CONSTRUCT VALIDITY OF THE COMPREHENSIVE ASSESSMENT OF

PSYCHOPATHIC PERSONALITY – SELF REPORT FORM

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by

Nicholas Kavish

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APPROVED:

Jaime Anderson, PhD
Committee Director

Marcus Boccaccini, PhD
Committee Member

Laura Drislane, PhD
Committee Member

Eric Connolly, PhD
Committee Member

Chien-Pin Li, PhD
Dean, College of Humanities and Social
Sciences

ABSTRACT

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Psychopathy refers to a constellation of personality traits with significant public health implications. Yet, there remains ongoing debate regarding the optimal measurement of psychopathic traits—what traits to include, whether traits such as antisocial behavior are a symptom or a correlate, and how to best organize our models of psychopathic traits. Seeking to address some of these issues, the Comprehensive Assessment of Psychopathic Personality (CAPP) is a concept map that was developed using a "bottom-up" approach incorporating extensive literature review and consultation with subject matter experts. The concept map consists of 33 symptoms thematically organized into six domains—Attachment, Behavior, Cognitive, Dominance, Emotion, and Self. Recently, the CAPP – Self Report form (CAPP-SR) was developed as a 99 item self-report operationalization of the CAPP concept map, with 3 items per CAPP symptom, but its psychometric properties have not been extensively or independently investigated. The current study evaluated the internal consistency, factorial structure, and construct validity of the CAPP-SR in a large, mixed sample of undergraduate students (*n* = 700) and Amazon Mechanical Turk workers (*n* = 238). No organizational structure was superior according to all metrics, but a theoretically supported three factor solution representing behavioral, affective, and interpersonal traits appeared to be the optimal solution. The CAPP-SR demonstrated significant overlap with other pre-existing psychopathy measures and the three-factor solution evinced relatively good convergent and discriminant associations with external criterion. Overall, the CAPP-SR seems to

measure a similar construct to, and is best organized in a similar manner to, prior

psychopathy measures and it remains unclear whether the new measure captures

meaningful information neglected by other models or outperforms them in prediction of

important outcomes.

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CHAPTER I

Introduction

In the previous decades (e.g., Asscher et al., 2011; Blais et al., 2014; Hare, 1992/2003), researchers have laid the groundwork for a nearly incontrovertible argument that psychopathy is a public health concern due to the associations between higher levels of psychopathic traits and increased risk for violence and other antisocial behavior (see Reidy et al., 2015). Experts differ on the inclusion and centrality of certain traits, but there is a general consensus that psychopathy refers to a collection of intercorrelated interpersonal (superficial charm, manipulativeness), affective (callousness, lack of guilt or remorse), and behavioral (impulse control problems) features (Cleckley, 1941; Cooke & Michie, 2001; Hare 1992/2003; Patrick et al., 2009). Some researchers view antisocial behavior as a core feature of psychopathy (e.g., Hare, 1991/2003), whereas others argue antisocial behavior is a downstream correlate of psychopathic traits (Skeem & Cooke, 2010a), but there is little doubt that psychopathic traits are relevant for the study and prevention of violent and criminal behavior (DeLisi, 2009; Reidy et al., 2015).

Beginning in adolescence, the presence of psychopathic traits is associated with increased risk for long term criminal activity and violence (Lynam, 1996; Vaughn & DeLisi, 2008). Individuals with higher levels of psychopathic traits, on average, engage in more crime, more severe violence, and recidivate, including sexual recidivism, at higher rates relative to individuals with lower levels of these traits (Coid & Yang, 2011; Hawes et al., 2013; Porter et al., 2018). Indeed, despite only an estimated 1% of the general population scoring extremely highly (score of 30 or higher) on the Psychopathy Checklist -Revised edition (PCL-R; Hare, 1991/2003; Hare, 1996), as many as 25% of

incarcerated individuals may score in this range. Given their overrepresentation in criminal justice populations and the connection between psychopathic traits and chronic offending, the annual cost to society of psychopathy is estimated at nearly $460 billion (Kiehl & Hoffman, 2011).

Although staggering on its own, the $460 billion estimate above is only for criminal justice system-specific costs (e.g., institutionalization costs, court costs, lost property, etc.). In other words, the estimate does not include the costs of hospitalization for the victims of violent and sexual assaults by psychopathic individuals, therapy costs for those affected by the actions of psychopathic individuals, and lost productivity due to problematic workplace behaviors. For example, Neo and colleagues (2018) found some traits of psychopathy (e.g., meanness and disinhibition) to be associated with counterproductive workplace behaviors, although there is not sufficient evidence yet to conclude that psychopathic traits necessarily result in a net-negative outcome for the workplace (see also Smith & Lilienfeld, 2013).

Psychopathic traits are not only associated with societal burden and costs to victims, as psychopathic traits are also associated with a number of personal costs as well. Although individuals with psychopathy are typically viewed solely as predators, research suggests that psychopathic traits, especially the behavioral features (impulsivity and antisociality), are also associated with increased odds of being victimized (Beaver et al., 2016; Silver et al., 2011). Furthermore, a body of research is accumulating which finds impulsive and antisocial features of psychopathy to be positively correlated with internalizing psychopathology and symptoms of post-traumatic stress disorder (e.g., Kavish et al., in press; Kubak & Salekin, 2009; Latzman et al., 2019). Both self-reported

and clinician ratings of impulsive psychopathic traits have also been associated cross-sectionally with suicide related behaviors (i.e., suicide attempts and self-injury) in incarcerated populations (Douglas et al., 2008; Smith et al., 2014).

Despite the substantial, and exponentially growing, body of research on the construct of psychopathy, one of the most significant remaining questions for researchers in this area is how best to define and measure psychopathic traits. Debates continue regarding which traits or symptoms are core features of the construct (see Lilienfeld et al., 2012; Miller & Lynam, 2012; Skeem & Cooke, 2010a) and what the optimal factor or domain structure is for organizing these traits (Cooke & Michie, 2001; Hare, 2003; Neumann et al., 2005; Patrick et al., 2009). Disagreement over these topics has resulted in an array of measures and models of psychopathy including the PCL-R, Triarchic Psychopathy Measure (TriPM; Patrick, 2010), Psychopathic Personality Inventory - Revised (PPI-R; Lilienfeld & Widows, 2005), Elemental Psychopathy Assessment (EPA; Lynam et al., 2011), and the Levenson Self-Report Psychopathy Scale (LSRP; Levenson et al., 1995) to name a few.

Given the extensive negative impact of psychopathic traits on individuals and society reviewed above, improving our ability to assess these traits is vital for understanding the development and improving prevention and treatment of psychopathic personality disorder. Recently, a newer model of psychopathy, the Comprehensive Assessment of Psychopathic Personality (CAPP; Cooke et al., 2012), has emerged which is argued to be more inclusive and dynamic in its approach to psychopathy. Several measures of the CAPP model have been developed including both clinician rating scales and self-report measures; however, they have yet to be extensively, independently

researched to establish their psychometric properties. The current study seeks to contribute to the nascent literature on the CAPP model by evaluating the construct validity of the CAPP Self-Report (CAPP-SR; Sellbom et al., 2019). Prior to discussing the development of the CAPP model, I will first provide context for the model through a brief overview of the history of the study of psychopathy, including some of the classic descriptions, contemporary models, and current controversies.

Psychopathy

Early Clinical Descriptions

Descriptions of individuals that would likely be considered "psychopathic" can be found in writings throughout history, including in the bible and medieval texts, but the first description of psychopathy as a distinct mental disorder is thought to have come from Phillipe Pinel (1801/1962; see Arrigo & Shipley, 2001). Pinel described patients suffering from "mania without delirium", characterized by impulsivity, violent episodes, and self-destructive behavior, but who were not psychotic or unable to understand the consequences of their behavior (Millon et al., 1998). In other words, the disorder was viewed as purely an affective deficit, with no impairment in cognition or reality testing.

Around the same time as Pinel was writing, Benjamin Rush (1812) characterized a disorder that was biological in nature, likely due to a hereditary lack of morality or damage from a disease, with unstable environments further promoting the individual's moral depravity (Arrigo & Shipley, 2001; Millon et al., 1998). Similar to Pinel (1801/1962) and Rush (1812), Prichard (1835) described patients without intellectual deficits, problems with reasoning, or signs of delusion or hallucination, yet who possessed personality deficits and irresistible impulses which resulted in violent and

criminal behavior. He introduced the phrase "moral insanity" to characterize these individuals (Arrigo & Shipley, 2001). Clinicians throughout the 19th century continued to provide descriptions of individuals with *psychopathic inferiority* (Koch, 1891) – a morally neutral descriptor for hereditary abnormal behavior not caused by insanity, with types including some which are recognizable as psychopathy – and *moral imbecility* (Maudsley, 1897/1997), cerebral deficits resulting in total lack of morality. With the turn of the 20th century, views of psychopathic individuals turned increasingly back toward condemnation with Krafft-Ebbing (1904) suggesting they be warehoused in asylums and Kraepelin (1915) describing them as "…the enemies of society…" (Arrigo & Shipley, 2001; Millon et al., 1998).

In 1941, Hervey Cleckley published *The Mask of Sanity,* which is credited as introducing the contemporary construct of psychopathy. He continued to refine his criteria for psychopathy across his career, producing a list of 16 characteristics of psychopathy in the fifth edition of his book (Cleckley, 1976). Cleckley (1976) described the "psychopath" as 1) possessing superficial charm and good intelligence, 2) lacking delusions or other signs of irrationality, 3) lacking nervousness or neurotic manifestations, 4) being unreliable, 5) demonstrating dishonesty and insincerity, 6) lacking remorse or shame, 7) engaging in antisocial behavior without adequate motivation, 8) showing poor judgment and an inability to learn from experience, 9) being egocentric and lacking a capacity for love, 10) having a poverty of emotional reactions, 11) lacking insight, 12) lacking responsivity in interpersonal relationships, 13) uninviting behavior with or without intoxication, 14) suicidal threats but rarely with suicide attempts, 15) an impersonal sex life, and 16) failure to follow any life plan. Importantly,

although Cleckley (1941, 1976) suggested that the behavior of psychopathic individuals often results in negative consequences, he also argued that primary characteristics of psychopathy, including interpersonal (superficial charm, glibness) and affective traits (lack of remorse, emotional detachment), could be adaptive for both criminal and noncriminal careers – suggesting criminality is not a necessary characteristic of the disorder.

Other researchers have forwarded influential ideas regarding psychopathy since the era of Cleckley's seminal work. Karpman (1941, 1948) and Lykken (1957) proposed the existence of two types of psychopathy, a primary type – closely reflecting Cleckley's description of the cold, fearless, calculating individual with a largely hereditary etiology – and a secondary type characterized by greater neuroticism and emotional reactivity and thought to have an etiology with a greater contribution from the environment (e.g., poor parenting). Alternatively, McCord and McCord (1964) characterized the "psychopath" as a coldhearted predator motivated predominantly by rage. Together with the writings of Cleckley (1941, 1976), these theories on psychopathic behavior have greatly influenced contemporary models and measurement of psychopathic traits.

Psychopathy in the Diagnostic and Statistical Manual of Mental Disorders

The American Psychiatric Association's (APA) *Diagnostic and Statistical Manual of Mental Disorders* (DSM; 1952; 1968; 1980; 1994; 2013) is the dominant manual for classification and diagnosis of mental disorders by clinicians and researchers in the United States. An operationalization of the construct of psychopathy, albeit under different names and with varying levels of focus on personality versus behavioral characteristics, has been included in the *DSM* since its first edition (1952). In the original

DSM, psychopathy was known as *sociopathic personality disturbance* and reflected a fusion between prominent case descriptions (e.g., Cleckley, 1941) and the growing focus on the influence of the environment resulting from the rise of behaviorism (Arrigo & Shipley, 2001; Millon et al., 1998). Sociopathic personality disturbance was a broad category encompassing an array of chronically deviant individuals, including multiple subtypes such as antisocial – characterized by an inability to learn from trouble/punishment, demonstrating no loyalties – and dyssocial – more professional offenders who were able to maintain some specific loyalties with their co-offenders (APA, 1952; Arrigo & Shipley, 2001; Pickersgill, 2012). With the publication of *DSM-II* (APA, 1968), the dyssocial classification was removed and psychopathy was captured under the description of *antisocial personality*, but critics maintained the *DSM* did not provide clear diagnostic criteria for the disorder (Hare, 1996).

In 1980, the APA introduced the third edition of the *DSM*, with a significant increase in focus on diagnostic criteria for mental disorders. In this edition, the *DSM*'s equivalent of psychopathy was first given its current diagnostic label – antisocial personality disorder (ASPD; APA, 1980). Although in earlier editions the criteria for diagnosing the psychopathy construct (i.e., sociopathic personality disturbance, antisocial personality) were not clearly delineated, they did retain references to personality characteristics reflecting Cleckley's (1941) descriptions (e.g., lack of guilt or anxiety; APA, 1952; 1968; Arrigo & Shipley, 2001). With the shift toward specific diagnostic criteria in *DSM-III* (1980), the operationalization of psychopathy (antisocial personality disorder) became based almost exclusively on behavioral features because behavioral features were thought to be easier to reliably measure compared to personality traits

(Hare, 1996). Some revisions have been made to these criteria in more recent editions of the *DSM* (1994; 2013); however, ASPD remains a largely behavioral construct reflecting antisocial and criminal activity that does not fully capture the personality construct described by early clinicians such as Cleckley (1941; Hare, 1996)[1].

Measurement of Psychopathic Traits

Recognizing the limitations of the *DSM* approaches to psychopathy, Robert Hare (1980) developed a 22-item rating form meant to more closely capture the construct of psychopathy described by Cleckley (1941; 1976). Researched, revised, and formally published during the ensuing decade, the instrument was reduced to 20 items and became known as the Psychopathy Checklist – Revised (PCL-R; Hare, 1991/2003; Hare et al., 1991). Designed for use with offender samples, the PCL-R is scored by a trained researcher or clinician following an in-depth interview and extensive record review. Each item is rated on a 3-point scale (0 = no, 1 = may apply/applies to some extent, 2 = yes, applies to the individual) and the items were initially divided into two correlated factors: an interpersonal/affective Factor 1 (e.g., manipulativeness, lack of remorse) and a behavioral Factor 2 (impulsivity, antisocial behavior; see Hare, 1991/2003 for full listing of items). Subsequent analyses of the PCL-R have found evidence for a three-factor structure (interpersonal, affective, and behavioral; Cooke & Michie, 2001) with the removal of explicitly antisocial items, as well as a four-facet structure (interpersonal, affective, lifestyle, antisocial; Hare, 2003). The PCL-R quickly became popular, even being referred to as the "gold-standard" for assessing psychopathy (see Skeem & Cooke,

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[1] It is worth noting, however, that *DSM-5* (APA, 2013) includes a personality trait-based model for personality disorders in its section for emerging models which includes ASPD and a psychopathy specifier.

2010a), and a number of additional measures closely aligned with the PCL-R operationalization of psychopathy have been developed, including the PCL: Screening Version (PCL:SV; Hart et al., 1995), PCL-Youth Version (PCL-YV; Forth et al., 2003), Antisocial Process Screening Device (APSD; Frick & Hare, 2001); Self-Report Psychopathy scale (SRP; Hare, 1985), and the Levenson Self-Report Psychopathy scale (LSRP; Levenson et al., 1991).

Despite the popularity of Hare's approach to psychopathy, some researchers criticized its saturation with antisocial behavior – it was designed for use with offender populations – as well as its deviance from some of Cleckley's (1941; 1976) descriptions (Lilienfeld & Andrews, 1996). Specifically, Cleckley (1941; 1976) did not characterize his "psychopaths" as being impulsive, yet the PCL-R explicitly assesses impulsivity (Hare, 1991/2003). Similarly, Cleckley (1941; 1976) included a lack of anxiety or nervousness as a core feature of psychopathy, yet the PCL-R does not incorporate an assessment of anxiety/fear (Hare, 1991/2003). Lilienfeld and Andrews (1996) sought to improve upon these limitations in the assessment of psychopathy by using Cattell's (1950) *inductive-hypothetico-deductive* approach[2] to develop a self-report instrument: the Psychopathic Personality Inventory (PPI), which was subsequently revised (Psychopathic Personality Inventory – Revised; PPI-R; Lilienfeld & Widows, 2005).

In contrast to the intercorrelated facets of the PCL-R, the PPI and PPI-R consist of items assessing two largely orthogonal scales: Fearless Dominance and Impulsive Antisociality/Self-Centered Impulsivity (Lilienfeld & Andrews, 1996; Lilienfeld &

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[2] An iterative approach to test development in which understanding of a construct is used to produce an item pool which is empirically refined, while simultaneously, the data from the test refinement are used to inform and clarify the constructs of interest (Cattell, 1950; Lilienfeld & Andrews, 1996).

Widows, 2005; Benning et al., 2003). In the PPI-R, Fearless Dominance (FD) includes

loadings from three subscales - Social Influence, Fearlessness, and Stress Immunity –

with Machiavellian Egocentricity, Rebellious Nonconformity, Blame Externalization, and

Carefree Nonplanfulness loading onto the Self-Centered Impulsivity (SCI) factor

(Lilienfeld & Widows, 2005). SCI has been found to be positively associated with

external criteria, such as anger/hostility, impulsivity, substance use, and antisocial

behavior, similar to other measures of psychopathy (e.g., PCL-R); however, FD appears

to assess more adaptive functioning and is negatively related to anger, anxiety, and

depression (e.g., Edens & McDermott, 2010).

