the three triarchic constructs as indexed by the TriPM (Drislane, Patrick, & Arsal, 2014).

By contrast, self-report versions of informant-rating inventories developed for use with younger-aged samples appear more similar to the LSRP—providing coverage of meanness and disinhibition but not boldness (Drislane, Patrick, & Arsal, 2014; Sellbom & Phillips, 2013). The APSD-Self Report version (APSD-SR; Muñoz & Frick, 2007) provides effective and balanced coverage of meanness and disinhibition (multiple $R = .64$ for prediction of overall APSD-SR scores from TriPM scales; i.e., 41% of variance accounted for), whereas the self-report CPS (CPS-SR) captures disinhibition more so than meanness (corresponding multiple $R = .44$ [i.e., 19% of variance]; Drislane, Patrick, & Arsal, 2014). Another inventory based on the APSD, the Inventory of Callous-Unemotional Traits (ICU; Frick, 2004), was developed to provide for more specific and effective assessment of CU tendencies in the domain of self-report. Consistent with this, scores on the ICU correlate appreciably and selectively with TriPM Meanness (~.5; Drislane, Patrick, & Arsal, 2014), such that only this facet scale of the TriPM contributes uniquely to prediction of ICU total scores when included with other TriPM scales in a regression model (multiple $R = .48$; i.e., 23% of score variance accounted for).

Recent published work (Venables et al., 2014) also demonstrates appreciable convergence for scales consisting of TriPM Boldness and highly related (rs = .94/.84) variants of TriPM Disinhibition and Meanness with scores on the Psychopathy Checklist-Revised (PCL-R; Hare, 2003)—despite salient differences across the two in content of items and mode of assessment (i.e., self-report vs. interview+file; cf. Blonigen et al., 2010). Multiple Rs for prediction of PCL-R total scores from triarchic facet scores in two separate male offender samples (incarcerated offenders, substance treatment program residents) were .47 in each case (i.e., 22% of score variance accounted for)—commensurate with what would be expected of indicators of a common construct from differing domains of measurement (Campbell & Fiske, 1959). Importantly, the triarchic facets also exhibited preferential relations with differing symptom components of the PCL-R: Within each study sample, boldness was most related to PCL-R Interpersonal symptoms, meanness was most related to PCL-R Affective symptoms, and disinhibition was most related to PCL-R Impulsive Lifestyle symptoms. Notably, across the two samples, scores on the PCL-R Antisocial facet were predicted positively by all three triarchic facets—with boldness and meanness contributing most to prediction in the offender sample, and meanness and disinhibition contributing most in the substance treatment sample. Results consistent with these were reported in another recent study by Wall, Wygant, & Sellbom (2014). This study specifically demonstrated (using hierarchical regression analysis) that boldness as indexed by the TriPM contributed incrementally to prediction of PCL-R Factor 1, and its Interpersonal facet, over and above variance accounted for by *DSM* antisocial personality disorder symptoms.

Taken together, these findings demonstrate that the TriPM indexes constructs in common with those tapped by other psychopathy inventories and is helpful for clarifying what other inventories measure in triarchic model terms. Since the triarchic model connects to general personality models, as noted earlier, clarification of what differing psychopathy inventories measure in triarchic terms is compatible with efforts to characterize coverage of such inventories in personality trait terms (Lynam & Derefinko, 2006; Lynam et al., 2011; Miller, Lynam, Widiger, & Leukefeld, 2001). The Disinhibition facet of the TriPM is associated in particular with the impulsive lifestyle features of psychopathy (i.e., failure to plan, irresponsibility, carelessness, impatience, stimulation seeking) as indexed by various inventories. By contrast, TriPM Meanness is most related to the deficient affect features (i.e., callousness, unemotionality, exploitativeness), and Boldness to features involving resilience and social efficacy (i.e., lack of anxiety or internalizing problems, confidence, charm and persuasiveness)—as highlighted in influential historic theories (Cleckley, 1976; Fowles, 1980; Lykken, 1995). Some psychopathy inventories (e.g., PPI, SRP-III, YPI, PCL-R) provide

coverage of all three triarchic constructs as indexed by the TriPM—although in a less clearly differentiated manner (i.e., with more blending of triarchic constructs in constituent scales). Other psychopathy measures (e.g., LSRP and self-report versions of the APSD and CPS) provide coverage of disinhibition and meanness without distinct representation of boldness. A potential implication, assuming the findings for APSD and CPS self-report versions extend to informant versions of these inventories, is that there may be some discontinuity in the way psychopathy is operationalized in young children as compared to adolescents and adults. The inclusion of boldness-oriented items in psychopathy inventories for younger-aged samples would provide a basis for addressing this issue empirically, while also providing a direct link to important developmental research on the role of fear/fearlessness in conscience formation during childhood (Kochanska, 1997).