A little more than a decade after Lilienfeld and Andrews (1996) introduced the

PPI, with the three subscales comprising fearless dominance reflecting one of the first

efforts to more fully capture the socially potent, emotionally stable features of Cleckley's

(1941; 1976) "psychopaths", Patrick and colleagues (2009) published a new triarchic

theory of psychopathy. Patrick et al. (2009) reviewed the existing literature and historical

conceptualizations of psychopathy and sought to develop a model which conceptualized

psychopathy in terms of "elemental phenotypic constructs" (p. 914). In other words, the

authors wanted their conceptualization of psychopathy to reflect traits that could be more

easily connected to neurobiological mechanisms and etiological or developmental paths,

incorporating knowledge from the developmental psychopathology literature and

improving the ability to assess psychopathy in adolescents and children.

The triarchic model of psychopathy consists of three domains: Boldness,

Meanness, and Disinhibition (Patrick et al., 2009), first operationalized in the Triarchic

Psychopathy Measure (TriPM; Patrick, 2010). Boldness is most similar to PPI/PPI-R

Fearless Dominance and is characterized by social dominance, the ability to cope with stressful situations, and adventurousness or thrill-seeking behavior. Meanness is described as closely related to other terms like callousness or coldheartedness and describes a pattern of exploitative, predatory, and even aggressive behaviors. Finally, disinhibition is characterized by poor control of impulses and poor emotion regulation (Patrick et al., 2009).

Lynam and colleagues (2011) also sought to develop an assessment tool for psychopathy that captured more basic traits. In particular, these researchers elected to use the five-factor model of personality (FFM) as the foundation of their elemental trait model. Prior to their work, a substantial body of research had examined correlations between measures of psychopathy and measures of the FFM (e.g., Derefinko & Lynam, 2006; Lynam et al., 2007) and found consistent clusters of traits relevant to psychopathy (Lynam & Widiger, 2007). However, measures of the FFM are generally designed to capture normative levels of these traits, potentially making them less ideal for capturing the pathological extremes of highly psychopathic individuals. Indeed, some research suggests that general measures of personality provide the most information at moderate levels of each trait relative to the poles (e.g., Walton et al., 2008). Consequently, Lynam et al. (2011) created a new measure, the Elemental Psychopathy Assessment (EPA), by selecting FFM facets most related to psychopathy and writing new items intended to align with the facets, but with more pathological or extreme wording. The EPA is a 178 item self-report measure consisting of 18 subscales (e.g., Anger-Hostility, Urgency, Callousness, and Arrogance) with evidence for good convergent validity with other psychopathy measures (Lynam et al., 20011; Wilson et al., 2011).

Ongoing Debates in Measurement of Psychopathy

The field of psychopathy research has witnessed a number of major debates including whether it is taxonic or continuous, how psychopathic traits are optimally structured, and if psychopathy can be treated. Two debates regarding what traits are core features of psychopathy have been particularly vigorous in the last decade or two. First, researchers have argued regarding the assessment of explicit antisocial or criminal behavior in psychopathy instruments (e.g., Cooke & Michie, 2001; Hare & Neumann, 2005; see Skeem & Cooke, 2010a). Proponents of the inclusion of antisocial behavior maintain that antisocial behavior is inherent or central to psychopathy (Hare & Neuman, 2005; 2010), whereas other researchers argue that the emphasis on antisocial and criminal behavior in instruments such as the PCL-R represents a "construct drift" from the descriptions of Cleckley (Skeem & Cooke, 2010a,b). Furthermore, critics argue that psychopathy measures are most often validated in terms of their ability to predict violent and other criminal behaviors, resulting in a tautological problem wherein traits (psychopathy) are inferred from behavior (violence, crime), but also used to explain the violent or criminal behavior. Ellard (1988) provides possibly the simplest demonstration of the problem of tautology, writing: "Why has this man done these terrible things? Because he is a psychopath. And how do you know that he is a psychopath? Because he has done these terrible things" (p. 387).

A second major debate in the psychopathy literature concerns the relevance of boldness to the construct (e.g., Gatner et al., 2016; Lilienfeld et al., 2012; Lilienfeld et al., 2016; Miller & Lynam, 2012). On the one hand, some researchers reference Cleckley's (1941; 1976) descriptions of the "psychopath" as lacking anxiety and neuroticism and

possessing superficial charm and "good intelligence" as evidence for the role of boldness (i.e., social potency and emotional resilience). Furthermore, Lilienfeld et al. (2016) provide meta-analytic evidence that boldness is moderately associated with well-validated psychopathy measures that are not derived from the PCL-R. Conversely, others point out meta-analytic evidence that boldness (or the overlapping construct of fearless dominance) is associated predominantly with adaptive functioning and is largely unrelated to outcomes that psychopathy researchers are often most interested in, such as violence and criminal behavior (see Miller & Lynam, 2012).

Unfortunately, the two controversies referenced above and many other debates within the field of psychopathy research cannot be solved simply through the collection of more data. The PCL-R is a measure or an operationalization of the construct of psychopathy, not the construct itself (Hare & Neumann, 2010; Skeem & Cooke, 2010a,b) and "Continued analysis of the same 20-item pool cannot address the fundamental [theoretical] issues…" (p. 456; Skeem & Cooke, 2010b). Instead, Skeem and Cooke (2010) call for the use of theory to guide the mapping and measurement of psychopathy – leading to the introduction of the Comprehensive Assessment of Psychopathic Personality (CAPP; Cooke et al., 2012).

Comprehensive Assessment of Psychopathic Personality: A Conceptual Model

Cooke et al. (2012) argued that many of the largest debates in the field of psychopathy research could not be solved through further research using the same existing psychopathy measures. Instead, the authors proposed the field needed a new conceptual model of psychopathy, encompassing all of the features of the disorder as identified in clinical descriptions, which could serve as a "Rosetta stone" for the field (p.

243; Cooke et al., 2012). Such a concept map would then serve to improve understanding, evaluation, and translation between various models and measures of psychopathy.

To produce their concept map, the authors systematically reviewed clinical writings on psychopathic patients and the empirical psychopathy literature, as well as consulting with experts on psychopathy. During this "bottom-up" developmental process, Cooke and colleagues (2012) maintained several assumptions about concept development broadly, and personality disorder specifically. Symptoms of personality disorder were assumed to reflect pathological personality characteristics, rather than being defined by behavioral deviance or social norm violations (i.e., antisocial behavior). Efforts were also made to define symptoms in atomistic terms, reflecting simple, discrete features of personality as opposed to complex or compound features, and using natural language – following the lexical hypothesis that words for meaningful variation in basic personality characteristics are present in natural or everyday language (i.e., not technical or jargon; Goldberg, 1993). Furthermore, within the new model, symptoms are viewed as variant over time (in contrast to the relatively lifetime invariant items on the PCL-R such as having a history of early behavior problems, juvenile delinquency, or revocation of release; Hare, 1991/2003) and as capable of being meaningfully organized into a hierarchical structure (Cooke et al., 2012).

Ultimately, Cooke and colleagues (2012) produced what they named the Comprehensive Assessment of Psychopathic Personality (CAPP), a concept map consisting of 33 symptoms, presented as one-word adjectives or brief adjectival phrases. Accompanying each symptom, the authors provide three additional synonymous

adjectives/adjectival phrases to help understand the symptom through "triangulation" (p. 245). To create a hierarchical structure, the 33 symptoms were rationally (i.e., not empirically) organized into six domains: Attachment, Behavioral, Cognitive, Dominance, Emotional, and Self (see Table 1). Difficulties with interpersonal relationships and intimacy are captured by symptoms such as Detached and Uncaring, which are placed in the Attachment domain. The Behavioral domain contains symptoms including Reckless and Aggressive and encompasses impulsive features that impair behavioral regulation and goal-directedness. Symptoms such as Suspicious and Intolerant reflect difficulties with flexible thinking and the ability to adapt in various situations and are housed within the Cognitive domain. The Dominance domain contains symptoms related to status seeking, assertiveness and agentic behaviors (e.g., Antagonistic, Manipulative). Impairment in emotion or mood regulation is included in the Emotional domain through symptoms including Lacks Anxiety and Lacks Emotional Stability. Lastly, the Self domain is composed of symptoms related to identity disturbance and individuality such as Self-centered and Unstable Self Concept (Cooke et al., 2012). Importantly, the authors note that this six-domain organization is not empirical and may not align with the results of factor analytic and other statistical structural assessments (Cooke et al., 2012).

Table 1

Domains and Symptoms of the CAPP Model

CAPP Domains/Symptoms	Synonymous adjectives/adjectival phrases
CAPP Attachment	
A1. Detached	Remote, distant, cold
A2. Uncommitted	Unfaithful, undevoted, disloyal

CAPP Domains/Symptoms	Synonymous adjectives/adjectival phrases
A3. Unempathic	Uncompassionate, cruel, callous
A4. Uncaring	Inconsiderate, thoughtless, neglectful
CAPP Behavioral	
B1. Lacks Perseverance	Idle, undisciplined, unconscientious
B2. Unreliable	Undependable, untrustworthy, irresponsible
B3. Reckless	Rash, impetuous, risk-taking
B4. Restless	Overactive, fidgety, energetic
B5. Disruptive	Disobedient, unruly, unmanageable
B6. Aggressive	Threatening, violent, bullying
CAPP Cognitive	
C1. Suspicious	Distrustful, guarded, hypervigilant
C2. Lacks Concentration	Distractible, inattentive, unfocused
C3. Intolerant	Narrow-minded, bigoted, hypercritical
C4. Inflexible	Stubborn, rigid, uncompromising
C5. Lacks Planfulness	Aimless, unsystematic, disorganized
CAPP Dominance	
D1. Antagonistic	Hostile, disagreeable, contemptuous
D2. Domineering	Arrogant, overbearing, controlling
D3. Deceitful	Dishonest, deceptive, duplicitous
D4. Manipulative	Devious, exploitative, calculating

CAPP Domains/Symptoms	Synonymous adjectives/adjectival phrases
D5. Insincere	Superficial, slick, evasive
D6. Garrulous	Glib, verbose, pretentious
CAPP Emotional	
E1. Lacks Anxiety	Unconcerned, unworried, fearless
E2. Lacks Pleasure	Pessimistic, gloomy, unenthusiastic
E3. Lacks Emotional Depth	Unemotional, indifferent, inexpressive
E4. Lacks Emotional Stability	Temperamental, moody, irritable
E5. Lacks Remorse	Unrepentant, unapologetic, unashamed
CAPP Self	
S1. Self-Centered	Egocentric, selfish, self-absorbed
S2. Self-aggrandizing	Self-important, conceited, condescending
S3. Sense of Uniqueness	Sense of being extraordinary, exceptional, special
S4. Sense of Entitlement	Demanding, insistent, sense of being deserving
S5. Sense of Invulnerability	Sense of being invincible, indestructible, unbeatable
S6. Self-Justifying	Minimizing, denying, blaming
S7. Unstable Self Concept	Labile, incomplete, chaotic sense of self

A conceptual model such as the CAPP can be validated in at least two ways. First, drawing on the fact that the CAPP was developed using a lexical approach, the model can be directly assessed through translation into other languages whereby experts and lay people can evaluate the relevance or prototypicality of the symptoms for psychopathy.

Successful translation and ratings of prototypicality across multiple languages lends support that a symptom is a "true" lexical marker contributing to understanding psychopathy. To date, the CAPP concept map has been successfully translated into more than a dozen languages, including languages from diverse language families (e.g., Indo-European [German, Swedish] and Afro-Asiatic [Hebrew, Korean] languages), providing evidence for the cross-cultural relevance of the symptoms and preliminary evidence for the validity of the concept map (Cooke et al., 2012; Cooke, 2018).

In addition to translation of the CAPP symptoms, validity of the CAPP model can be directly assessed through prototypicality studies – wherein mental disorders are treated as categories with fuzzy boundaries and thus are best understood by focusing on a prototype or "theoretical ideal" of the concept and comparing other members of the category to this prototype (Cooke, 2018; Rosch, 1973). In a prototypicality study, judges rate how important or central each symptom is to the concept (e.g., how central Callousness is to psychopathy). To date, a large number of prototypicality studies have been conducted, assessing the CAPP model across a variety of languages (e.g., Florez et al., 2015; Hoff et al., 2014) and across types of judges (clinicians, forensic experts, lay raters; e.g., Florez et al., 2015; Hoff et al., 2012; Kreis et al., 2012). Results from these studies generally suggest that CAPP symptoms are seen as significantly more central to psychopathy than are symptoms thought to be irrelevant to psychopathy – foil items – and most of the 33 symptoms are seen as moderately to highly prototypical of the disorder (albeit with some variation across symptoms; e.g., Hoff et al., 2014; Kreis et al., 2012). Furthermore, symptoms of the CAPP have also been rated as lexically similar to other well-established measures of psychopathy, such as the TriPM (Gatner et al., 2017).

Taken together, these studies provide consistent evidence supporting the validity of the CAPP concept map and the utility of the CAPP symptoms as lexical markers of psychopathic personality traits.

Perhaps the ultimate purpose of developing a concept map, such as the CAPP, is to inform operationalization of the concept of interest through the development of empirical measures. Indeed, the development of measures of the CAPP model serves two important purposes: bringing the model into the real world where it may impact clinical practice and providing a second, indirect method for validating the conceptual model (Cooke et al., 2012; Cooke, 2018; Edwards & Bagozzi, 2000). Since the development of the CAPP model, the CAPP has been operationalized in multiple forms including both clinician rating (e.g., CAPP – Institutional Rating Scale, CAPP-IRS; Cooke et al., 2004) and self-rating (CAPP – Lexical Rating Scale, CAPP-LRS; Cooke et al., 2012; Sellbom et al., 2015) or self-report forms (CAPP – Self-Report, CAPP-SR; Sellbom et al., 2019). Research on the psychometric properties of these measures is necessary for establishing the validity of the instruments themselves and can speak to the validity, or need for refinement, of the CAPP concept map (Cooke et al., 2012; Cooke, 2018; Edwards & Bagozzi, 2000). Prior to reviewing the existing psychometric literature on measures of the CAPP model, including areas in need of further study, I provide a brief overview of common approaches to measurement validation.

Validating Psychological Measures

There are three overarching components to the quality of a psychometric measure – discriminating power, reliability, and validity – organized in a hierarchical manner such that discriminability is necessary for reliability, and reliability in turn is essential for

validity (Cooper et al., 2017). Discriminating power is often left out of conversations about measurement quality because it is generally clear that without discriminability (i.e., the ability to produce a sufficient spread of scores that differentiates individuals) a test meant to capture individual differences is without value. Thus, discriminating power is generally only of note in more subtle cases with a restriction of range due to floor or ceiling effects (Cooper et al., 2017).

Reliability

Reliability refers to the idea that all measures of a construct contain some level of error, which results in an individual's score on a measure (the observed score) being equal to their true score plus measurement error. Thus, in every score on a measure there is true variance and error variance, with reliability defined as the ratio of true variance to error variance. Reliability can be assessed in several ways. The same measure can be administered at two or more time points and the association between the scores on the measure across time can be assessed to establish test-retest reliability. Alternatively, individuals can be given two different, but equivalent tests of a construct, called parallel forms and scores on the parallel forms are then compared to establish reliability. Self-report measures being given at only a single timepoint can be evaluated for internal consistency reliability and measures wherein the individual is rated by a clinician can be evaluated for inter-rater reliability – agreement between independent ratings of traits for the same individual (Cooper et al., 2017). Notably, there are multiple methods of calculating inter-rater reliability, such as absolute agreement (the degree to which ratings of the same individual by different raters correspond) and consistency agreement (i.e., the degree to which the ratings by different evaluators correspond while controlling for each

evaluator's average ratings; McGraw & Wong, 1996). Put another way, the consistency agreement accounts for the degree to which one rater may give lower ratings on average, whereas another rater gives typically higher ratings. In the context of forensic practice, in which a single clinician might rate an individual on a risk assessment measure, the absolute agreement coefficient is most applicable.

Internal consistency reliability refers to the extent to which the items that comprise a given scale are measuring the same construct – although this does not at all give evidence that the scale measures the *intended* construct (McNeish, 2018). The vast majority of psychological studies use Cronbach's alpha (1951) to assess internal consistency of scales (Flake et al., 2017; Hogan et al., 2000). A number of interpretations exist for Cronbach's alpha including that it represents the proportion of variance in a scale that can be attributed to a common source (DeVellis, 1991), or that its square root provides an estimate of the correlation between the observed score and the true score (Nunnally & Bernstein, 1994; perfect reliability is indicated by alpha = 1.0). Despite the popularity of Cronbach's alpha in the research literature, there have also been many papers critical of its use because its rigid assumptions are almost always violated, resulting in biased estimates (usually underestimates; see McNeish, 2018). Specifically, Cronbach's alpha assumes tau equivalence (that all items on a scale contribute equally to a total score and would have identical loadings in a factor analysis), that all items on the scale are continuous items with normal distributions, that the errors of the items are uncorrelated (i.e., no covariance is caused by another source besides the construct of

interest; for example, processing speed accounting for covariance on a speeded test), and that the scale is assessing a construct that is unidimensional.[3]

Numerous and arguably better alternatives exist for Cronbach's alpha; however, they are less frequently used due to lack of availability in many common software packages (McNeish, 2018; Sijtsma, 2009). One of the more easily obtained alternative estimates is Omega (McDonald, 1999). Omega is conceptually similar, but superior, to Cronbach's alpha in that it is designed for congeneric scales – scales that are unit weighted despite not being equally strongly related to the construct of interest (having different loadings in factor analysis). In other words, tau equivalence is not assumed when calculating Omega, resulting in a greater estimate of reliability (McNeish, 2018). A second method for assessing internal consistency is calculating the average or mean inter-item correlation (MIC) of a scale. Higher MIC values indicate greater homogeneity of items (i.e., more consistency); however, very high MICs are interpreted as indicating item redundancy (MICs between 0.20 and 0.50 are recommended; Clark & Watson, 1995).

Validity

Put most simply, validity refers to the extent to which a measure actually assesses the construct it is intended to measure. Although validity is often viewed as a unitary construct, estimation of validity is undoubtedly multifaceted and consists of various aspects such as convergent and discriminant validity (Campbell & Fiske, 1959; see also Goodwin, 1999). Early researchers held that a measure was valid to the extent that it correlated with another theoretically relevant measure called a "criterion" (Goodwin, 1999); however, Campbell and Fiske (1959) introduced a more complex view of validity

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[3] Internal consistency is necessary, but not sufficient for unidimensionality; however, violations of this assumption do not necessarily bias the estimate (Green et al., 1977; Sijtsma, 2009).

with their multitrait-multimethod matrix. According to Campbell and Fiske (1959), a valid measure should demonstrate convergence or be associated with other measures of the same construct, but should also exhibit divergence or be less related/unrelated to measures of different constructs. In addition to comparing a measure of a construct to other measures to evaluate convergent, discriminant, or predictive (the extent to which a measure predicts an outcome; e.g., a risk assessment being correlated with future violence) validity, the factorial validity or factorial composition of the instrument is also an important aspect of construct validity.

Factorial Analysis

Factorial validity/composition refers to the internal structure of a measure (Goodwin, 1999). The most common method for establishing the internal structure of a measure is the use of factor analytic techniques. Factor analysis refers to a group of multivariate statistical methods that analyze the structure of the correlations between items on a test by identifying common underlying dimensions, generally called factors (Hair et al., 1995). Put another way, psychological constructs are typically unobservable and must be indirectly assessed using various indicators (often items on an assessment instrument). Factor analysis explores the items on the instrument and explains the relations between them using one or more unobserved or latent variables, known as factors (Flora & Flake, 2017; Thurstone, 1947).

There are several methods of analysis within the umbrella category of factor analytics. The first two methods are *exploratory factor analysis* (EFA) and *confirmatory factor analysis* (CFA). EFA and CFA are techniques based on the common factor model (Thurstone, 1947). The common factor model is essentially a linear regression model

with the observed variables (items) as outcomes and the unobserved, latent factors as predictors (Flora & Flake, 2017). Due to the fact that latent factors are, by definition, unobserved, the values of the predictors in the model are unknown. Therefore, the parameters of the regression coefficients (factor loadings) have to be estimated using the correlation structure among the observed variables.

Within the common factor model, manifest variables are viewed as the combination of common factors, unique factors, and measurement error. Error in this case affects only one observed variable (or test item) and does not contribute to associations between items. Common factors (the underlying latent variables referenced earlier) influence multiple items in the model. During the EFA and CFA process, the variance is partitioned as the primary focus is on the variation in observed variables explained by common factors (Flora & Flake, 2017).

The difference between the two methods, EFA and CFA, is that EFA is purely empirical and data driven, whereas CFA involves examining the fit of a prespecified structure. In an EFA, no restrictions are placed on the pattern of correlations between items and factors, allowing for free cross-loading of items across multiple factors and for the researcher to determine the optimal number of factors based on the data (Fabrigar et al., 1999). Conversely, in CFA, the researcher specifies the number of factors to extract ahead of time, along with the pattern of expected factor loadings of the observed variables, usually with the items constrained to only load on one of the common factors (i.e., no cross-loading; Fabrigar et al., 1999; Flora & Flake, 2017).[4] If EFA is used, then the researcher must also select a method of factor extraction and a method of factor

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[4] Fabrigar et al. (1999) also note that one can use CFA and *a priori* select multiple competing models of factor solutions and factor loading patterns to compare.

rotation. The rotation method determines how the factor is rotated in multidimensional space, with the goal of achieving a simple structure characterized by high variability within each factor (i.e., factors are represented by a subset of the test items which have higher loadings on the factor relative to the other test items) and reduced factorial complexity (each item only loads strongly on one or a subset of the common factors; Fabrigar et al., 1999).

In addition to EFA and CFA, researchers may use *exploratory structural equation modeling* (ESEM), a method that integrates features from both EFA and CFA within a structural equation modeling (SEM) approach to examine the factor structure of a measure (Marsh et al., 2009; Marsh et al., 2014)[5]. CFA is often seen as superior to EFA due to its more theory-driven approach and use of SEM techniques to adjust for measurement error, as well as allowing for tests of important features such as measurement invariance (Marsh et al., 2010). However, the use of CFA, especially within personality research, has been criticized due to its overly restrictive nature (i.e., constraining items to load only on one factor and eliminating cross-loading; see for example Hopwood & Donnellan, 2010). This approach frequently leads to inflated intercorrelations between factors (the cross-loading of items being constrained to zero forces the associations through at the factor level) resulting in reduced discriminant validity, biased structural parameter estimates due to misspecified measurement models, and ultimately poorly fitting factor structures at the item level (Asparouhov & Muthen, 2009; Marsh et al., 2014). ESEM approaches were designed to overcome these limitations by allowing items to more freely cross-load, but still retaining common

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[5] It should be noted that EFA and CFA are actually special cases of ESEM approaches (Marsh et al., 2014).

CFA/SEM parameter estimates, standard errors, and goodness-of-fit statistics, as well as selecting an *a priori* number of factors to extract (Marsh et al., 2010). This is not to say that ESEM is a panacea; however, as the freely estimated cross-loading of items (as in an EFA) can be highly susceptible to characteristics of one's sample, the ESEM approach constrains the correlations between residuals to zero (as in CFA), resulting in the same risk for misspecification seen in confirmatory methods (however, correlated residuals can be specified; Sellbom & Tellegen, 2019).

Construct Validity Research on the CAPP Model

As noted previously, several measures have been designed to assess the CAPP model. The CAPP – Institutional Rating Scale (CAPP-IRS; Cooke et al., 2004) is a clinician rating form for the CAPP model and is scored following an extensive interview and file review. The CAPP – Lexical Rating Scale (CAPP-LRS; Cooke et al., 2012; Sellbom et al., 2015) is a self-rating form consisting of the 33 CAPP symptoms - accompanied by their three synonymous adjectives/adjectival phrases – upon which participants rate themselves. Finally, the CAPP – Self-Report (CAPP-SR; Sellbom et al., 2019) is a 99-item self-report form with three items assessing each of the 33 CAPP symptoms. Research on the construct validity of various operationalizations of the CAPP model is still relatively in its infancy, but the preliminary findings generally appear supportive (e.g., Hanniball et al., 2019; Pedersen et al., 2010; Sandvik et al., 2012).

CAPP-SR

Most recently, a 99-item self-report inventory for the CAPP model has been developed (CAPP-SR; Sellbom et al., 2019). The CAPP-SR consists of three items assessing each of the 33 CAPP symptoms and demonstrated acceptable reliability

evidence in the development sample, as indicated by Omega estimates and average inter-item correlations. Furthermore, item response theory (IRT) analyses indicated the scales provide the most information at the higher end of the latent trait, an intended outcome for a measure meant to assess pathological functioning.

The instrument has yet to be independently examined; however, Sellbom and colleagues (2019) report the psychometric properties of the CAPP-SR from their two validation samples (Undergraduates from New Zealand, $N = 367$; United States community sample, $N = 407$). Internal consistency reliability estimates were generally acceptable in the validation samples. To assess criterion validity, the authors compared scores on the CAPP-SR to scores on the CAPP-LRS and found large correlations at the domain and total score levels (r's > .55). In terms of convergent validity, scores on the CAPP-SR were compared to scores on a diverse array of psychopathy measures including the TriPM, a short form of the EPA, and the fourth edition of the Self-Report Psychopathy Scale (SRP-4; Paulhus et al., 2016). Overall, the CAPP-SR symptoms and domains demonstrated good convergent validity, with the exception of four CAPP-SR symptoms (i.e., reckless, garrulous, lacks pleasure, unstable self-concept) which did not strongly correlate (r > .50) with any scale on the other psychopathy measures (Sellbom et al., 2019). Inclusion of both the CAPP-LRS and CAPP-SR in hierarchical regressions predicting scores on the other psychopathy measures provided evidence that the CAPP-SR accounts for more variance and provides incremental prediction of scores on other self-report psychopathy measures than the CAPP-LRS in almost every instance (Sellbom et al., 2019). Given the relative paucity of research on the CAPP-SR, I will also review

evidence for the CAPP model from studies examining other operationalizations of the model.

CAPP-IRS

Pedersen and colleagues (2010) compared the predictive validity of the CAPP-IRS to the PCL-SV in 96 male patients discharged from a Norwegian forensic psychiatric hospital. Inter-rater reliability coefficients for the CAPP-IRS domain scores (assessed by the intra-class correlation, ICC) ranged from fair (CAPP-IRS Emotional domain, ICC = .44) to good (CAPP-IRS Attachment domain, ICC = .79), but was numerically lower for all scales in comparison to all PCL:SV scales (total, part 1, and part 2)[6]. Internal consistency reliability for the CAPP-IRS total score was reportedly excellent (Cronbach's alpha = .96; Pedersen et al., 2010). Total scores for the CAPP-IRS and PCL:SV were strongly correlated (*r* = .90) and their domain or facet scores were moderately to strongly associated (*r*'s ranged from .54 - .85), suggesting strong convergent and relatively poor discriminant validity at the domain level. In terms of their ability to predict violent recidivism, the CAPP-IRS and PCL:SV were found to demonstrate moderate predictive validity and their predictive accuracy did not statistically differ (Pedersen et al., 2010).

Sandvik et al. (2012) also examined the CAPP-IRS in Norwegian offenders (*N* = 80 males) and compared scores on the CAPP-IRS to scores on the PCL-R and the Self Report Psychopathy Scale – III (SRP-III; Jones & Paulhus, 2010). Inter-rater reliability for the CAPP-IRS domains was better than in Pedersen et al. (2010), with ICC's ranging from .75 (Cognitive domain) to .93 (Dominance domain; Sandvik et al., 2012).

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[6] Recommendations for interpreting inter-rater reliability differ with McDowell (2006) suggesting ICC's < .40 (poor), ICC's between .40 and .75 (fair to good), and ICC's > .75 (excellent). Koo & Li (2016) recommend ICC's > .50 be interpreted as moderate, > .70 as good, and > .90 as excellent.

Cronbach's alpha for the CAPP-IRS domains ranged from .72 (Cognitive domain) to .90 (Self domain). The CAPP-IRS and PCL-R total scores were strongly associated ($r = .83$), and CAPP-IRS domains were generally moderately to strongly positively related to all PCL-R facet scores, with the exception of nonsignificant correlations between the Attachment, Dominance, and Self domains and PCL-R Facet 4 (antisocial facet). Associations between the CAPP-IRS and the SRP-III were less promising, with CAPP-IRS Behavioral and Cognitive domains moderately relating to all SRP-III facets, but few other significant associations. However, the PCL-R also demonstrated poorer overlap with the SRP-III, with only Facets 3 (Lifestyle) and 4 (antisocial) relating to any facet on the SRP-III (Sandvik et al., 2012). The pattern of findings suggest the CAPP-IRS demonstrated relatively strong evidence for reliability and convergent validity, particularly for the affective traits of psychopathy, and somewhat less evidence for discriminant validity in this sample.

In a sample of 72 male forensic patients with a prior diagnosis of schizophrenia spectrum disorders, De Page et al. (2018) examined the construct validity of the CAPP-IRS. Cronbach's alpha for the total and domain scores were .85 or greater, with the exception of the Cognitive (alpha = .53) and Emotional (alpha = .59) domains. Intra-class correlations for the CAPP-IRS domains were moderate (Attachment, ICC = .52) to good/excellent (Self, ICC = .88), except for the Cognitive domain for which inter-rater reliability was poor (ICC = .29). CAPP-IRS Behavior, Dominance, and Self were moderately associated with total and factor scores on the PCL-R, whereas CAPP-IRS Attachment, Cognitive, and Emotional were not significantly related to any PCL-R score (De Page et al., 2018). Notably, CAPP domains were significantly more associated with

Factor 1 (interpersonal/affective traits) than Factor 2 (impulsive/antisocial traits) on the

PCL-R, aligning with the findings of Sandvik et al. (2012) that the CAPP particularly

captures affective traits. With regards to predictive validity, the PCL-R was found to

better relate to actuarial risk scores and risk factors compared to the CAPP-IRS; however,

both instruments were similarly associated with actual clinical risk, as well as protective

factors (De Page et al., 2018).

In the only other known publication examining the psychometrics of the CAPP-

IRS, Florez et al., (2018) evaluated the instrument in a Spanish sample consisting of 204

incarcerated individuals (87% male). All ratings were given by the first author, so no

inter-rater reliability data is available; however, internal consistency was reported and

ranged from fair (alpha = .73; Cognitive) to good (alpha = .89; Behavioral) for the

domains and was excellent for the total score (alpha = .96). Mean inter-item correlation

for the full CAPP-IRS was .42 and ranged from .36 (Cognitive) to .66 (Attachment) for

the CAPP-IRS domains. Clark and Watson (1995) suggest average inter-item correlations

between .15 and .50, as very low values indicate the items assess different constructs and

very high values indicate item redundancy. Florez et al. (2018) also report the corrected

(median) item-total correlations for the CAPP-IRS to range from .57 (Cognitive) to .74

(Attachment). In terms of external validity, the CAPP domains were generally

moderately associated with sentence length, substance use, and personality pathology

(Florez et al., 2018). Overall, evidence largely supported the reliability and validity of the

CAPP-IRS.

CAPP-LRS

To date, the CAPP-LRS has been examined in only three known studies (Hanniball et al., 2019; Kavish et al., 2020; Sellbom et al., 2015). Sellbom and colleagues (2015) examined the CAPP-LRS in a large ($N = 719$) community sample using a web-based survey. Cronbach's alpha and mean inter-item correlation (MIC) were high for the CAPP-LRS total score, .96 and .47 respectively. At the domain level, alpha ranged from .72 (Emotional) to .90 (Dominance) and MIC's ranged from .33 (Emotional) to .68 (Attachment). Sellbom and colleagues (2015) did not examine convergent or discriminant validity of the CAPP-LRS total or domain scores, as they were primarily interested in the instrument's internal structure – which will be discussed in a later section.

Hanniball and colleagues (2019) examined CAPP-LRS ratings in relation to scores on the TriPM in two large (N's > 500) samples of self-identified offenders recruited via Amazon's Mechanical Turk (MTurk). Across the two samples, Cronbach's alpha was reportedly acceptable to excellent for the CAPP-LRS domains (alphas ranged from .71 - .93) and MICs ranged from .30 to .57. CAPP-LRS total and domain scores were all moderately to strongly correlated with TriPM total scores (r's from .52 [Cognitive] to .71 [total]), as well as with the Meanness (r's from .56 [Cognitive] - .76 [total]) and Disinhibition (r's from .54 [Self] to .68[total]) domains. CAPP-LRS total and domain scores were largely non-significantly or weakly, negatively related to TriPM Boldness, with the exception of a modest, negative correlation between TriPM Boldness and CAPP-LRS Cognitive ($r = -.31$). With regard to external criteria, all CAPP-LRS domains demonstrated small (r's < .30) positive associations with breadth of criminality and violent criminality, as well as moderate to large correlations with measures of

impulsivity, various types of aggression, and interpersonal work conflict (Hanniball et al., 2019). Scores on the CAPP-LRS were also generally negatively related to indices of prosocial functioning. The findings indicate overall support for the reliability and convergent validity of the CAPP-LRS, but again demonstrate less support for discriminant validity between the CAPP-LRS domains.

Finally, Kavish et al. (2020) examined the CAPP-LRS in a combined sample ($N = $ 739) of United States and Australian undergraduates and United States community members. The CAPP-LRS total had a Cronbach's alpha of .91 and a MIC of .26 in their sample. For the domains, alpha was acceptable to good (Attachment: $\alpha = .73$, Behavioral: $\alpha = .68$, Cognitive: $\alpha = .63$, Disinhibition: $\alpha = .77$ and Self: $\alpha = .77$) for all domains, except for the Emotional domain, which evidenced poor internal consistency ($\alpha = .49$). Similarly, MICs for the domains were acceptable (Attachment: MIC = .44, Behavioral: MIC = .29, Cognitive: MIC = .26, Disinhibition: MIC = .37 and Self: MIC = .33), but the Emotional domain evidenced only a marginally acceptable MIC (.17). Scores on the CAPP-LRS were compared to scores on the TriPM, Personality Inventory for DSM-5 – Brief Form (PID-5-BF; APA, 2013), and the Antisocial Behavior Questionnaire (ABQ; Sellbom et al., 2012) to assess convergent and discriminant validity (Kavish et al., 2020). The pattern of correlations generally supported the convergent validity of the CAPP-LRS with theoretically expected associations between the CAPP-LRS and the TriPM scales as well as the other relevant external criteria (PID-5-BF & ABQ); however, the correlations were largely uniform across CAPP-LRS domains indicating poor discriminant validity (Kavish et al., 2020). Mostly in accordance with prior work on the CAPP-LRS (and the

CAPP-IRS), findings support the reliability of the CAPP domains, with the exception of the Emotional domain in this sample, as well as their convergent and external validity.