In addition to supporting the validity of the TriPM operationalization and helping to clarify what other psychopathy inventories measure, findings from TriPM investigations (and triarchic model studies more broadly) can also suggest fruitful avenues for research on alternative existing inventories. For example, while a large body of published research has accumulated on the two-factor model of the PPI subscales, some key questions have been raised about this model. One is that the PPI two-factor model may not meet strict confirmatory fit criteria or hold up across differing samples (e.g., offenders as compared to community participants; Neumann, Malterer, & Newman, 2008). Another is that the PPI's Coldheartedness subscale, which ostensibly indexes callous-unemotional tendencies considered central to psychopathy (McCord & McCord, 1964; Frick & Marsee, 2006), is not well accommodated by the two-factor model.

Important perspective on these key issues is provided by two recent studies examining the joint structure of subscales from the revised PPI (PPI-R; Lilienfeld & Widows, 2005) and the TriPM (Marion et al., 2013; Sellbom & Phillips, 2013). In each case, evidence emerged for a *three*-factor structure, with (a) one factor defined by TriPM Disinhibition along with three of four PPI-R subscales demarcating its SCI factor (i.e., Carefree Nonplanfulness, Blame Externalization, Rebellious Nonconformity), (b) a second factor defined by TriPM Meanness along with the PPI-R's Coldheartedness and Machiavellian Egocentricity subscales, and (c) a third factor defined by TriPM Boldness along with the three subscales of PPI-FD (i.e., Social Potency, Stress Immunity, Fearlessness). These findings suggest that the subscales of the PPI can be configured to provide effective indices of meanness (i.e., by combining content from PPI Coldheartedness and Machiavellian Egocentricity) and disinhibition (i.e., by combining content from the remaining PPI-SCI scales; cf. Hall et al., 2014; see below). Additionally, these findings highlight the fact that internal structural analyses of facet scales provide only a limited basis for clarifying what psychopathy inventories measure and what coverage they provide of distinct thematic constructs emphasized in historic accounts. To establish what a particular inventory measures, it is important as well to examine the structure of its facet scales in conjunction with scales from other psychopathy inventories—including ones designed to index triarchic model constructs specifically and distinctively, such as the TriPM.

Relations with Normal-Range Personality Variables and Scale Measures of Personality Pathology

Recent studies have also examined relations of triarchic model constructs as operationalized by the TriPM with omnibus inventories of personality (see Table 1) and scales developed to index pathological personality tendencies. In research with undergraduates, Poy et al. (2014) found contrasting patterns of relations for the subscales of the Spanish-language TriPM with domains and facet traits of the Five-Factor Model (FFM) as indexed by the NEO Personality Inventory-Revised (NEO PI-R; Costa & McCrae, 1992). In both male and female participants, TriPM Boldness showed robust associations with FFM domains of Extraversion (+), Neuroticism (–), and, to a lesser degree, Openness (+), and more modest associations with Agreeableness (–) and Conscientiousness (+). Scores on TriPM Disinhibition were most strongly related to FFM

Table 1 Correlations Between TriPM Scale Scores and Normal-Range Personality Variables

	Boldness *r*	Meanness *r*	Disinhibition *r*
Five-Factor Model			
Neuroticism[a]	**–.55**	.12	**.43**
Extraversion[a]	**.58**	–.07	–.05
Openness[a]	**.36**	–.11	–.03
Agreeableness[b]	–.19	**–.55**	**–.37**
Conscientiousness[a]	.16	**–.38**	**–.56**
MPQ[c]			
Social Potency	**.51**	.14	.04
Wellbeing	**.34**	–.11	–.06
Achievement	**.31**	–.07	–.19
Social Closeness	.13	**–.22**	–.08
Aggression	.01	**.55**	**.40**
Alienation	–.10	**.22**	**.27**
Stress Reaction	**–.35**	.10	**.33**
Control	–.19	**–.33**	**–.35**
Harm Avoidance	**–.31**	**–.24**	–.14
Traditionalism	–.15	–.14	–.08

Note. TriPM = Triarchic Psychopathy Measure; MPQ = 35-item version of Multidimensional Personality Questionnaire. The *r* values are based on data from Drislane, Patrick, and Arsal (2014), Poy et al. (2014), and Stanley et al. (2013); values ≥ .20 are boldfaced to highlight effects of appreciable magnitude.