Internal Structure of Measures of the CAPP Model

Although all three measures of the CAPP model reviewed above are still relatively understudied, preliminary evidence across instruments suggests the CAPP model, as measured by existing instruments, is a promising model of psychopathy that converges with other well-known and respected operationalizations. One component of the CAPP that remains particularly fuzzy is its optimal internal structure. The creators of the CAPP organized the 33 symptoms into six domains, strictly based on a rational examination of the symptom descriptions (Cooke et al., 2012). Out of the eight known empirical studies of the CAPP instruments (as of Spring 2020), only four studies provide data regarding the structure of the CAPP measure being researched (Florez et al., 2018; Kavish et al., 2020; Sellbom et al., 2015; Sellbom et al., 2019).

Florez and colleagues (2018) evaluated multiple confirmatory and exploratory models of the factor structure of the CAPP-IRS. All models tested were found to demonstrate poor model fit, with the exception of an exploratory bifactor model with three residual subfactors (CFI = .968; TLI = .959; RMSEA = .075; Florez et al., 2018). The bifactor model suggests that there is a single higher-order factor upon which all items load (i.e., a general psychopathy factor in this case) and multiple subfactors which account for the residual variance. In Florez et al.'s (2018) data, the residual subfactors were identified as reflecting emotional detachment, disinhibition, and deceitfulness.

Similarly, Sellbom and colleagues (2015) examined the CAPP-LRS and found that a bifactor model best fit the data (CFI = .973; TLI = .965; RMSEA = .062). This

study also found support for three residual bifactors which reflected boldness/emotional stability, disinhibition, and emotional detachment. Despite the superior model fit indices of the bifactor model in Sellbom et al. (2015; and Florez et al., 2018) and the apparent conceptual overlap of the bifactors between these studies, there is reason to be wary when interpreting their results.

Bifactor modeling has recently become quite popular in the assessment literature. In large part, the rise in popularity of the bifactor model seems to be because the approach usually results in superior model fit over other models (Sellbom & Tellegen, 2019). The bifactor model typically "wins" because it incorporates the estimation of more parameters, relative to other models, but also raises the risk of over-fitting as a result (Bonifay et al., 2017). In addition to the risk of over-fitting, the bifactor model raises theoretical questions because the residual factors are orthogonal to the general factor, as well as each other in most cases (Sellbom & Tellegen, 2019). In the case of the two CAPP model studies referenced above, this would indicate that what they are identifying as factors reflecting constructs such as disinhibition and emotional detachment are statistically unrelated to general psychopathy. Given the lack of a theoretical rationale for expecting the CAPP (or psychopathy generally) to be best explained by a bifactor structure, and the lack of appropriate statistical testing of the identified bifactors (see Bonifay et al., 2017; Rodriquez et al., 2016; Sellbom & Tellegen, 2019), it is difficult to interpret what the results of Sellbom et al. (2015) and Florez et al. (2016) suggest about the internal structure of the CAPP-LRS and CAPP-IRS, respectively.

One other study has examined the internal structure of the CAPP-LRS (Kavish et al, 2020). Following the recommendations of Sellbom and Tellegen (2019), Kavish and

colleague's (2020) used EFA to assess the structure of the CAPP-LRS and found support for a three-factor structure (CFI = .929; TLI = .914; RMSEA = .070). The authors also used Goldberg's (2006) bass-ackwards approach as a second method of examining the instrument's internal structure. Examination of the item content of the factors at each level of the hierarchy indicated that the coherence of the extracted factors deteriorated at lower levels of the hierarchy, particularly at the 5th and 6th levels. The authors then examined the patterns of associations between the CAPP-LRS domains, factors identified in the EFA, and CAPP-LRS symptoms with the TriPM and external criteria (PID-5-BF and ABQ). Despite the empirical support for the three-factor structure of the CAPP-LRS in their data, the researchers did not find that the three factors provided better performance in terms of convergent and discriminant validity relative to the CAPP-LRS domains, although neither approach demonstrated great discriminant validity (Kavish et al., 2020). Analyses at the item (symptom) level found evidence for improved discriminant validity; however, because the symptoms on the CAPP-LRS are assessed by single items, their reliability is inherently unknowable (Kavish et al., 2020).

Finally, Sellbom and colleagues (2019) examined the structure of the CAPP-SR symptom scales and domains using CFA during scale development. That is, they examined the model fit for each of the three-item sets intended to assess the 33 CAPP symptoms and then evaluated model fit for the symptom scales that are grouped into a domain (e.g., detached, uncaring, unempathic, and uncommitted for the Attachment domain). As this was part of the development phase, some items were removed and replaced following a first round of domain-level CFA's to reduce cross-loading. In a

second round of CFA's with the final item set, all domains were found to have average item loadings greater than .5 (Sellbom et al., 2019).

Current Study

Existing research suggests the CAPP model is a promising model of psychopathy; however, more research is needed to better understand the psychometric properties of existing operationalizations of the model. The current study sought to contribute to the nascent literature on the CAPP model by conducting a psychometric investigation of the recently developed CAPP-SR. The CAPP-SR was evaluated in a combined sample of undergraduates and community members to assess its reliability, factor structure, and construct validity. Specifically, the reliability of the CAPP-SR was assessed through evaluation of its internal consistency (Alpha and Omega) and mean inter-item correlations (MIC). Factor structure was assessed using confirmatory and exploratory factor analysis. Construct validity was assessed in terms of convergent and discriminant validity at the domain and factor level (if a different factor structure was supported for the data) through comparison to two measures of psychopathy, a measure of personality pathology, and a measure of antisocial behavior.

CHAPTER II

Methods

Participants and Procedure

Participants come from an existing dataset consisting of a combined sample of undergraduates ($N = 700$) and community members recruited via Amazon's Mechanical Turk (MTurk; $N = 238$). The undergraduate subsample was recruited from a large, Southwestern university in exchange for course credit. The average age was 20.58 (SD = 4.07) and 84.4% identified as female (15.1% identified as male, and 0.4% as transgender, nonbinary, or other). Racial/ethnic composition of the undergraduate subsample was 45.6% Caucasian, 24.3% Hispanic/Latinx, 23.3% African American, 2.7% Asian, and 4.1% identified as other. The MTurk subsample participated in exchange for $1.50. Average age was 41.81 years old (SD = 13.25) and 54.6% identified as female (44.1% as male, and 0.8% as other). The sample was predominantly Caucasian (76.1%) with an additional 14.3% identifying as African American, 5% as Asian, 4.2% as Hispanic/Latinx, and 0.4% as other. Data collection was approved by the IRB at Sam Houston State University.

Measures

Comprehensive Assessment of Psychopathic Personality – Self-Report (CAPP-SR)

The CAPP-SR (Sellbom et al., 2019) is a 99-item self-report measure of the CAPP model. Participants rate themselves for each item of the measure on a 4-point Likert scale ranging from 1 (False) to 4 (True). The CAPP-SR assesses the 33 symptoms of the CAPP model with three items for each symptom scale (scored through summing responses to each item resulting in a possible range from 3 – 12). Initial validation data

for the CAPP-SR indicated good criterion and incremental validity relative to the CAPP-LRS and strong convergence with other self-report psychopathy measures (Sellbom et al., 2019); however, the measure has not been independently studied.

Triarchic Psychopathy Measure (TriPM)

The TriPM (Patrick, 2010) is a 58-item self-report inventory of psychopathy. Participants respond to each item on a 4-point Likert scale. The TriPM yields a total psychopathy score along with scores on subscales reflecting Boldness, Meanness, and Disinhibition. Prior research on the TriPM has supported its construct validity in measuring psychopathy (Sellbom, Lilienfeld, Fowler, & McCrary, 2018).

Levenson Self-Report Psychopathy Scale (LSRP)

The LSRP (Levenson et al., 1995) is a 26-item self-report inventory scored on a 4-point Likert scale ranging from 0 (Strongly Disagree) to 3 (Strongly Agree). The original scoring of the LSRP yielded two factors intended to reflect primary and secondary psychopathic traits; however, subsequent research has found support for a three-factor structure: Egocentricity, Callousness, and Antisocial (Brinkley et al., 2008).

Personality Inventory for DSM-5 Brief Form (PID-5-BF)

The PID-5-BF (American Psychiatric Association [APA], 2013) is a 25-item self-report measure that indexes the five trait domains included in the DSM-5 Section III model for personality disorders. Participants rated themselves for each item on a 0-3 Likert scale. The PID-5-BF has been found to have good internal consistency and test-retest reliability (Bach, Maples-Keller, Bo, & Simonsen, 2016). Additionally, empirical evidence supports the brief form's utility as a screening device (Anderson, Sellbom, & Salekin, 2018).

Antisocial Behavior Questionnaire (ABQ)

The ABQ (Sellbom et al., 2012) is a 16-item self-report questionnaire assessing individuals' participation in a variety of antisocial behaviors including both non-violent (e.g. drunk driving, shoplifting, drug dealing) and violent (e.g. assault, rape) activities. Previous work has shown associations between the ABQ and measures of psychopathy (Sellbom et al., 2012; Wall, Sellbom, & Goodwin, 2013).

Demographics

Participants in both studies were asked to self-identify their age, gender, and race/ethnicity.

Analysis Plan

Analyses were conducted using SPSS Version 25.0, JASP Version 0.14.1, and MPlus Version 8.2. Patterns of missing data were examined and data missing at random was imputed by MPlus using maximum likelihood estimation. Given the large number of analyses and concerns about effect size inflation due to shared method variance, only correlations $\geq .30$ were interpreted as meaningful.

To evaluate the reliability of the CAPP-SR, I first calculated Alpha and Omega coefficients to estimate the internal consistency of the 33 symptom scales. Because the symptom scales comprise only three items, and estimates of internal consistency such as Alpha and Omega are typically impacted by the number of items in a scale, I also calculated the mean inter-item correlation (MIC). Next, I estimated Alpha, Omega, and MIC for the six CAPP-SR domains using the four to seven symptoms that make up each domain. MIC's were interpreted in light of Clark and Watson's (1995) recommendations that values between .20 and .50 are preferred for balancing the need for item

homogeneity with the need for reducing item redundancy. Interpretation of both Alpha and Omega estimates used the recommendations for Cronbach's alpha (i.e., .70 and above is acceptable, .80 and above is good, and .90 or better is excellent), but were also interpreted in light of scale brevity.

Analysis of the structure of the CAPP-SR proceeded through estimation of a series of factor analytic models. Specifically, I entered the 33 symptoms into a CFA model to test the six-domain structure proposed by the CAPP authors (Cooke et al., 2012). Should the proposed model demonstrate poor model fit in CFA, I planned to enter the 33 symptom scales in an EFA and extract from one to six factors. I planned to not extract more than six because the CAPP model was organized into six domains and there is no existing theoretical or empirical rationale for examining larger factor solutions. Model fit was evaluated using the Tucker Lewis Index (TLI; Tucker & Lewis, 1973), Comparative Fit Index (CFI; Bentler, 1990), Root Mean Square Error of Approximation (RMSEA; Brown & Cudeck, 1993) and Stadardized Root Mean Squared Residual (SRMR; Hu & Bentler, 1990) as goodness-of-fit indices. CFI and TLI values of .90-.95, RMSEA values of .05-.08, and SRMR values < .10 (< .05 is considered good) are generally indicative of acceptable fit.

The construct validity of the CAPP-SR was assessed by examining the correlations of the CAPP-SR domains and factors extracted through the best fitting EFA solution with criterion measures and external criteria. Specifically, convergent validity of the CAPP-SR was assessed by examining correlations with the LSRP and TriPM. Furthermore, canonical correlation analyses were conducted comparing the CAPP-SR and TriPM as well as the CAPP-SR and LSRP to estimate the extent to which the content

of the scales overlap vs. assess unique information. External validity was assessed through estimating correlations between the CAPP-SR and a measure of personality psychopathology as well as a measure of antisocial behavior. Finally, discriminant validity was tested through examination of how the correlations differ across CAPP-SR factors and domains.

Hypotheses

1. The CAPP-SR symptom scales and domains were expected to generally demonstrate acceptable or better internal consistency as assessed by AIC and Omega, with the possible exception of a high AIC for "Lacks Concentration" which has been found in prior research (Sellbom et al., 2019).

2. Although there was not sufficient existing rationale for expecting superior model fit for a three-factor solution (and not examining other factor solutions), there was a reasonable amount of evidence that psychopathic traits across models can often be meaningfully organized into three domains (interpersonal, affective, behavioral). Therefore, given comparable model fit, I planned to preferentially interpret a three-factor solution.

3. The CAPP-SR domains and extracted factors were anticipated to demonstrate good convergent validity with the LSRP and TriPM, with the weakest associations appearing between the CAPP-SR and TriPM Boldness. More specifically, it was anticipated that CAPP-SR Attachment would be particularly related to TriPM Meanness and LSRP Callousness. CAPP-SR Behavioral was expected to demonstrate particular overlap with TriPM Disinhibition and LSRP Antisocial. The CAPP-SR Cognitive domain was predicted to demonstrate greater

overlap across both TriPM Meanness and Disinhibition, as well as LSRP

Egocentricity and Antisocial. CAPP-SR Dominance was expected to evince its

strongest associations with TriPM Meanness and LSRP Egocentricity. The CAPP-

SR Emotional domain was predicted to relate most strongly with TriPM Boldness

and LSRP Callousness. Finally, CAPP-SR Self was expected to be most

associated with TriPM Boldness and LSRP Egocentricity.

4. The CAPP-SR was also anticipated to demonstrate significant associations with

the PID-5-BF, especially Antagonism and Disinhibition, and the ABQ. In

particular, CAPP-SR Behavioral was predicted to be moderately related to PID-5-

BF Disinhibition and scores on the ABQ. CAPP-SR Attachment, Dominance, and

Self were predicted to be most related to PID-5-BF Detachment. CAPP-SR

Emotional was expected to be primarily related to Negative Affectivity and

Detachment on the PID-5-BF. CAPP-SR Cognitive is anticipated to demonstrate

the poorest discrimination between PID-5-BF domains.

5. CAPP-SR factors were hypothesized to evidence greater discriminant validity

relative to the six domains.

CHAPTER III

Results

Descriptive Statistics and Reliability

Descriptive statistics for study variables are located in Table 2. First, I calculated Cronbach's alpha, Macdonald's Omega, and mean inter-item correlations for each CAPP-SR symptom scale and proposed domain to assess internal consistency (see Table 3). The 33 symptom scales demonstrated alphas ranging from .44 (Sense of Invulnerability) - .85 (Lacks Concentration) and Omega values ranged from .46 (Sense of Invulnerability) - .85 (Lacks Concentration). Only 11 of the 33 symptom scales achieved an Omega level of .70 or above (acceptable or better). However, as previously noted, both alpha and omega are negatively affected by the small number of items for each symptom scale (i.e., three items per scale). Thus, AIC was also calculated for each symptom scale and values ranged from .21 (Sense of Invulnerability) - .64 (Lacks Concentration). Only three symptom scales evinced MICs outside the recommended range of .20 - .50 — Restless (.59), Lacks Concentration (.64), and Manipulative (.62). MIC values above .50 suggest potential item redundancy.

Table 2

Descriptive Statistics for Study Variables

	Mean	SD	Range
Attachment	1.58	.46	1 – 3.5
Behavioral	1.83	.46	1 – 3.06
Cognitive	1.97	.47	1 – 3.27

(continued)

	Mean	SD	Range
Dominance	1.81	.46	1 – 3.28
Emotional	1.91	.38	1.13 – 3.33
Self	1.97	.43	1.05 – 3.52
TriPM	111.51	15.60	73 – 175
Boldness	47.02	8.50	23 – 71
Meanness	29.98	7.52	19 – 65
Disinhibition	34.63	7.77	20 – 67
LSRP	32.92	8.17	19 – 63
Egocentricity	16.33	5.00	10 – 34
Callousness	7.15	2.65	4 – 16
Antisocial	9.44	3.17	5 – 20
PID-5 Neg Affect	2.26	.79	1 – 4
PID-5 Detachment	1.70	.64	1 – 4
PID-5 Antagonism	1.44	.48	1 – 3.40
PID-5 Disinhibition	1.53	.60	1 – 4
PID-5 Psychoticism	1.81	.75	1 – 4
ABQ	14.51	7.38	0 – 36

Note. TriPM = Triarchic Psychopathy Measure; LSRP = Levenson Self-Report Psychopathy Scale; PID-5 = Personality Inventory for DSM-5 Brief Form; ABQ = Antisocial Behavior Questionnaire.

At the domain level, alpha values ranged from .42 (Cognitive) - .65 (Self), with similarly low Omega values (.48 [Attachment, Cognitive] - .66 [Self]). Mean inter-item

correlations were also relatively poor and ranged from .10 (Dominance) - .21 (Self). Overall, analyses suggest the proposed CAPP-SR domains have relatively poor internal consistency.