[a]Data reflect the mean of sample-weighted values from Poy et al. (2014) and Stanley et al. (2013). [b]Data reflect the mean of sample-weighted values from Drislane, Patrick, and Arsal (2014), Poy et al. (2014), and Stanley et al. (2013). [c]Values reflect those reported in Drislane, Patrick, and Arsal (2014).

domains of Conscientiousness (–) and Neuroticism (+), and modestly inversely correlated with Agreeableness. TriPM Meanness showed robust negative associations with Agreeableness and to a lesser degree Conscientiousness, while also showing a modest positive association with Neuroticism (attributable mainly to the Angry Hostility facet). The remaining two FFM domains, Extraversion and Openness, showed negative associations with TriPM Meanness in male but not female participants, with results at the facet level suggesting gender differences in the contributions of social connectedness and positive affect to endorsements of callous-aggressive tendencies.

Additionally, Poy et al. (2014) examined relations of the TriPM scales with scores on the FFM Psychopathy Resemblance Index (PRI; Miller et al., 2001), computed from facet-level scores on the NEO PI-R for each participant. Regression analyses utilizing the three TriPM scales as joint predictors of scores on the PRI yielded multiple *R*s above .7 for participants of each gender (57% and 50% of variance accounted for in males and females, respectively)—with Boldness contributing incrementally to prediction over and above Meanness and Disinhibition. These results converge with earlier-cited work demonstrating effectiveness of the TriPM scales in predicting total scores on established psychopathy inventories, and with other research showing effective prediction of global psychopathy indices computed from scores on other omnibus personality inventories, such as the Minnesota Multiphasic Personality Inventory (MMPI; Marion et al., 2013; Phillips, Sellbom, Ben-Porath, & Patrick, 2014).

Domain-level findings similar to those of Poy et al. (2014) were reported by Stanley et al. (2013) for an alternative brief-form operationalization of the FFM, the Big Five Inventory (BFI; John, Donahue, & Kentle, 1991), administered along with the TriPM to a sample of incarcerated offenders. Another study by Drislane, Patrick, and Arsal (2014) that examined relations of the TriPM scales with Agreeableness as indexed by the NEO PI-R in undergraduates reported domain- and facet-level results highly consistent with Poy and colleagues'. Aggregated domain-level results from these three TriPM/FFM studies are presented in Table 1 (upper section). Also presented in Table 1 (lower section) are findings from Drislane, Patrick, and Arsal (2014) pertaining to relations between the TriPM scales and lower-order trait scales from a very brief (35-item) version of Tellegen's (2011) Multidimensional Personality Questionnaire (MPQ; Tellegen, 2011). Findings for the MPQ, which assesses personality traits in relation to broad temperament-oriented dimensions, provide an alternative, complementary perspective on linkages between the TriPM psychopathy facets and normal-range personality variables.

The facet scales of the TriPM have also been examined in relation to scores on the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988), which was designed to index narcissism as defined in the third edition of the *DSM* (APA, 1980). Stanley et al. (2013) reported that scores on TriPM Boldness and Meanness contribute mutually to prediction of scores on the NPI as a whole and its Leadership/Authority and Grandiose Exhibitionism subscales, with TriPM Meanness predicting scores on the NPI's Entitlement/Exploitativeness subscale more exclusively. Complementing these results, these authors found TriPM Meanness to be strongly predictive of reduced empathy as assessed by the Interpersonal Reactivity Index (IRI; Davis, 1983).

Other recent work has demonstrated convergence between the triarchic constructs as operationalized by the TriPM and trait-based conceptions of antisocial personality disorder (ASPD) and psychopathy included in Section III of *DSM-5* (APA, 2013). Strickland, Drislane, Lucy, Krueger, and Patrick (2013) administered the TriPM along with the Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012) to undergraduates and adults from the community. PID-5 traits from domains of Disinhibition and Antagonism considered to be diagnostic of ASPD (i.e., impulsivity, irresponsibility, and risk taking; callousness, manipulativeness, and deceitfulness) were strongly predicted by TriPM Disinhibition and Meanness, respectively. Additionally, substantial convergence was evident between boldness as indexed by the TriPM and traits from the PID-5 included in the psychopathic features specifier for ASPD (i.e., anxiousness [–], attention seeking [+], and withdrawal [–]), along with the trait of submissiveness in reverse (i.e., reflecting dominant assertiveness). These findings indicate that the TriPM operationalization of the triarchic model effectively captures tendencies associated with the trait-based diagnosis of ASPD, as well as tendencies considered indicative of a low anxious, socially effective variant of ASPD referred to as "primary psychopathy" in historic writings (Karpman, 1941; Lykken, 1957; Skeem et al., 2007).