Table 3

Internal Consistency Values for CAPP-SR Symptom Scales and Proposed Domains

	Alpha	**Omega**	**MIC**
Attachment	0.43	0.48	0.16
A1 – Detached	0.68	0.71	0.41
A2 – Uncommitted	0.57	0.58	0.31
A3 – Unempathic	0.59	0.60	0.34
A4 – Uncaring	0.61	0.64	0.35
Behavioral	0.50	0.53	0.14
B1 – Lacks Perseverance	0.61	0.64	0.35
B2 – Unreliable	0.66	0.67	0.40
B3 – Reckless	0.69	0.71	0.43
B4 – Restless	0.81	0.81	0.59
B5 – Disruptive	0.47	0.48	0.24
B6 – Aggressive	0.50	0.60	0.27
Cognitive	0.42	0.48	0.13
C1 – Suspicious	0.54	0.68	0.28
C2 – Lacks Concentration	0.85	0.85	0.64
C3 – Intolerant	0.73	0.73	0.48

(continued)

	Alpha	Omega	MIC
C4 – Inflexible	0.52	0.54	0.26
C5 – Lacks Planfulness	0.67	0.68	0.41
Dominance	0.43	0.49	0.10
D1 – Antagonistic	0.67	0.69	0.42
D2 – Domineering	0.62	0.70	0.35
D3 – Deceitful	0.59	0.62	0.34
D4 – Manipulative	0.83	0.83	0.62
D5 – Insincere	0.48	0.51	0.24
D6 – Garrulous	0.48	0.48	0.24
Emotion	0.52	0.54	0.18
E1 – Lacks Anxiety	0.59	0.59	0.33
E2 – Lacks Pleasure	0.74	0.75	0.49
E3 – Lacks Emotional Depth	0.60	0.62	0.33
E4 – Lacks Emotional Stability	0.72	0.72	0.47
E5 – Lacks Remorse	0.56	0.57	0.30
Self	0.65	0.66	0.21
S1 – Self-Centered	0.62	0.62	0.35
S2 – Self-Aggrandizing	0.64	0.66	0.37
S3 – Sense of Uniqueness	0.68	0.68	0.42
S4 – Sense of Entitlement	0.60	0.64	0.33

(continued)

	Alpha	Omega	MIC
S5 – Sense of Invulnerability	0.44	0.46	0.21
S6 – Self-Justifying	0.63	0.71	0.35
S7 – Unstable Self-Concept	0.70	0.73	0.43

Factor Structure of the CAPP-SR

I next examined the internal structure of the CAPP-SR by first using confirmatory factor analysis to model the proposed six domain structure. Model fit was evaluated using the Tucker Lewis Index (TLI; Tucker & Lewis, 1973), Comparative Fit Index (CFI; Bentler, 1990), Root Mean Square Error of Approximation (RMSEA; Brown & Cudeck, 1993) and Stadardized Root Mean Squared Residual (SRMR; Hu & Bentler, 1990) as goodness-of-fit indices. CFI and TLI values of .90-.95, RMSEA values of .05-.08, and SRMR values < .10 (< .05 is considered good) are generally indicative of acceptable fit. Model fit for the domains as six factors was poor — χ^2 (480) = 6842.366, $p < .0001$; RMSEA = .119; CFI = .587; TLI = .545; SRMR = .124.

Thus, I estimated a series of exploratory factor analyses with maximum likelihood estimation extracting from one to six factors. The six-factor solution demonstrated the greatest overall model fit and was the only solution with multiple fit indices in the "good" range: χ^2 (345) = 1137.429, $p < .0001$; RMSEA = .049; CFI = .949; TLI = .921; SRMR = .023. Examination of the factor loadings (see Table 4) for this solution revealed factors appearing to reflect callous-unemotionality, grandiose disinhibition, inattentiveness, fearless dominance, impulsivity, and deceitfulness; however, several factors

predominantly comprised only a few items (symptom scales), often with significant

cross-loading on other factors.

Table 4

Factor Loadings for Best Fitting EFA Factor Solution (6-Factors)

	Callous-Unemotional	Grandiose Disinhibition	Inattentiveness	Fearless Dominance	Impulsivity	Deceitfulness
A1 – Detached	**.480**	.033	.015	**-.365**	**.339**	.036
A2 – Uncommitted	**.590**	-.003	.017	-.040	.073	.230
A3 – Unempathic	**.889**	-.212	.004	.064	.022	-.035
A4 – Uncaring	**.702**	.023	-.108	-.240	.177	-.083
B1 – Lacks Perseverance	.102	.040	**.527**	**-.382**	.056	.095
B2 – Unreliable	**.372**	-.030	.047	**-.330**	.274	.202
B3 – Reckless	-.004	**.521**	.207	.039	**.350**	.046
B4 – Restless	-.115	**.342**	**.471**	-.022	.012	-.139
B5 – Disruptive	**.326**	**.435**	.041	-.066	.131	-.017
B6 – Aggressive	.273	**.432**	.009	.163	.007	.126

	Callous-Unemotional	Grandiose Disinhibition	Inattentiveness	Fearless Dominance	Impulsivity	Deceitfulness
C1 – Suspicious	**.314**	.276	.054	-.109	.311	.047
C2 – Lacks Concentration	.013	-.014	**.996**	-.040	.005	-.080
C3 – Intolerant	**.494**	**.358**	.018	.110	.098	-.003
C4 – Inflexible	.074	**.647**	.029	-.062	.051	-.145
C5 – Lacks Planfulness	.149	.145	.147	**-.363**	**.412**	.067
D1 – Antagonistic	.267	**.658**	-.026	-.032	.059	-.182
D2 – Domineering	.021	**.490**	.009	**.593**	.101	-.060
D3 – Deceitful	**.387**	.113	-.021	-.168	.109	**.442**
D4 – Manipulative	**.494**	.151	-.026	.053	.020	**.361**
D5 – Insincere	.048	**.383**	.073	-.002	.038	**.461**
D6 – Garrulous	-.100	**.562**	.041	.136	.115	.195
E1 – Lacks Anxiety	.078	-.027	-.033	**.624**	.043	.075

(continued)

	Callous-Unemotional	Grandiose Disinhibition	Inattentiveness	Fearless Dominance	Impulsivity	Deceitfulness
E2 – Lacks Pleasure	**.341**	-.003	-.062	**-.672**	.093	-.098
E3 – Lacks Emotional Depth	**.529**	.156	.059	-.031	.251	-.024
E4 – Lacks Emotional Stability	.041	**.752**	.056	-.116	.007	-.206
E5 – Lacks Remorse	**.775**	-.034	.023	.114	.039	.095
S1 – Self-Centered	**.414**	.211	.288	.074	.199	.058
S2 – Self-Aggrandizing	-.138	**.410**	.038	**.563**	.027	.058
S3 – Sense of Uniqueness	.068	**.531**	-.052	**.476**	.043	.061
S4 – Sense of Entitlement	.030	**.709**	-.065	.262	.059	.039
S5 – Sense of Invulnerability	.044	.188	-.069	**.576**	.140	.031
S6 – Self-Justifying	.001	**.640**	-.026	-.205	.033	.012
S7 – Unstable Self-Concept	-.104	**.410**	.157	**-.479**	.060	.072

	Callous-Unemotional	Grandiose Disinhibition	Inattentiveness	Fearless Dominance	Impulsivity	Deceitfulness
Factor Correlations	-					
Grandiose Disinhibition	**.51**	-				
Inattentiveness	.15	**.52**	-			
Fearless Dominance	-.09	-.09	**-.34**	-		
Impulsivity	.04	-.10	.12	-.05	-	
Deceitfulness	.24	**.39**	.23	.16	.05	-

Note. Factor loadings >.300 are in bold.

Alternative factor solutions are provided in tables in the Appendix (see Tables A1 – A5). The five-factor solution was the only other solution with all fit indices in at least the acceptable range; however, only the SRMR was better than acceptable (SRMR = .026), examination of the factor loadings did not suggest any improvement in factor coherence/interpretability, and there was no theoretical rationale for selecting it over the six-factor solution. Various three-factor and three domain models found in prior CAPP model literature and research on other conceptualizations of psychopathy (i.e., the Triarchic model of psychopathy) offer a theoretical rationale for a three-factor solution. In my data, the three-factor solution — with factors appearing to largely reflect behavioral disinhibition, a callous-unemotional affect, and a fearless and domineering interpersonal style (see Table A3) — did not have overall acceptable fit (χ^2 (432) = 2414.690, $p < .0001$; RMSEA = .070; CFI = .871; TLI = .843; SRMR = .039).

Correlation Analyses

To assess the concurrent and construct validity of the CAPP-SR, correlations were evaluated between the six proposed CAPP-SR domains (as well as the six empirically derived factors from the EFA) and existing psychopathy measures (i.e., TriPM and LSRP), as well as with external criteria (i.e., PID-5-BF and ABQ). Given the large number of analyses and shared method variance (i.e., all variables assessed via self-report), only moderate ($r \geq .30$) correlations are interpreted as meaningful.

Proposed Domains of the CAPP-SR

With regards to the proposed CAPP-SR domains (see Table 5), only the Dominance domain was significantly associated with total scores on the TriPM ($r = .49$) and the LSRP ($r = .43$). Examining associations with TriPM domains, I found the CAPP-

SR Cognitive domain negatively related to TriPM Boldness (r = -.42), whereas the

Dominance domain was positively related to Boldness (r = .39). CAPP Attachment and

Dominance were both positively related to TriPM Meanness (r = .50 and .42,

respectively). Only the Behavioral domain of the CAPP-SR was related to TriPM

Disinhibition (r = .56). For the LSRP subscales, a similar pattern of convergent and

discriminant relations was observed, with LSRP Egocentricity positively associated with

CAPP-SR Dominance (r = .47), LSRP Callousness associated with CAPP-SR

Attachment (r = .30), and LSRP Antisocial correlating positively with the CAPP-SR

Behavioral (r = .47) and Cognitive domains (r = .43).

　　　　With regards to external criteria, PID-5-Negative Affectivity was strongly

associated with CAPP-SR Cognitive (r = .50). PID-5-BF Detachment was positively

associated with CAPP-SR Detachment and Cognitive (r = .37 and .45, respectively).

Antagonism on the PID-5-BF was correlated with CAPP-SR Dominance (r = .52).

Disinhibition scores on the PID-5-BF were positively related to CAPP-SR Behavioral (r

= .53). Finally, PID-5-BF Psychoticism was associated with CAPP-SR Behavioral (r =

.44). No CAPP-SR domain was meaningfully correlated with self-reported antisocial

behavior.

Table 5

Correlations between CAPP-SR Proposed Domains and External Criteria

	Attachment	Behavioral	Cognitive	Dominance	Emotional	Self
TriPM	.19	.25	-.27	**.49**	.22	.14
Boldness	-.15	-.06	**-.42**	**.39**	.15	.17

	Attachment	Behavioral	Cognitive	Dominance	Emotional	Self
Meanness	**.50**	.07	-.15	**.42**	.25	-.09
Disinhibition	.11	**.56**	.21	.04	-.03	.13
LSRP	.24	.21	.15	**.43**	.12	.16
Egocentric	.20	-.04	.04	**.47**	.06	.26
Callousness	**.30**	.07	-.15	.23	.11	-.11
Antisocial	-.05	**.47**	**.43**	-.04	.07	.06
Neg. Affect	-.16	.23	**.50**	-.13	-.08	.13
Detachment	**.37**	-.01	**.45**	-.19	.18	.03
Antagonism	.23	.07	.04	**.52**	-.02	.12
Disinhibition	.05	**.53**	.25	.01	-.02	-.05
Psychoticism	.01	**.44**	.29	-.10	-.01	.21
ABQ	-.25	.29	.09	.15	-.02	.05

Note. TriPM = Triarchic Psychopathy Measure. LSRP = Levenson Self-Report Psychopathy Scale. Neg. Affect = Personality Inventory for DSM-5 (PID-5) Negative Affectivity domain. ABQ = Antisocial Behavior Questionnaire.

Empirically Derived Factor Correlations

Best-Fitting Six-Factor Solution. Because the proposed domain structure for the CAPP-SR was not supported by results of confirmatory factor analysis, I also examined associations between the empirically derived six-factor solution from my exploratory factor analyses and my concurrent and external criterion variables for comparison (see Table 6). Overall, the empirically derived factors evinced a pattern of relatively greater

convergent and lesser discriminatory associations with criterion measures compared to the proposed CAPP-SR domains.

Table 6

Correlations between Empirically Identified Factors (Six Factor Solution) and External Criteria

	Callous-Unemotional	Grandiose Disinhibition	Inattentiveness	Fearless Dominance	Impulsivity	Deceitfulness
TriPM	**.69**	**.59**	.25	.28	.26	**.48**
Boldness	.06	.14	-.15	**.81**	.04	.20
Meanness	**.84**	**.46**	.16	.01	.10	**.38**
Disinhibition	**.47**	**.69**	**.52**	**-.32**	.27	**.36**
LSRP	**.68**	**.64**	**.36**	**.55**	**.32**	.22
Egocentric	**.58**	**.64**	.29	-.08	-.04	**.51**
Callousness	**.48**	.18	.03	-.04	-.18	.21
Antisocial	**.37**	**.71**	**.63**	**-.43**	-.02	.24
Neg. Affect	.09	**.48**	**.56**	**.57**	.03	.02
Detachment	**.60**	**.45**	**.35**	**-.33**	.27	**.51**
Antagonism	**.57**	**.59**	**.32**	.02	.06	**.62**

	Callous-Unemotional	Grandiose Disinhibition	Inattentiveness	Fearless Dominance	Impulsivity	Deceitfulness
Disinhibition	**.41**	**.57**	**.47**	-.24	**.42**	.29
Psychoticism	**.32**	**.59**	**.48**	**.50**	.13	**.50**
ABQ	.02	**.34**	**.41**	-.04	.03	.23

Note. TriPM = Triarchic Psychopathy Measure. LSRP = Levenson Self-Report Psychopathy Scale. Neg. Affect = Personality Inventory for DSM-5 (PID-5) Negative Affectivity domain. ABQ = Antisocial Behavior Questionnaire.

The CAPP-SR Callous-Unemotional ($r = .69$), Grandiose Disinhibition ($r = .59$), and Deceitfulness ($r = .48$) factors were all significantly associated with TriPM total scores. At the TriPM subscale level, only the CAPP-SR Fearless Dominance factor was significantly associated with TriPM Boldness ($r = .81$). CAPP-SR Callous-Unemotional ($r = .84$), Grandiose Disinhibition ($r = .46$), and Deceitfulness ($r = .38$) factors were all significantly associated with TriPM Meanness. Finally, the CAPP-SR Callous-Unemotional, Grandiose Disinhibition, Inattentiveness, and Deceitfulness factors were all positively related to TriPM Disinhibition ($r's = .36$ [Deceitfulness] - .69 [Grandiose Disinhibition]), whereas the Fearless Dominance factor was negatively related to TriPM Disinhibition ($r = -.32$).

All CAPP-SR factors except for Deceitfulness were significantly, positively related to LSRP total scores ($r's = .32$ [Impulsivity] - .68 [Callous-Unemotionality]). The Deceitfulness ($r = .51$), Callous-Unemotional ($r = .58$), and Grandiose Disinhibition ($r = .64$) factors were all significantly associated with LSRP Egocentricity. Only the Callous-Unemotional factor was significantly related to LSRP Callousness ($r = .48$). Finally, Callous-Unemotional ($r = .37$), Grandiose Disinhibition ($r = .71$), and Inattentiveness ($r = .63$) factors all positively related to the LSRP Antisocial scale, whereas the Fearless Dominance factor was negatively related ($r = -.43$).

With regard to external criteria, Negative Affectivity on the PID-5-BF was associated with the Grandiose Disinhibition, Inattentiveness, and Fearless Dominance factors of the CAPP-SR ($r's = .48$ [Grandiose Disinhibition] to .57 [Fearless Dominance]). PID-5-BF Detachment was correlated with all but the Impulsivity factor of

the CAPP-SR (*r*'s = .35 [Inattentiveness] to .60 [Callous-Unemotional]), although the

association with the Fearless Dominance factor was negative (*r* = -.33). Antagonism on

the PID-5-BF was associated with the Callous-Uenmotional, Grandiose Disinhibition,

Inattentiveness, and Deceitfulness factors on the CAPP-SR (*r*'s = .32 [Inattentiveness] to

.62 [Deceitfulness]). PID-5-BF Disinhibition was significantly related to Callous-

Uenmotional, Grandiose Disinhibition, Inattentiveness, and Impulsivity factors (*r*'s = .41

[Callous-Uenmotional] to .57 [Grandiose Disinhibition]). Finally, Psychoticism scores on

the PID-5-BF were positively related to all CAPP-SR factors except Impulsivity (*r*'s =

.32 [Callous-Uenmotional] to .59 [Grandiose Disinhibition]). Self-reported antisocial

behavior on the ABQ was associated with Grandiose Disinhibition (*r* = .34) and

Inattentiveness (*r* = .41).

Theoretically Supported Three-Factor Solution Correlations. As noted

previously, there is arguably a theoretical rationale based on prior research from the

broader psychopathy literature and from evaluations of other CAPP model measures to

expect a three-factor solution reflecting behavioral, affective, and interpersonal features.

Although model fit indices for the current study did not support this expectation, with

multiple indices falling outside of the acceptable range, I elected to examine the pattern

of associations between the three-factor solution and my concurrent and external criterion

measures as an exploratory exercise and to make the results available for future research

— but it is strongly stressed that these results should be interpreted with caution.