It will be important in future work to evaluate relations of the triarchic model constructs as indexed by the TriPM or alternative scale operationalizations (see next section) with other outcomes of clinical importance. For example, Benning, Patrick, Blonigen, et al. (2005) reported negative associations between fearless dominance scores and both depressive and phobic symptoms in an incarcerated male sample—indicating (in line with Cleckley's [1976] characterization of high-psychopathy inpatients) reduced susceptibility to internalizing disorders as a function of higher boldness. Based on these findings, it could be hypothesized that low distress associated with high boldness might also be distinctively predictive of reduced treatment motivation, compliance, and completion. The possibility of an incremental contribution of boldness (either positive or negative) to other key outcomes such as institutional adjustment, recidivism, trauma-related pathology, and suicidal behavior would also be important to evaluate. In evaluating predictive effects, researchers are encouraged to test for interactions involving boldness (i.e., moderation of effects associated with disinhibition or meanness), along with main effects when warranted by study aims and hypotheses.

ALTERNATIVE SCALE MEASURES OF TRIARCHIC MODEL CONSTRUCTS

The triarchic model was intended to provide a general framework for ongoing work on conceptualization and assessment of psychopathy, through a focus on core phenotypic constructs—presumed to reflect biobehavioral dispositions—that transcend specific assessment instruments or domains of measurement. Crucially, the components of the triarchic model are conceived of as "open constructs" (Meehl, 1986), subject to modification over time based on accumulating empirical evidence from differing domains of measurement. While the TriPM provides one approach to operationalizing the constructs of the model, other psychopathy measures, or inventories known to predict substantial variance in psychopathy measures, can also serve as vehicles for operationalizing these constructs. As described earlier, the PPI shares substantial variance in common with the TriPM, and recent research (Marion et al., 2013; Sellbom & Phillips, 2013) suggests that the PPI can be configured to index boldness, meanness, and disinhibition as distinct constructs.

Hall et al. (2014) undertook the development of item-based scale measures of the triarchic constructs using items from the PPI. A construct-based rating approach was used rather than a criterion-oriented approach (e.g., selection of items with reference to the TriPM scales) to allow constructs distilled from the psychopathy literature as a whole to guide scale formation rather than binding scales to a particular operationalization of the triarchic model. All items of the PPI were rated for relevance to each construct of the model as described by Patrick et al. (2009), and items were selected for inclusion in scales based on their preferential relevance to one triarchic construct over the others. Scales were further refined based on considerations of overall content coverage, internal properties of the scales (i.e., inter-item correlations and internal consistency), and correlations of items within and across scales.

The resultant PPI Triarchic (PPI-Tri) scales index boldness, meanness, and disinhibition in a manner complementary to but distinct from the TriPM. PPI Boldness consists of items from the subscales that demarcate the PPI's FD factor. PPI Meanness consists primarily of items from the PPI's Coldheartedness and Machiavellian Egocentricity scales, along with one Fearlessness scale item (pertaining to enjoyment of scaring people). PPI Disinhibition is composed mostly of items from subscales that define the PPI's SCI factor, along with one item from the Stress Immunity scale (pertaining to short-temperedness). The PPI Meanness and Disinhibition scales are less interrelated (rs = .21 and .37, respectively, for mixed-gender undergraduate and male forensic samples; Hall et al., 2014) than their TriPM counterparts (.4 to .6, as noted earlier, depending on the sample). This difference likely reflects the fact that items composing TriPM Meanness and Disinhibition are taken from subscales of the ESI that operate as indicators of a common externalizing factor, whereas PPI Meanness and Disinhibition consist mostly of items from separate, less overlapping subscales. The greater separation between these constructs as indexed by the PPI may be advantageous for research directed at identifying distinct correlates of the two. Correlations for PPI Boldness with PPI Disinhibition and Meanness are quite similar to those for counterpart scales of the TriPM (Hall et al., 2014).

Hall et al. (2014) also reported evidence for criterion-related validity of the PPI-Tri scales in their two participant samples. PPI Boldness and Disinhibition demonstrated strong convergence with their TriPM counterparts (rs = .79 and .64, respectively) in the undergraduate sample, for which scores on both inventories were available. Convergence between PPI and TriPM Meanness was somewhat lower (r = .54), suggesting that the decreased overlap between PPI Meanness and Disinhibition (vs. TriPM counterparts) was attributable more to a shift in the former. In the forensic sample, for which scores on the PCL-R were available, (a) PPI Boldness contributed distinctively ($\beta > .15$, $p < .001$) to prediction of PCL-R total, Factor 1, and Interpersonal facet scores; (b) PPI Meanness contributed distinctively to prediction of PCL-R total, Factor 1, Factor 2, Affective facet, and Antisocial facet scores; and (c) PPI Disinhibition contributed significantly and distinctively to prediction of PCL-R total, Factor 2, and Lifestyle facet scores.

Another triarchic scale development effort of this kind was undertaken by Drislane, Brislin, et al. (2014) using items of the Youth Psychopathic Traits Inventory (YPI). The YPI-based Boldness scale consists of items from scales that define the Grandiose/Manipulative factor of the YPI, along with some items from the YPI's Thrill-Seeking and Unemotionality scales; the YPI Disinhibition scale consists largely of items from scales associated with the YPI's Impulsive/Irresponsible factor; and the YPI Meanness scale consists entirely of items from scales related to the Callous/Unemotional factor of the YPI. The Boldness scale of the YPI correlates more strongly with its Disinhibition and Meanness scales (rs = .38 and .48, respectively) than is true for counterpart scales of the TriPM or the PPI, and YPI Disinhibition and Meanness correlate more modestly with one another (r = .33) than their TriPM counterparts.

Besides reporting on psychometric properties of these scales, Drislane, Brislin, et al. (2014) also presented evidence for convergent and discriminant validity of the YPI-Tri scales in relation to psychopathy-relevant criteria, including the TriPM and PPI-Tri scales. YPI Boldness and Disinhibition each converged to a similar degree with counterpart scales from the TriPM (rs = .57 and .58, respectively) and the PPI (rs = .66 and .66), whereas YPI Meanness converged more with PPI Meanness (r = .62) than with TriPM Meanness (r = .49)—indicating a shift in content coverage for YPI Meanness relative to TriPM Meanness, along lines similar to PPI Meanness. Additionally, the finding that YPI Boldness correlated less with TriPM and PPI Boldness than they correlated with one another (r = .79) points to a shift in content coverage for YPI Boldness—specifically, given its higher than expected rs with YPI Meanness and Disinhibition, in a direction entailing greater aggressive-externalizing tendencies. In turn, these

findings and interpretations have broader implications. One is that the array of items available within a particular inventory may constrain or shape operationalizations of triarchic model constructs—such that scales from differing inventories may index the target constructs in somewhat contrasting ways. Another implication is that scale measures of the triarchic model constructs can be operationalized to be more or less interrelated as a function of variations in the item content of scales.

The foregoing studies illustrate how scale measures of the triarchic model constructs can be developed from existing inventories containing items that provide effective coverage of each from conceptual-descriptive, internal-psychometric, and external-validation standpoints. Based on published work demonstrating robust associations between the TriPM scale operationalizations and scores on omnibus personality inventories such as the NEO PI-R, MPQ, MMPI, and PID-5 (see above), it is likely that effective triarchic scales can also be developed using items from these inventories, as well as from other instruments designed to assess dispositional patterns, personality pathology, or psychopathic tendencies. One newer instrument that holds clear potential for operationalizing the triarchic model constructs is the Elemental Psychopathy Inventory (EPA; Lynam et al., 2011), which was developed to index psychopathic tendencies as extensions of normal-range FFM traits. The availability of alternative scale operationalizations based on differing, widely used inventories will open the door to investigations of the triarchic constructs as relevant to psychopathy and other clinical conditions (cf. Patrick, Durbin, et al., 2012; Patrick, Venables, Yancey, et al., 2013) in large existing data sets that include such inventories (cf. Benning, Patrick, Blonigen, et al., 2005)—including epidemiological, longitudinal-developmental, genetically informative (i.e., twin), and neurobiologically informative data sets. Availability of alternative scale measures of the triarchic constructs can also provide a basis for bridging differing data sets in order to address key questions not amenable to analysis with a single existing data set (cf. Friedman, Kern, Hampson, & Duckworth, 2014).

From a more conceptual standpoint, these mapping efforts serve to illustrate the "open" (Meehl, 1986) quality of the triarchic model constructs. Rather than using the TriPM scales as fixed referents for developing alternative scale operationalizations from items of other inventories, alternative scales were developed using a conceptual, rating-based approach not bound to any particular measurement device. This approach permits the content coverage of scales to vary from operationalization to operationalization, as a function of differences in thematic coverage of items within particular inventories compared to others. Observed variations in content across differing scale operationalizations can serve to highlight previously untapped, underrepresented, or perhaps less essential aspects of target constructs—and thereby help to refine ideas about the nature and scope of the constructs themselves.

Along these lines, it is notable that the level of convergence of PPI and YPI scale versions with TriPM counterparts was lower for operationalizations of meanness than disinhibition or boldness. This can be attributed to the fact that disinhibition and boldness have more concrete empirical referents in the triarchic model formulation (e.g., quantitative-structural models of disinhibitory/externalizing problems in adults and children; findings pertaining to fearless dominance in adults and fearless temperament in children) than meanness. The notion of meanness as a distinct biobehavioral construct was deduced from historic accounts of criminal psychopathy together with findings pertaining to distinguishable factors of child psychopathy (Frick & Marsee, 2006) and adult externalizing problems (Krueger et al., 2007), as well as personality correlates of psychopathy (Lynam & Derefinko, 2006).