Total scores on the TriPM were significantly associated with all three CAPP-SR

factors (*r*'s = .46 [Interpersonal] to .69 [Affective]) and total scores on the LSRP were

strongly related to the Behavioral (*r* = .70) and Affective factors (*r* = .70). With regard to

subscales, TriPM Boldness was moderately associated with the Interpersonal factor (r = .45). TriPM Meanness was significantly associated with all three factors, with a very strong relation to the Affective factor (r = .84). Similarly, TriPM Disinhibition was associated with all three CAPP-SR factors and was particularly strongly associated with the Behavioral factor (r =.74). LSRP Egocentricity was associated with the Behavioral (r = .56) and Affective (r = .64) factors. LSRP Callousness was associated with the Affective factor (r = .48). Finally, LSRP Antisocial was correlated with the Behavioral (r = .78) and Affective (r = .39) factors.

With regard to external criteria, Negative Affectivity on the PID-5-BF was positively related to the Affective factor (r = .65) and negatively related to the Interpersonal factor (r = -.37). Detachment was positively related to the Behavioral (r = .60) and Affective (r = .52) factors. Antagonism on the PID-5-BF was also positively associated with the Behavioral (r = .58) and Affective (r = .64) factors, as was Disinhibition (r's = .63 and .40, respectively). Psychoticism was strongly related to the Behavioral factor (r = .71) and moderately to the Affective factor (r = .33). Antisocial behavior self-reported on the ABQ was moderately associated with scores on the Behavioral factor (r = .43).

Table 7

Correlations between Empirically Identified Factors (3 Factor Solution) and External Criteria

	Behavioral / Disinhibition	Affective / Antagonistic	Interpersonal / Domineering
TriPM	**.54**	**.69**	**.46**
Boldness	-.04	.10	**.45**

(continued)

	Behavioral / Disinhibition	Affective / Antagonistic	Interpersonal / Domineering
Meanness	**.41**	**.84**	**.45**
Disinhibition	**.74**	**.49**	**.46**
LSRP	**.70**	**.70**	.10
Egocentric	**.56**	**.64**	.29
Callousness	.14	**.48**	.04
Antisocial	**.78**	**.39**	-.24
Neg. Affect	.08	**.65**	**-.37**
Detachment	**.60**	**.52**	-.22
Antagonism	**.58**	**.64**	.21
Disinhibition	**.63**	**.40**	-.15
Psychoticism	**.71**	**.33**	-.17
ABQ	**.43**	.03	.02

Note. TriPM = Triarchic Psychopathy Measure. LSRP = Levenson Self-Report Psychopathy Scale. Neg. Affect = Personality Inventory for DSM-5 (PID-5) Negative Affectivity domain. ABQ = Antisocial Behavior Questionnaire.

Exploratory Symptom Scale Analyses

Given that none of the factor/domain level approaches was fully supported by the data, I also estimated correlations at the symptom scale level (see Table A6 in the appendix). Overall, the CAPP-SR symptom scales demonstrated good convergent and discriminant associations with criterion variables—for example, CAPP-SR Reckless was correlated greater than $r = .60$ with TriPM Disinhibition, LSRP Antisocial, and PID-5-BF Disinhibition scores and showed smaller (i.e., r's < .40) associations with TriPM Meanness, LSRP Callousness, and PID-5-BF Detachment. Of note, only seven symptom scales were significantly associated with TriPM Boldness and three of those were negative associations (Lacks Perseverance, Lacks Pleasure, and Unstable Self-Concept). Similarly, only three of the 33 symptoms scales were significantly associated with self-reported antisocial behavior (i.e., Lacks Perseverance, Aggressive, and Lacks

Concentration; r's ≤ .37). Finally, as was observed in the factor loadings across factor

solutions, an interesting pattern emerged between two symptoms from the Emotion

domain—Lacks Anxiety and Lacks Pleasure demonstrated multiple strongly opposing

associations (e.g., with TriPM Boldness correlations were r = .64 and -.46, respectively).

Canonical Correlations

As an additional method of assessing the degree of overlap versus independent

information gathered by the CAPP-SR relative to existing psychopathy measures (i.e.,

TriPM and LSRP), I estimated two sets of canonical correlations. Results of the canonical

correlation analysis for the CAPP-SR and TriPM are presented in Tables 8 and 9. All

three canonical functions extracted were significant (p < .001). For Function 1, the

canonical variate for the CAPP-SR was strongly related to all six CAPP-SR domains

(canonical loadings ranged from .663 [Self] to .820 [Dominance]), whereas the canonical

variate for the TriPM was only strongly related to Disinhibition and Meanness — with no

meaningful relation to Boldness. The canonical variates for Function 1 were strongly

associated with a shared variance of approximately 67%. For Function 2, the canonical

variate for the CAPP-SR was moderately positively related to the Behavioral, Cognitive,

and Self domains and negatively to the Attachment domain (all loadings < |.500|). The

canonical variate for the TriPM was positively associated with Disinhibition (loading =

.543) and negatively with Meanness (-.444). The shared variance between the canonical

variates for Function 2 was 36%. Finally, a canonical variate negatively related to CAPP-

SR Attachment and Cognitive (loadings = -.332 and -.301, respectively) and positively

related to CAPP-SR Dominance and Self domains (loadings = .447 and .430,

respectively) was extracted along with a canonical variate for the TriPM reflecting almost

exclusively Boldness (loading = .980). The shared variance between the variates in

Function 3 was 25%.

Table 8

Canonical Correlation between CAPP-SR and TriPM

Function	Eigenvalue	R_c	F	Wilk's Lambda	p
1	1.977	.82	104.76	.163	<.001
2	.547	.60	64.50	.487	<.001
3	.328	.50	61.06	.753	<.001

Note. R_c = Canonical correlation.

Table 9

Canonical Solution for CAPP-SR and TriPM

	Function 1		
Variable	Canonical Loading	Cross Loading	%
Attachment	**.803**	**.655**	
Behavioral	**.818**	**.667**	
Cognitive	**.793**	**.647**	
Dominance	**.820**	**.669**	
Emotional	**.799**	**.651**	
Self	**.663**	**.541**	
TriPM Boldness	.064	.052	
TriPM Disinhibition	**.831**	**.677**	
TriPM Meanness	**.896**	**.730**	
$R_c{}^2$			67.24
	Function 2		
Attachment	**-.411**	-.244	
Behavioral	**.496**	.295	
Cognitive	**.393**	.234	
Dominance	.036	.022	
Emotional	-.177	-.105	
Self	**.358**	.213	

(continued)

Variable	Canonical Loading	Cross Loading	%
TriPM Boldness	-.188	-.112	
TriPM Disinhibition	**.543**	**.323**	
TriPM Meanness	**-.444**	-.264	
R_c^2			36.00
Function 3			
Attachment	**-.332**	-.165	
Behavioral	-.094	-.047	
Cognitive	**-.301**	-.149	
Dominance	**.447**	.222	
Emotional	.003	.002	
Self	**.430**	.214	
TriPM Boldness	**.980**	**.487**	
TriPM Disinhibition	-.123	-.061	
TriPM Meanness	-.009	-.004	
R_c^2			25.00

Note. R_c^2 = Squared canonical correlation (percentage variance accounted for by the canonical function).

With regards to the canonical correlation for the CAPP-SR and LSRP, all three functions were again significant ($p < .001$; see Tables 10 and 11). For Function 1, all canonical loadings and cross loadings for both variates have negative signs. It is unclear why this occurred, but given that all values are in the same direction, interpretation of the relationships is still straightforward. For the CAPP-SR, all six domains were strongly related to the canonical variate (all loadings > |.63|). Although all three subscales of the LSRP were also significantly related to their canonical variate, the variate was strongly related to Egocentricity (loading = -.815) and Antisocial (loading = -.872) but only moderately related to Callousness (loading = -.398). The first pair of canonical variates shared approximately 66% of their variance. For Function 2, the canonical variate for CAPP-SR variables reflects a moderate positive relationship with the Dominance domain

(loading = .413) and negative relationships with the Behavioral and Cognitive domains

(loadings = -.344 and -.313, respectively). Similarly, the behaviorally focused LSRP

Antisocial domain is moderately negatively related to the LSRP's second canonical

variate (loading = -.486) and the Egocentricity domain is moderately positively related to

it (loading = .521). The second pair of canonical variates shared 26% of their variance.

Finally, the third canonical variate for the CAPP-SR has a strong positive association

with the Attachment domain (loading = .566) and strong negative relationship with the

Self domain (loading = -.537), whereas the third canonical variate for the LSRP is

strongly associated with the Callousness domain (loading = .843). The final pair of

canonical variates shared about 7% of their variance.

Table 10

Canonical Correlation between CAPP-SR and LSRP

Function	Eigenvalue	R_c	F	Wilk's Lambda	p
1	1.842	.81	79.66	.241	<.001
2	.360	.51	32.45	.684	<.001
3	.076	.27	14.70	.930	<.001

Note. R_c = Canonical correlation.

Table 11

Canonical Solution for CAPP-SR and LSRP

	Function 1		
Variable	Canonical Loading	Cross Loading	%
Attachment	-.634	-.511	
Behavioral	-.882	-.710	
Cognitive	-.893	-.719	
Dominance	-.841	-.667	
Emotional	-.741	-.596	
Self	-.755	-.608	

(continued)

Variable	Canonical Loading	Cross Loading	%
LSRP Egocentricity	**-.815**	**-.656**	
LSRP Callousness	**-.398**	**-.320**	
LSRP Antisocial	**-.872**	**-.702**	
$R_c{}^2$			65.61
Function 2			
Attachment	.283	.146	
Behavioral	**-.344**	-.177	
Cognitive	**-.313**	-.161	
Dominance	**.413**	.213	
Emotional	.138	.071	
Self	.215	.111	
LSRP Egocentricity	**.521**	.268	
LSRP Callousness	**.363**	.186	
LSRP Antisocial	**-.486**	-.250	
$R_c{}^2$			26.01
Function 3			
Attachment	**.566**	.150	
Behavioral	.082	.022	
Cognitive	-.017	-.004	
Dominance	-.122	-.032	
Emotional	.254	.067	
Self	**-.537**	-.142	
LSRP Egocentricity	-.255	-.068	
LSRP Callousness	**.843**	.224	
LSRP Antisocial	-.059	-.016	
$R_c{}^2$			7.29

Note. $R_c{}^2$ = Squared canonical correlation (percentage variance accounted for by the canonical function).

CHAPTER IV

Discussion

The current study sought to contribute to the growing literature on the
Comprehensive Assessment of Psychopathic Personality (CAPP) model — and the
recently developed CAPP Self-Report (CAPP-SR) form in particular — through an
examination of the psychometric properties of the CAPP-SR in a large, mixed sample of
U.S. undergraduate students and U.S. adult MTurk workers. In my study, I examined the
internal consistency of the CAPP-SR, its internal structure, and the associations between
scores on the CAPP-SR (using both the proposed domains and empirically derived
factors) and concurrent and external criteria. It was hypothesized that the CAPP-SR
would demonstrate acceptable or better internal consistency, that the internal structure (if
the proposed domain structure was not supported) might be well represented by a three-
factor solution, and that the domains (and derived factors) would demonstrate a generally
positive pattern of convergent and discriminant validity through correlations with other
existing psychopathy measures and measures of personality pathology and antisocial
behavior.

In contrast to hypotheses, the CAPP-SR symptom scales demonstrated relatively
poor internal consistency — only one third of the scales (11/33) were in the acceptable
range — as assessed by Cronbach's alpha and Macdonald's omega. However, both of
these statistics are strongly influenced by the number of items in a scale — with fewer
items inherently leading to a poorer score. Therefore, I also examined the mean inter-item
correlation (MIC) for each symptom scale, which demonstrated that 30 of the 33
symptom scales had a positive balance between item homogeneity and redundancy — the
remaining three items had high MICs reflecting likely item redundancy. In contrast, the

six proposed domains for the CAPP-SR demonstrated poor internal consistency across all three approaches (alpha, omega, and MIC).

I next examined the internal structure of the CAPP-SR. Similar to prior work on other operationalizations of the CAPP model (e.g., Florez et al., 2018; Kavish et al., 2020; Sellbom et al., 2015), confirmatory factor analysis of the CAPP-SR found the proposed domains poorly fit the data. Therefore, exploratory factor analyses were conducted and found that an alternative six factor solution had the best fit. This factor solution consisted of factors appearing to reflect callous-unemotionality, grandiose disinhibition, inattentiveness, fearless dominance, impulsivity, and deceitfulness, yet several factors had only a few items with high loadings and there was significant cross-loading. Interestingly, although two of the five model fit indices fell outside of acceptable ranges, the three-factor solution produced factors that appeared relatively, conceptually similar to prior CAPP model research (e.g., Kavish et al., 2020) and work on other measures and models of psychopathy (e.g., Cooke & Michie, 2001; Patrick et al., 2009). Specifically, the three factors appeared to reflect behavioral (primarily disinhibited), affective (callous-unemotional/mean/antagonistic), and interpersonal (bold or fearless and domineering) features of psychopathy. Furthermore, in very recent work published after this project was begun and hypotheses were made, Sellbom and colleagues (2021) found support for a three-factor structure of the CAPP-SR—which they called Antagonism/Meanness, Disinhibition, and Fearless Grandiosity)—in a representative U.S. community sample, which they then replicated in a university student sample from New Zealand and an incarcerated sample from Lithuania.

Next, I proceeded to conduct a series of correlation analyses to assess the convergent and discriminant validity of the CAPP-SR. Given the proposed domain structure of the CAPP model did not have adequate model fit, the best fitting six factor solution had no preexisting theoretical support, and the seemingly best theoretically supported three factor solution was unsupported by CFI/TLI values, I examined concurrent and external associations for all three approaches to scoring the CAPP-SR. That is, although the proposed domain structure was not supported, it was still possible that use of that scoring structure would perform comparably to empirically derived approaches. Indeed, the proposed CAPP structure was designed to be a conceptual organization, rather than an empirically derived factor structure.

Overall, the two empirically derived factor solutions (three and six) demonstrated superior patterns of convergent and discriminant relations with criterion measures compared to the proposed domain structure. Within the proposed structure, only the Dominance domain was significantly associated with total scores on either psychopathy measure. Furthermore, the proposed Emotion and Self domains were not significantly related to any criterion measure (i.e., no psychopathy scale/subscale, personality pathology domain, or antisocial behavior) and none of the proposed domains was significantly associated with self-reported antisocial behavior. Although the role of antisocial behavior is debated in the psychopathy literature (Cooke & Michie, 2001; Hare & Neumann, 2005), associations between antisocial behavior and behavioral/disinhibition domains of psychopathy are well-supported (e.g., Gray et al., 2019; Vize et al., 2018), making the lack of associations unexpected. Conversely, all theoretically derived factors for both empirically derived factor solutions were significantly associated with aspects of

concurrent measures and external criteria. Factors from each solution were significantly associated with self-reported antisocial behavior—which, as discussed in the introduction, expert consensus suggests is *either* an important symptom of psychopathy or an important downstream correlate.

Both empirically derived factor solutions appeared to demonstrate equal or better construct validity compared to the proposed domain structure. Using the derived six-factor solution, three of the six factors were not significantly associated with TriPM total scores (Inattentiveness, Fearless Dominance, and Impulsivity) and the Deceitfulness factor was not associated with total scores on the LSRP. At the subscale level, there was a mix of strong, theoretically meaningful associations between factors and criterion variables, such as CAPP-SR Callous-Unemotional and TriPM Meanness, PID-5-BF Detachment, and PID-5-BF Antagonism, as well as factors with few and only modest associations (e.g., Impulsivity was only modestly associated with LSRP Total and PID-5-BF Disinhibition scores).

With regards to the three-factor structure, the Behavioral factor was strongly related to both psychopathy measures, demonstrated its strongest associations with TriPM Disinhibition, LSRP Antisocial, and several PID-5-BF domains including Disinhibition, and it was significantly associated with self-reported antisocial behavior. The Affective factor evinced strong correlations with TriPM Meanness, LSRP Egocentric, and PID-5-BF Negative Affectivity and Antagonism domains. Finally, the Interpersonal factor was significantly associated with the TriPM (which explicitly includes boldness traits), and not significantly associated with the LSRP (which does not explicitly include boldness). It was significantly and negatively related to PID-5-BF

Negative Affectivity but was unrelated to the other PID-5-BF domains or self-reported antisocial behavior. The pattern of associations observed for the Interpersonal factor concurs with a growing body of literature suggesting that bold/fearless dominance traits are typically related to better psychological/personality functioning, less assessed by many measures of psychopathy, and not correlated with antisocial behavior (although this issue continues to be debated, see for example Crowe et al., 2021; Lilienfeld et al., 2016).