Efforts to operationalize meanness from alternative item sets provide a mechanism for further clarifying the nature and scope of this construct, and the basis of its intersections with disinhibition and boldness. For example, whereas TriPM Meanness emphasizes aggressive and exploitative tendencies (which correlate positively with general externalizing proneness or disinhibition), Meanness scales derived from the PPI and YPI include greater representation of items indexing emotional sensitivity/insensitivity and connectedness versus detachment from others, which tend to be less related to disinhibitory tendencies—resulting in less correlated meanness and disinhibition scales for these instruments. These differences in item content serve to highlight elements of the construct not represented in the TriPM Meanness scale, pointing to avenues for refining conceptualization and measurement of the meanness construct. As discussed in the last major section below, results from studies examining correlates of the triarchic model constructs in other domains of measurement, including neurobiology and overt behavioral response, will be important for a complete understanding of these dispositional constructs and the role they play in differing expressions of psychopathy.

NOVEL APPLICATIONS OF THE TRIARCHIC MODEL

Beyond traditional criterion validation work, researchers have begun to apply the TriPM operationalization of the triarchic model in other novel ways. Craig et al. (2013) examined relations between scores on the TriPM and measures of parental bonding and attachment style. Parental care (i.e., affection, compassion) was found to be inversely correlated with TriPM Meanness and Disinhibition, and positively correlated with TriPM Boldness. By contrast, parental overprotection (i.e., controlling, patronizing) was correlated positively with TriPM Disinhibition and Meanness, and unrelated to levels of Boldness. Notably, aside from the relationship between Meanness and parenting styles, these observed associations

between triarchic facets and parental bonding were mediated by current attachment style variables (i.e., attachment *anxiety* and *avoidance*). Although this study has limitations (e.g., cross-sectional design, assessment of parental bonding via retrospective report) that constrain interpretations, it raises important questions about relationships between temperament, attachment, and parenting in the development of psychopathic traits that can be profitably explored in future research.

In other work, Vieira and colleagues (2013) used TriPM total scores to select participants from the community with differing levels of psychopathic tendencies for a functional magnetic resonance imaging (fMRI) study of economic decision making. The major finding was that individuals high in TriPM psychopathy exhibited a different pattern of neural activation when rejecting unfair offers compared to individuals low in psychopathic tendencies—entailing activation of ventromedial prefrontal cortex more so than dorsolateral prefrontal cortex. The authors interpreted this finding as indicating that economic decision making may be more strongly driven by frustration than perceived fairness in high psychopathic individuals.

The findings of Vieira et al. (2013) are particularly interesting in light of other recent work utilizing the TriPM to investigate the heterogeneity of psychopathy as it occurs in the community at large. Specifically, Drislane, Patrick, Sourander, et al. (2014) applied model-based cluster analyses to data for a select subset of participants scoring extremely high on the TriPM as a whole (≥ 95th percentile) from a very large sample ($N = 4{,}043$) of males from Finland, to test for the presence of psychopathy subtypes within the general population. Consistent with findings for incarcerated offenders, evidence was found for two distinct subtypes of high overall TriPM scorers: a classically low-neurotic, high-bold ("primary") subtype, and a high-neurotic, high-disinhibited ("secondary") subtype (cf. Karpman, 1941; Lykken, 1957; Skeem et al., 2007). These findings raise intriguing questions about the representation of these distinct variants in the Vieira et al. (2013) study and the contribution of one versus the other variants to reported differences in brain activation.

Another article by Patrick, Drislane, et al. (2012) outlined directions for treatment research arising from the view of the triarchic facets as biobehavioral dispositions. As described earlier, evidence points to weakness in the brain's defensive motivational system in boldness, and impairment of frontocortical regulatory regions in disinhibition. From this viewpoint, Patrick and colleagues discussed possibilities for neurobehaviorally oriented interventions, such as attentional control training or feedback-guided modification of neural responding, to address cognitive/affective deficits associated with distinct symptomatic facets of psychopathy. However, much systematic empirical research will need to be undertaken to evaluate the effectiveness and feasibility of novel approaches of these types.

FUTURE DIRECTIONS

Modeling Triarchic Model Constructs as Latent Variables

Existing data reviewed in prior sections provide support for the validity and utility of the triarchic model, broadly speaking. In addition to generating evidence for the effectiveness of the TriPM operationalization, research has also demonstrated that the triarchic constructs can be indexed using items from other instruments. Although opportunities exist for further work along these lines using inventories such as the MPQ, NEO PI-R, MMPI-2, and PID-5, recent work indicates that it is possible to specify a self-report-based latent variable model of the triarchic model constructs using scale indicators of boldness, meanness, and disinhibition already in existence. Specifically, Drislane and Patrick (2013) used confirmatory factor analysis (CFA) to model the constructs of the triarchic model, with subscales of the TriPM, counterpart PPI-Tri scales, and YPI Disinhibition and Meanness along with MPQ-estimated fearless dominance (Benning, Patrick, Blonigen, et al., 2005) included as manifest indicators. (YPI Boldness was not included due to evidence [Drislane, Brislin, et al., 2014; see above] indicating overrepresentation of aggressive-disinhibitory tendencies in this scale.) A three-factor model, with the triarchic facets parameterized as separate correlated dimensions, achieved acceptable fit to the data, exceeding that for alternative one- and three-factor models. Within this best-fitting three-factor model, latent factors of boldness and disinhibition were uncorrelated, but showed mutual overlap with latent meanness—indicating that callous-unemotional or antagonistic tendencies function as a phenotypic "glue" binding these other facets of psychopathy together.