Overall, none of the scoring approaches —proposed domains, six factor, or three factor—demonstrated both good model fit in structural analyses *and* a strong pattern of convergent and discriminant associations. However, despite less than desirable structural model fit, the three-factor solution appeared to reflect theoretically meaningful behavioral, affective, and interpersonal domains seen in prior research and relatively strong convergent and discriminant validity—suggesting it may be the optimal solution. That the best performing solution in these data—a three-factor solution—so closely resembles the results of prior work on the CAPP-SR (Sellbom et al., 2021) and other operationalizations of the CAPP concept map (e.g., CAPP-LRS, Kavish et al., 2020) suggests that—when organized above the symptom level—the CAPP appears largely reducible to a framework almost synonymous with pre-existing approaches to psychopathy. Indeed, despite the authors of the CAPP concept map describing the proposed domain structure as rationally based and "parallel to the Big 5" (Cooke et al., 2021, p. 247), little justification is offered for a six domain (or factor) organization and the broader body of factor analytic research across psychopathy measures consistently finds support for only two to four factors (Andershed et al., 2002; Cooke & Michie, 2001; Hare & Neumann, 2006; see also Somma et al., 2019).

I also explored the possibility that the reductionism inherent in distilling 33 symptoms down to six or fewer factors might obscure novel and important information included in the CAPP concept map. Although the symptom scales evinced a reasonable pattern of convergent and discriminant associations with existing psychopathy measures and a broader personality pathology measure, it did not appear that this approach produced superior convergence or discrimination. Similarly, only three of the 33 symptom scales was significantly associated with self-reported antisocial behavior, with the strongest association ($r = .37$, Lacks Concentration) being at best no greater, if not necessarily statistically smaller, than the association between the Behavioral factor from the three-factor solution and antisocial behavior ($r = .43$).

Furthermore, strongly opposing patterns of associations emerged between some symptom scales. For example, Lacks Anxiety was strongly positively related to TriPM Boldness, whereas Lacks Pleasure was significantly negatively related to Boldness. Similarly, Lacks Anxiety was negatively related to PID-5-BF Negative Affectivity, whereas Lacks Pleasure and Lacks Emotional Stability were both positively related. These patterns were also reflected in the factor analyses with the items having opposing factor loadings—in many cases, Lacks Anxiety and Lacks Pleasure had their strongest loadings on the same factor, but in opposite directions. Previous researchers have noted that the opposite of lacking pleasure, hedonism, seems more consistent with psychopathy and boldness in particular (Kavish et al., 2020) and that Lacks Pleasure is not rated as very prototypical of psychopathy (Kries et al, 2012). Increasingly, it appears that at least the inclusion of Lacks Pleasure in the CAPP concept map may need to be revisited.

For my final set of analyses, I estimated canonical correlations between the CAPP-SR and the TriPM, as well as between the CAPP-SR and LSRP, to further assess the overlap between the CAPP-SR and more commonly used psychopathy measures. Both sets of canonical correlations demonstrated significant overlap, with the first function for each set of analyses showing >65% shared variance between the two sets of variables. In particular, the canonical loadings suggest that CAPP-SR domains are particularly permeated by antagonistic and disinhibited as well as, to a lesser extent, callous-unemotional traits. The CAPP-SR also statistically overlaps with Boldness, although perhaps to a more modest degree than might be anticipated for a model that purports to comprehensively assess psychopathic traits.

Conclusion

The CAPP-SR appears to be an adequate operationalization of psychopathy and the CAPP model. CAPP-SR symptom scales appear generally acceptable when considering inter-item correlations (but are penalized on other measures, such as alpha and omega, due to small number of items). Factor analysis provided additional evidence to the growing body of research suggesting the proposed six domain structure does not optimally represent the data captured by CAPP measures, especially the self-report measures (CAPP-LRS and CAPP-SR). Consideration of the factor analytic and correlation results suggests that the optimal organization of the CAPP-SR may be three factors representing behavioral (disinhibited), affective (mean/antagonistic tratis), and interpersonal (grandiose, fearless dominance) features of psychopathy. Ultimately, as a "comprehensive" approach to psychopathy the CAPP-SR (and by extent the CAPP concept map) may be over-inclusive by incorporating a symptom (Lacks Pleasure) that

appears at odds with both prototypes of psychopathy and with other included symptoms, while simultaneously somewhat under-including aspects of boldness. Indeed, that the optimal structure of the CAPP-SR may resemble existing three-factor models of psychopathy and research to date finding clinician ratings of CAPP symptoms have comparable predictive validity to the PCL-R (de Page et al., 2012; Pedersen et al., 2010), it remains an open question what the CAPP-SR/CAPP model adds to the field of psychopathy.

Limitations and Future Directions

The current study had several strengths including a large, relatively racially/ethnically diverse sample (nearly 1,000 participants) of undergraduate students and MTurk workers and multiple criterion measures including two measures of psychopathy, a measure of personality pathology, and a measure of self-reported antisocial behavior. It also had several limitations including significant overrepresentation of female participants (84% female from the undergraduate portion of the sample) and reliance on only self-report measures.

Future research should continue to evaluate the internal structure of the CAPP-SR and consider the construct validity of proposed and identified factor solutions in addition to model fit indices. Furthermore, the creators of the CAPP concept map forwarded the CAPP as a *comprehensive* approach to psychopathy that is superior to alternatives because of its inclusion of aspects of psychopathy that other models miss. Future studies would benefit from including a larger array of psychopathy measures and other external criteria (particularly a variety of externalizing behavior measures) and performing head-to-head comparisons. Specifically, future research should seek to answer whether 1) empirically derived factors statistically outperform the proposed domains in predicting

externalizing behaviors, 2) whether an alternative—and likely more theoretically consistent—scoring system (e.g., reorganizing the symptoms into three domains) outperforms the proposed domain scoring without reliance on idiosyncratic factor loadings that will differ from sample to sample, and 3) whether the optimal organization of the CAPP-SR statistically outperforms other measures of psychopathy in predicting externalizing and other outcomes of interest. Finally, future research may consider comparing the utility of CAPP-SR domains/factors compared to operating at the symptom level. That is, researchers may statistically evaluate the construct and predictive validity of the symptom scales compared to empirically derived factors.

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APPENDIX

Table A1

Factor Loadings for One-Factor EFA Solution

	F1
A1 – Detached	**.505**
A2 – Uncommitted	**.590**
A3 – Unempathic	**.482**
A4 – Uncaring	**.518**
B1 – Lacks Perseverance	**.490**
B2 – Unreliable	**.430**
B3 – Reckless	**.577**
B4 – Restless	**.405**
B5 – Disruptive	**.681**
B6 – Aggressive	**.645**
C1 – Suspicious	**.575**
C2 – Lacks Concentration	**.469**
C3 – Intolerant	**.711**
C4 – Inflexible	**.609**
C5 – Lacks Planfulness	**.410**
D1 – Antagonistic	**.723**
D2 – Domineering	**.323**
D3 – Deceitful	**.620**
D4 – Manipulative	**.668**
D5 – Insincere	**.625**
D6 – Garrulous	**.508**
E1 – Lacks Anxiety	-.052
E2 – Lacks Pleasure	.297
E3 – Lacks Emotional Depth	**.597**
E4 – Lacks Emotional Stability	**.665**
E5 – Lacks Remorse	**.616**
S1 – Self-Centered	**.696**
S2 – Self-Aggrandizing	.202
S3 – Sense of Uniqueness	**.440**
S4 – Sense of Entitlement	**.597**
S5 – Sense of Invulnerability	.087
S6 – Self-Justifying	**.605**
S7 – Unstable Self-Concept	**.477**

Note. Loadings > .300 are bolded. Model Fit statistics: χ^2 (495) = 7440.506, $p < .0001$; RMSEA = .122; CFI = .549; TLI = .519; SRMR = .124.

Table A2

Factor Loadings for Two-Factor EFA Solution

	F1	F2
A1 – Detached	**.502**	-.270
A2 – Uncommitted	**.579**	.039
A3 – Unempathic	**.465**	.030
A4 – Uncaring	**.507**	-.214
B1 – Lacks Perseverance	**.518**	**-.519**
B2 – Unreliable	**.437**	**-.311**
B3 – Reckless	**.586**	-.017
B4 – Restless	**.421**	-.185
B5 – Disruptive	**.678**	-.038
B6 – Aggressive	**.641**	.243
C1 – Suspicious	**.575**	-.022
C2 – Lacks Concentration	**.496**	**-.377**
C3 – Intolerant	**.705**	.168
C4 – Inflexible	**.610**	-.019
C5 – Lacks Planfulness	**.420**	**-.413**
D1 – Antagonistic	**.718**	.004
D2 – Domineering	**.326**	**.594**
D3 – Deceitful	**.614**	-.024
D4 – Manipulative	**.659**	.183
D5 – Insincere	**.627**	.150
D6 – Garrulous	**.516**	.216
E1 – Lacks Anxiety	-.065	**.620**
E2 – Lacks Pleasure	**.310**	**-.606**
E3 – Lacks Emotional Depth	**.586**	.009
E4 – Lacks Emotional Stability	**.674**	-.091
E5 – Lacks Remorse	**.600**	.119
S1 – Self-Centered	**.694**	.042
S2 – Self-Aggrandizing	.209	**.593**
S3 – Sense of Uniqueness	**.451**	**.578**
S4 – Sense of Entitlement	**.606**	**.384**
S5 – Sense of Invulnerability	.077	**.640**
S6 – Self-Justifying	**.614**	-.105
S7 – Unstable Self-Concept	**.499**	**-.425**
Factor Correlations	-	
Factor 2	.01	-

Note. Loadings > .300 are bolded. Model Fit statistics: χ^2 (463) = 4488.468, $p < .0001$; RMSEA = .096; CFI = .738; TLI = .702; SRMR = .073.

Table A3

Factor Loadings for Three-Factor EFA Solution

	F1	F2	F3
A1 – Detached	.105	**.553**	-.284
A2 – Uncommitted	.077	**.631**	.021
A3 – Unempathic	-.212	**.825**	-.025
A4 – Uncaring	-.079	**.752**	-.259
B1 – Lacks Perseverance	**.641**	.015	**-.490**
B2 – Unreliable	.153	**.417**	**-.318**
B3 – Reckless	**.646**	.019	.038
B4 – Restless	**.701**	-.218	-.131
B5 – Disruptive	**.402**	**.393**	-.018
B6 – Aggressive	**.380**	**.335**	.266
C1 – Suspicious	**.310**	**.363**	-.008
C2 – Lacks Concentration	**.824**	-.222	**-.331**
C3 – Intolerant	.280	**.537**	.174
C4 – Inflexible	**.527**	.162	.024
C5 – Lacks Planfulness	**.350**	.189	**-.394**
D1 – Antagonistic	**.473**	**.354**	.035
D2 – Domineering	.299	.000	**.621**
D3 – Deceitful	.240	**.496**	-.022
D4 – Manipulative	.199	**.572**	.182
D5 – Insincere	**.532**	.162	.193
D6 – Garrulous	**.574**	-.025	.270
E1 – Lacks Anxiety	-.144	.003	**.603**
E2 – Lacks Pleasure	.010	**.445**	**-.627**
E3 – Lacks Emotional Depth	.164	**.540**	-.001
E4 – Lacks Emotional Stability	**.637**	.134	-.036
E5 – Lacks Remorse	-.012	**.756**	.090
S1 – Self-Centered	**.450**	**.356**	.061
S2 – Self-Aggrandizing	**.321**	-.171	**.637**
S3 – Sense of Uniqueness	**.341**	.102	**.607**
S4 – Sense of Entitlement	**.515**	.124	**.433**
S5 – Sense of Invulnerability	-.002	.016	**.634**
S6 – Self-Justifying	**.565**	.139	-.057
S7 – Unstable Self-Concept	**.611**	-.005	**-.376**
Factor Correlations	-		
Factor 2	**.46**	-	
Factor 3	.02	.13	-

Note. Loadings > .300 are bolded. Model Fit statistics: χ^2 (432) = 2414.690, *p* < .0001; RMSEA = .070; CFI = .871; TLI = .843; SRMR = .039.

Table A4

Factor Loadings for Four-Factor EFA Solution

	F1	F2	F3	F4
A1 – Detached	-.064	**.379**	**.517**	**-.353**
A2 – Uncommitted	.021	**.589**	.099	.113
A3 – Unempathic	-.167	**.779**	.012	.010
A4 – Uncaring	.011	**.707**	.083	-.184
B1 – Lacks Perseverance	**.760**	.075	.063	-.181
B2 – Unreliable	**.398**	**.511**	-.205	-.070
B3 – Reckless	**.601**	.086	-.037	**.355**
B4 – Restless	**.544**	-.225	.253	.057
B5 – Disruptive	.249	**.342**	.241	.127
B6 – Aggressive	.124	.279	.214	**.378**
C1 – Suspicious	-.003	.211	**.531**	-.039
C2 – Lacks Concentration	**.825**	-.167	.115	-.009
C3 – Intolerant	-.017	**.416**	**.380**	.208
C4 – Inflexible	.173	.024	**.543**	.057
C5 – Lacks Planfulness	**.593**	.293	-.177	-.093
D1 – Antagonistic	.166	.232	**.465**	.107
D2 – Domineering	-.018	.020	.060	**.673**
D3 – Deceitful	.264	**.528**	-.047	.190
D4 – Manipulative	.082	**.550**	.061	**.323**
D5 – Insincere	**.335**	.160	.128	**.388**
D6 – Garrulous	**.353**	-.014	.100	**.460**
E1 – Lacks Anxiety	-.240	.047	-.256	**.598**
E2 – Lacks Pleasure	.056	**.339**	**.403**	**-.680**
E3 – Lacks Emotional Depth	-.091	**.393**	**.452**	-.032
E4 – Lacks Emotional Stability	.284	-.002	**.574**	.033
E5 – Lacks Remorse	-.038	**.730**	.011	.196
S1 – Self-Centered	.201	.271	**.343**	.170
S2 – Self-Aggrandizing	-.001	-.176	.044	**.673**
S3 – Sense of Uniqueness	-.056	.039	.208	**.626**
S4 – Sense of Entitlement	.073	.022	**.390**	**.477**
S5 – Sense of Invulnerability	**-.308**	-.037	.074	**.544**
S6 – Self-Justifying	**.313**	.057	**.407**	.052
S7 – Unstable Self-Concept	**.486**	-.063	**.405**	-.242
Factor Correlations	-			
Factor 2	.29	-		
Factor 3	**.43**	**.41**	-	
Factor 4	-.00	.17	**.38**	-

Note. Loadings > .300 are bolded. Model Fit statistics: χ^2 (402) = 1763.936, p < .0001; RMSEA = .060; CFI = .911; TLI = .884; SRMR = .030.

Table A5

Factor Loadings for Five-Factor EFA Solution

	F1	F2	F3	F4	F5
A1 – Detached	**.570**	.047	.071	**-.351**	**.304**
A2 – Uncommitted	**.708**	.054	-.092	.099	.058
A3 – Unempathic	**.830**	-.155	-.140	-.004	.031
A4 – Uncaring	**.658**	-.131	.150	-.219	.205
B1 – Lacks Perseverance	.204	**.784**	-.045	-.152	.021
B2 – Unreliable	**.481**	.278	-.072	-.077	.281
B3 – Reckless	.004	**.360**	**.390**	.299	**.308**
B4 – Restless	-.165	**.481**	.320	.041	.028
B5 – Disruptive	**.312**	.061	**.437**	.062	.141
B6 – Aggressive	**.323**	.034	.291	**.315**	.008
C1 – Suspicious	**.410**	.092	.172	-.054	**.328**
C2 – Lacks Concentration	-.043	**.843**	.077	.012	.016
C3 – Intolerant	**.517**	-.043	.267	.158	.121
C4 – Inflexible	.029	.020	**.655**	-.014	.058
C5 – Lacks Planfulness	.170	**.357**	.193	-.115	**.431**
D1 – Antagonistic	.211	-.027	**.636**	.026	.035
D2 – Domineering	-.037	-.112	.288	**.604**	.018
D3 – Deceitful	**.539**	.151	.058	.149	.161
D4 – Manipulative	**.633**	.052	.017	.281	.004
D5 – Insincere	.246	.274	.179	**.343**	.019
D6 – Garrulous	.000	.224	**.320**	**.400**	.062
E1 – Lacks Anxiety	.040	-.211	-.162	**.572**	.010
E2 – Lacks Pleasure	**.350**	.007	.238	**-.673**	.015
E3 – Lacks Emotional Depth	**.549**	-.028	.148	-.054	.242
E4 – Lacks Emotional Stability	.021	.132	**.675**	-.032	.058

(continued)

	F1	F2	F3	F4	F5
E5 – Lacks Remorse	**.797**	-.052	-.080	.167	.039
S1 – Self-Centered	**.497**	**.305**	.031	.159	.266
S2 – Self-Aggrandizing	-.084	.047	.056	**.638**	.152
S3 – Sense of Uniqueness	.123	-.067	.229	**.565**	.137
S4 – Sense of Entitlement	.114	.023	**.407**	**.411**	.152
S5 – Sense of Invulnerability	.031	-.238	.017	**.508**	.183
S6 – Self-Justifying	.076	.167	**.518**	-.001	.007
S7 – Unstable Self-Concept	.009	**.415**	**.367**	-.251	.053
Factor Correlations	-				
Factor 2	.24	-			
Factor 3	**.56**	**.49**	-		
Factor 4	.12	-.10	.20	-	
Factor 5	-.03	-.01	.22	.17	-

Note. Loadings > .300 are bolded. Model Fit statistics: χ^2 (373) = 1452.295, p < .0001; RMSEA = .056; CFI = .930; TLI = .901; SRMR = .026.