This initial effort to delineate the triarchic model constructs as latent variables illustrates some key aspects of the model as a framework for psychopathy research. One is that the constructs of the model—as broad themes distilled from historic and contemporary writings—transcend specific operationalizations. A second point is that latent variable renderings of the triarchic constructs can serve as points of reference for evaluating the content of particular psychopathy inventories and their facet scales. For example, the ICU, in the context of the triarchic CFA model, serves as an effective indicator of latent meanness—providing a link between callous-unemotionality in youth and the adult concept of callous-aggression. A further point is that latent variable operationalizations of the triarchic constructs can serve as referents for developing optimally effective scale measures of triarchic model constructs. Rather than evaluating new measures against specific scale operationalizations (e.g., TriPM or PPI-Tri) containing instrument-specific variance, measures can be evaluated against latent triarchic factors reflecting variance in common among differing indicators.

Operationalizing Triarchic Constructs Across Differing Domains of Measurement

To now, research efforts have focused on indexing the constructs of the triarchic model through self-report, which has certain advantages. Self-report measures are time efficient and amenable to mass administration, allowing for rapid collection of readily analyzable data. A number of self-report psychopathy inventories exist that can serve as criterion measures in validation studies and as sources of items for triarchic scale development efforts. Additionally, as highlighted by this special issue, self-report measures of psychopathy facets can be linked to omnibus personality inventories and structural models of problem domains that have well-developed nomological networks.

However, it is important to recognize that psychological constructs exist to organize observations and facilitate prediction. As such, they are inherently provisional (Cronbach & Meehl, 1955) and transcend specific instruments and domains of measurement (Campbell & Fiske, 1959). Viewed this way, efforts to assess psychopathy in alternative ways using indicators from differing domains are important for advancing understanding of what psychopathy "is" and how best to quantify it for particular purposes. Operationalizing constructs in differing ways can also help to improve prediction of certain target outcomes because validity coefficients are higher for predictors in domains more similar to criterion variables of interest (Campbell & Fiske, 1959; Patrick, Venables, Yancey, et al., 2013).

With these points in mind, Figure 3 depicts a multi-measure/multi-domain structural framework for the triarchic conceptualization of psychopathy that can help to guide research. The framework recognizes that psychopathy, although often considered a "disorder," is in fact a psychological construct (entailing differing facets) that owes its existence to scholars who have described it historically and researchers who have sought to operationalize and study it. As shown in the figure, this perspective calls for work directed at clarifying relations among facets of psychopathy operationalized in differing ways (i.e., through self- or interviewer/informant ratings, brain or other physiological indices, naturalistic or lab-based measures of behavior, and variables from other domains—such as neuroanatomy, neuroendocrinology, genomic variation, general health and fitness, and social/occupational adjustment and success). By taking this approach, our notion of what psychopathy "is" can be permitted to evolve based on accumulating empirical knowledge of its phenotypic subdimensions as represented in personal-experiential, social-observational, and biobehavioral terms. Characterization of psychopathy facets in this cross-domain manner can also contribute to improved prediction of criterion variables in particular target domains. For example, an operationalization that includes both brain potential and ratings indicators can be expected to predict more effectively to criterion measures in the domain of neurophysiology (e.g., MRI brain activation or response to drug interventions that target neural function; Patrick, Durbin, et al., 2012; Patrick, Venables, Yancey, et al., 2013).