Table A6

Correlations between CAPP-SR Symptom Scales and Criterion Variables

	TriPM	Bold	Mean	Dis	LSRP	Ego	Cal	Anti	NegAf	Detach	Antag	Disin	Psych	ABQ
A1 – Detached	.21	-.25	**.39**	**.35**	**.34**	.26	.16	**.35**	.22	**.65**	.28	.23	**.36**	.02
A2 – Uncommitted	**.48**	.06	**.54**	**.41**	**.52**	**.50**	.29	**.30**	.12	**.41**	**.49**	**.34**	.28	.02
A3 – Unempathic	**.51**	.16	**.66**	.22	**.43**	**.37**	**.41**	.17	-.07	.27	**.38**	.21	.14	.02
A4 – Uncaring	**.40**	-.07	**.54**	**.36**	**.42**	**.33**	**.36**	.26	.06	**.36**	**.36**	**.34**	.21	-.06
B1 – Lacks Perseverance	.18	**-.33**	.21	**.54**	**.44**	.26	.13	**.62**	**.50**	**.42**	**.31**	**.46**	**.53**	**.30**
B2 – Unreliable	**.31**	-.16	**.37**	**.46**	**.42**	**.31**	.26	**.36**	.20	**.31**	**.32**	**.36**	.29	.04
B3 – Reckless	**.52**	.11	**.34**	**.61**	**.49**	**.40**	.15	**.52**	**.35**	.25	**.39**	**.67**	**.46**	.29
B4 – Restless	.19	-.09	.10	**.40**	.28	.15	.01	**.46**	**.42**	.25	.21	**.36**	**.48**	.27
B5 – Disruptive	**.52**	.08	**.48**	**.52**	**.49**	**.41**	.23	**.45**	.23	**.41**	**.45**	**.44**	**.37**	.18
B6 – Aggressive	**.56**	.26	**.51**	**.37**	**.50**	**.47**	.22	**.37**	.18	.27	**.48**	**.32**	**.36**	**.31**
C1 – Suspicious	**.36**	.00	**.36**	**.36**	**.46**	**.40**	.20	**.38**	.29	**.55**	**.34**	.27	**.40**	.16
C2 – Lacks Concentration	.20	-.20	.13	**.50**	**.38**	.23	.01	**.61**	**.55**	**.37**	.28	**.47**	**.58**	**.37**
C3 – Intolerant	**.53**	.05	**.58**	**.47**	**.58**	**.56**	.26	**.41**	.19	**.41**	**.57**	**.36**	**.32**	.02
C4 – Inflexible	**.33**	-.05	**.33**	**.40**	**.42**	**.33**	.08	**.49**	**.42**	**.37**	**.36**	**.35**	**.37**	.22
C5 – Lacks Planfulness	.26	-.19	.26	**.48**	**.35**	.22	.16	**.42**	.25	.29	.24	**.54**	**.33**	.12
D1 – Antagonistic	**.48**	.03	**.49**	**.48**	**.52**	**.41**	.21	**.54**	**.33**	**.41**	**.46**	**.44**	**.41**	.22
D2 – Domineering	**.44**	**.51**	.21	.12	.24	**.32**	.09	.05	-.00	-.06	.29	.07	.06	.18
D3 – Deceitful	**.53**	.07	**.56**	**.45**	**.57**	**.48**	**.38**	**.40**	.20	**.32**	**.52**	**.36**	**.35**	.20
D4 – Manipulative	**.60**	.14	**.65**	**.44**	**.62**	**.64**	**.32**	**.32**	.11	**.32**	**.65**	**.34**	**.30**	.10
D5 – Insincere	**.49**	.14	**.40**	**.44**	**.52**	**.50**	.18	**.41**	.25	**.32**	**.48**	**.39**	**.40**	.24
D6 – Garrulous	**.40**	.16	.29	**.35**	**.44**	**.43**	.14	**.36**	**.33**	.13	**.42**	.28	**.35**	.26
E1 – Lacks Anxiety	**.32**	**.64**	.10	-.17	-.06	.08	.01	-.27	**-.46**	-.22	-.01	-.10	-.16	-.04
E2 – Lacks Pleasure	-.02	**-.46**	.22	.28	.23	.06	.19	**.33**	**.31**	**.50**	.13	.22	.24	-.01

(continued)

	TriPM	Bold	Mean	Dis	LSRP	Ego	Cal	Anti	NegAf	Detach	Antag	Disin	Psych	ABQ
E3 – Lacks Emotional Depth	**.42**	.02	**.52**	**.33**	**.43**	**.41**	.18	**.32**	.12	**.52**	**.34**	.26	**.34**	.09
E4 – Lacks Emotional Stability	**.36**	-.12	**.33**	**.55**	**.54**	**.40**	.16	**.64**	**.59**	**.42**	**.43**	**.43**	**.46**	.24
E5 – Lacks Remorse	**.58**	.18	**.67**	**.34**	**.54**	**.50**	**.40**	.26	.01	.29	**.51**	**.30**	.24	.07
S1 – Self-Centered	**.45**	.02	**.49**	**.43**	**.57**	**.54**	.20	**.47**	**.31**	**.43**	**.51**	**.32**	**.43**	.20
S2 – Self-Aggrandizing	**.35**	**.49**	.09	.06	.18	.24	.08	.02	-.05	-.15	.15	.04	.06	.20
S3 – Sense of Uniqueness	**.47**	**.39**	**.31**	.22	**.37**	**.44**	.14	.15	.02	.06	**.40**	.13	.17	.11
S4 – Sense of Entitlement	**.46**	.20	**.32**	**.38**	**.46**	**.48**	.12	**.35**	.26	.20	**.45**	.25	.28	.18
S5 – Sense of Invulnerability	.27	**.39**	.15	-.03	.02	.16	-.06	-.15	-.21	-.13	.13	-.08	-.09	-.06
S6 – Self-Justifying	**.33**	-.13	.28	**.55**	**.45**	**.36**	.11	**.52**	**.42**	**.43**	**.38**	**.45**	**.50**	.17
S7 – Unstable Self-Concept	.12	**-.32**	.13	**.49**	**.36**	.22	.05	**.56**	**.58**	**.51**	.27	**.40**	**.60**	.28

Note. TriPM = Triarchic Psychopathy Measure; Bold = TriPM Boldness; Mean = TriPM Meanness; Dis = TriPM Disinhibition; LSRP = Levenson Self-Report Psychopathy Scale; Ego = LSRP Egocentricity; Cal = LSRP Callousness; Anti = LSRP Antisocial; NegAf = PID-5-BF Negative Affectivity; Detach = PID-5-BF Detachment; Antag = PID-5-BF Antagonism; Disin = PID-5-BF Disinhibition; Psych = PID-5-BF Psychoticism; ABQ = Antisocial Behavior Questionnaire. Correlations > .30 are in bold. Correlations in this table were estimated using pairwise deletion in SPSS, with n's from 895 – 933.

VITA

I. EDUCATION

Candidate **Doctor of Philosophy in Clinical Psychology**
Sam Houston State University
Dissertation: Construct Validity of the Comprehensive Assessment of
Psychopathic Personality Self-Report and Institutional Rating Forms
(Proposal defended: 04/2020)
Advisor: Jaime Anderson, Ph.D.

2018 **Master of Arts in Clinical Psychology**
Sam Houston State University
Thesis: Associations between life history speed and sexually coercive
behavior (Defended 11/2017)
Advisor: Jaime Anderson, Ph.D.

2016 **Bachelor of Arts in Psychology (Summa Cum Laude)**
Saint Louis University
Majors: Psychology and Criminal Justice

II. PUBLISHED MANUSCRIPTS

Kavish, N., Bergstrøm, H., Narvey, C., Piquero, A. R., Farrington, D. P., & Boutwell, B. B. (In Press). Examining the association between childhood cognitive ability and psychopathic traits at age 48. *Personality Disorders: Theory, Research, and Treatment.*

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III. BOOK CHAPTERS

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IV. MANUSCRIPTS UNDER REVIEW

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V. CONFERENCE PRESENTATIONS

Kavish, N., Babicz, M., & Dulay, M. (December, 2020). *Persistence of cognitive difficulties after cerebrovascular accident partly predicted by fatigue, sleep difficulty, level of social support and depression.* Poster presented at the KnowNeuropsychology Virtual Poster Session, Twitter.

Kavish, N., Boisvert, D.L., Cooke, E. M., Lewis, R. H., Wells, J., Woeckener, M., & Armstrong, T. A. (November, 2020). *Investigating Self-Reported Sleep Duration and Perceived Sleep Deprivation in Relation to the Dual Systems Model of Self-Control and Delinquent Behavior.* Paper accepted for presentation at the annual convention of the American Society of Criminology, Washington D.C. Meeting cancelled due to COVID-19.

Kavish, N. & Anderson, J. L. (March, 2020). *Construct Validity of the Comprehensive Assessment of Psychopathic Personality – Self-Report (CAPP-SR).* Paper accepted for presentation at the 2020 Society for Personality Assessment Annual Meeting, San Diego, CA. Meeting cancelled due to COVID-19.

Haugh, S., **Kavish, N.,** Fernandez, L., Sims-Rhodes, N. & Anderson, J. L. (March, 2020). *A psychometric evaluation of the PID-5-Short Form.* Poster accepted for presentation at the 2020 Society for Personality Assessment Annual Meeting, San Diego, CA.

Kavish, N., Boisvert, D.L., Wells, J., Cooke, E. M., Lewis, R. H., Woeckener, M., & Armstrong, T. A. (November, 2019). *Exploring the psychological, physiological, and hormonal differences between victims, offenders, victim-offenders, and abstainers.* Paper accepted for presentation at the annual convention of the American Society of Criminology, San Francisco, CA.

Kavish, N., Jones, M. A., Rock, R. C., Johnson, A. K., & Anderson, J. L. (March, 2019). *On the overlap between psychopathic traits and Machiavellianism in a forensic population.* Paper presentation at the 2018 Society for Personality Assessment Annual Meeting, New Orleans, LA.

Boisvert, D. L., Cooke, E. M., Connolly, E. J., Gyeongseok, J. O., Armstrong, T. A., **Kavish, N.**, Lewis, R. H., Woeckener, M., Wells, J., & Harper, J. (November, 2018). *A Biosocial Test of General Strain Theory: How Testosterone and Cortisol Influence the Relationship between Strain and Anger on Antisocial Behavior.* Paper presented at the annual convention of the American Society of Criminology, Atlanta, GA.

Kavish, N., Lewis, R. H., Armstrong, T.A., & Boisvert, D. L (November, 2018). *Not just risk: Psychopathic traits as a protective factor against the development of PTSD and depressive symptoms*. Paper presented at the annual convention of the American Society of Criminology, Atlanta, GA.

Woeckener, M., Boisvert, D. L., Connolly, E. J., Lewis, R. H., Wells, J., Cooke, E. M., **Kavish, N.**, & Armstrong, T. A. (November, 2018) *The Interactive Effect of Heart Rate Reactivity and Childhood Maltreatment on Antisocial Behavior.* Paper presented at the annual convention of the American Society of Criminology, Atlanta, GA.

Schiafo, M., **Kavish, N.**, Sellbom, M., & Anderson, J. L. (March, 2018). *Concurrent validity of the Comprehensive Assessment of Psychopathic Personality (CAPP) self-rating form*. Poster presented at the annual convention of the American Psychology-Law Society, Memphis, TN.

Kavish, N., Boisvert, D., & Armstrong, T. (November, 2017) *Further evaluating the role of sensation seeking in the relationship between resting heart rate and antisocial phenotypes in males and females.* Paper presented at the annual convention of the American Society of Criminology, Philadelphia, PA.

Hart, J. R., **Kavish, N.,** & Boccaccini, M. T. (2017, March). *Feigning in a correctional sample: Associations of SIMS scores with elevations on other measures.* Poster presented at the annual convention of the American Psychology- Law Society, Seattle, WA.

Mattos, L. A., Bernhard, P. A., Varela, J. G., Yenne, E. M., **Kavish, N.,** Long, T., Holdren, S. M., Manyose, M., (2017, March). *The effects of telepsychology on interview disclosure.* Poster presented at the annual convention of the American Psychology- Law Society, Seattle, WA.

Kavish, N. (2016, March) *Cognitive Performance and Psychopathy: Exploring the Intersection of Juvenile Psychopathic Features, ADHD Symptomology, and General Intelligence.* Paper presented at the Academy of Criminal Justice Science conference in Denver, CO

Perry, J., Mohr, E., **Kavish, N.,** and Ross, M. (2015, October) *Comparison of athletic body ideals held by individual sport coaches and their preferred communication*

strategies. Poster presented at the Association for the Advancement of Sports Psychology Conference in Indianapolis, IN

Milad, E., Burnette, K., **Kavish, N.**, Daly, N., and Herman, A. (2015, May) *Conscientious Personality and Perceptions of Democratic and Autocratic Leadership Style.* Poster presented at Saint Louis University Psychology Capstone Symposium, Sigma Xi conference, and the Webster University Taking the Lead Conference in St. Louis, MO

VI. CLINICAL EXPERIENCE

Houston Methodist Neurological InstituteHouston, Texas
Neuropsychology Practicum Student(Sept., 2020 – Present)

> *Population:* A diverse, multi-ethnic population of adult and older adult outpatients and inpatients.

> *Supervisor:* Mario Dulay, Ph.D.

Center for Optimal Brain HealthHouston, Texas
Neuropsychology Practicum Student(June, 2020 – Present)

> *Population:* A diverse, multi-ethnic population of adult and older adult members of the community.

> *Supervisors:* Andres Tapia, Ph.D. (primary supervisor); Anthony Ward, Ph.D.

Texas A&M Telebehavioral Care ProgramBryan, Texas
Intervention Practicum Student**(**Sept., 2019 – August, 2020)

> *Population:* A low-income, rural population of adults with diagnoses including mood and anxiety disorders, post-traumatic stress disorder, attention-deficit/hyperactivity disorder, personality pathology, substance use history, and serious mental illness.

> *Supervisor:* Jessica Groberio, Ph.D.

TIRR Memorial Hermann Houston, Texas
Neuropsychology Practicum Student (Sept., 2018 – Aug., 2019)

> *Population:* A diverse, multi-ethnic population of predominantly adults and older adults with acquired brain injuries secondary to stroke, traumatic brain injury, anoxic/hypoxic injury, gunshot wound, neoplasms, among other neurological and medical conditions.

Supervisor: Juliette Galindo, Ph.D. (primary supervisor); Supervised work also completed with Danielle Blinstrubas, Ph.D., Lindsey Harik, Ph.D., Kathrine O'Brien, Ph.D., Ashley LeMaire, Ph.D.

Sam Houston State University Psychological Services CenterHuntsville, Texas
Assistant Forensic Evaluator(Aug., 2017 – Jan., 2019)

Population: An ethnically diverse population of justice-involved and incarcerated adolescents and adults.

Supervisor: Mary Alice Conroy, Ph.D. (primary supervisor), Darryl Johnson, Ph.D., Wendy Elliot, Ph.D.

Sam Houston State University Psychological Services CenterHuntsville, Texas
Psychology Practicum Student(Aug., 2017 – Jan., 2019)

Population: A diverse, low-income, multi-ethnic population of young adults with diagnoses including mood and anxiety disorders as well as attention-deficit/hyperactivity disorder.

Supervisor: Craig Henderson, Ph.D. (primary supervisor); Jaime Anderson, Ph.D.

VII. SUPERVISORY EXPERIENCE

Sam Houston State University Psychological Services CenterHuntsville, Texas
Peer Supervisor (Jan., 2020 – Present)

VIII. HONORS, AWARDS, AND SCHOLARSHIPS

2019 Office of Graduate Studies Outstanding Graduate Student Award (Finalist)
2018 APA Division 12 Section IX (Assessment) Student Research Fellowship ($500)
2018 Graduate Studies Scholarship ($1,000; Spring & Summer semesters)
2016 Psi Chi Research Award
2015 Criminal Justice Department Research Travel Award ($1,200)
2015 Knoedler Undergraduate Research Award ($500)

IX. EDITORIAL RESPONSIBILITIES

Ad Hoc Reviewer
  Aggressive Behavior
  Child Psychiatry and Human Development
  Clinical EEG & Neuroscience
  Criminal Justice & Behavior
  Evolutionary Psychology
  Gerontology & Geriatric Medicine

Journal of Criminal Psychology
Journal of Personality Assessment

Ad Hoc Co-Reviewer
Personality and Individual Differences

X. TEACHING EXPERIENCE

Sam Houston State Universit*y* Huntsville, Texas
- **Undergraduate Courses Taught**
  - Introduction to Psychology
  - Abnormal Psychology
  - Psychology and Law
  - History of Psychology
- **Graduate Teaching Assistant:**
  - Human Neuropsychology
    - Responsibilities: Conducted demonstrations and administration/scoring checks for common neuropsychological measures. Lectured on traumatic brain injury, sleep disorders and the affects of sleep impairment on neuropsychological functioning, and other neuropsychological assessment topics.

XI. CAMPUS INVOLVEMENT

Treasurer
Graduate Student Psychology Organization
2016-2017 (Sam Houston State University)

Co-President
Alpha Phi Sigma (Gamma Beta Chapter) Criminal Justice Honor Society
2015-2016 (Saint Louis University)

Vice President
Psi Chi
2015-2016 (Saint Louis University)

XII. PROFESSIONAL AFFILIATIONS

APA Div. 40: Society for Clinical Neuropsychology
- Association of Neuropsychology Students & Trainees
International Neuropsychological Society
National Academy of Neuropsychology
Society for Personality Assessment