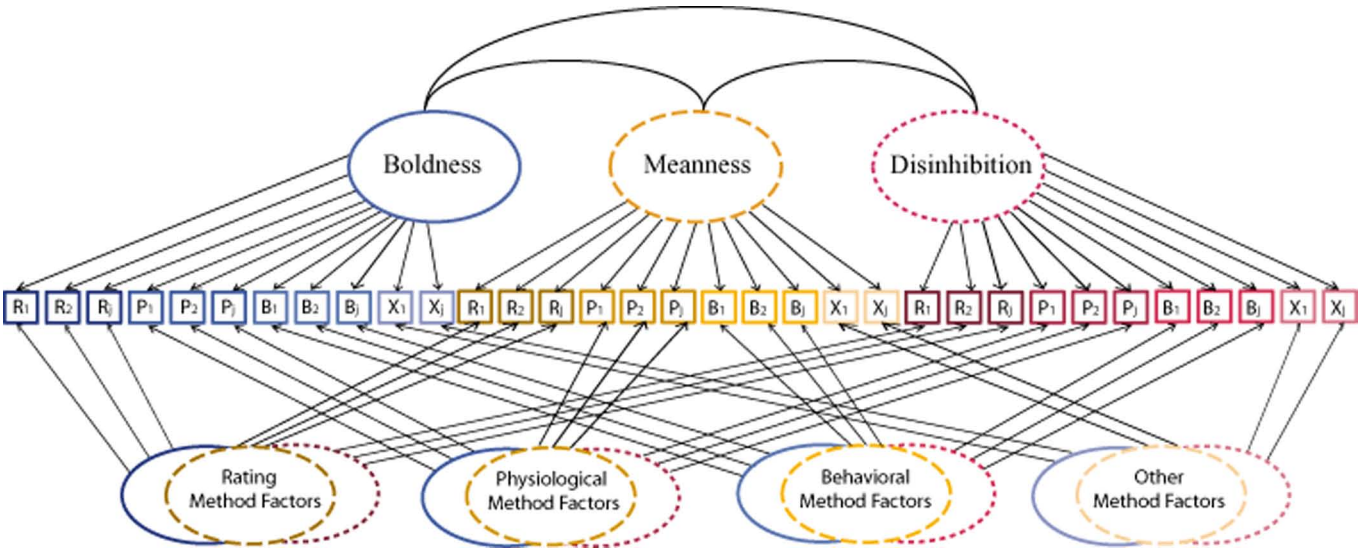

Figure 3 Schematic illustration of a multiple indicator, multi-domain latent variable model of the three triarchic constructs (boldness, meanness, disinhibition). Latent variables are depicted as ovals; manifest (observed) indicators are depicted as rectangles. R = rating; P = physiological; B = behavioral; X = other method (i.e., indicators from additional domains, such as brain anatomy, neurochemistry, or genetic material); subscripts 1– j denote differing indicators within the same measurement domain. For the "Other Method" domain, only two indicators are depicted for each triarchic construct in order to conserve space. Hue, along with line type of ovals (solid, dashed, dotted—for purposes of grayscale rendering), depicts the triarchic construct associated with each indicator, and brightness depicts the measurement domain that each indicator comes from. The schematic shows how the triarchic constructs can, in principle, be modeled as correlated latent variables representing the systematic covariance among diverse indicators from multiple domains of measurement. In addition to indexing the constructs of the triarchic model across measurement domains, systematic method variance within each specific domain is also accounted for in the model through specification of latent method-variance subfactors.

As shown in Figure 1, much is known about the correlates in differing measurement domains of disinhibition conceived of as general externalizing proneness (Krueger et al., 2002, 2007; Patrick, Venables, Yancey, et al., 2013). Importantly, research has begun to delineate relationships among indicators of disinhibition within domains other than self- or other-report—including cognitive task performance (Young et al., 2009) and cortical brain response (Gilmore, Malone, & Iacono, 2010; Nelson, Patrick, & Bernat, 2011). Work has also been done to evaluate relations among indicators of disinhibition *across* distinct domains of measurement (e.g., self-report psychometric and brain physiological; Patrick, Venables, Yancey, et al., 2013), highlighting the possibility (illustrated in Figure 3) of operationalizing this psychopathy facet as a dimension of variability residing at the intersection of multiple domains. Work along similar lines can be done to identify sets of indicators of boldness and meanness from differing domains and delineate their points of convergence with one another and with indicators of disinhibition.

This cross-domain approach to construct operationalization and validation is compatible with efforts being made to connect trait constructs from personality models such as the FFM developed in the domain of self-report to other domains including psychiatric diagnosis, general health, and neurobiology. Indeed, an explicit purpose of the triarchic conceptualization (cf. Figures 1 and 2) is to facilitate linkages between the nomological network of psychopathy and dimensions from established models of personality and psychopathology. As such, this cross-domain approach is highly compatible with initiatives of major federal agencies—including the National Institute of Mental Health (Insel et al., 2010), the National Institute on Aging (Reiss, Eccles, & Nielsen, 2014), and the United States Army (National Research Council, 2013)—that encourage expanded approaches to individual difference assessment. Additionally, it will be important to investigate the emergence, trajectories, and interplay of these distinct psychopathy facets across time. Systematic consideration of developmental processes in relation to the multi-domain triarchic framework will add a further essential layer of depth to our understanding of the nature of psychopathy and its causes (cf. Durbin & Hicks, 2014).

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