EuJAP | Vol. 14 | No. 1 | 2018
UDK: 159.97.018
616.89

PSYCHOPATHIC PERSONALITY DISORDER: CAPTURING AN ELUSIVE CONCEPT

David J. Cooke
University of Bergen

Original scientific article – Received: 28/08/2018 Accepted: 11/09/2018

ABSTRACT

The diagnosis of psychopathic personality disorder has salience for forensic clinical practice. It influences decisions regarding risk, treatability and sentencing, indeed, in certain jurisdictions it serves as an aggravating factor that increases the likelihood of a capital sentence. The concatenation of symptom that is associated with modern conceptions of the disorder can be discerned in early writings, including the book of Psalms. Despite its forensic clinical importance and historical pedigree the concept remains elusive and controverted. In this paper I describe an attempt to map the concept of psychopathic personality disorder—the Comprehensive Assessment of Psychopathic Personality (CAPP). I outline the processes used to create the concept map; I summarise evidence in support of the content validity of the map and describe different operations designed to operationalise the construct. It is only when conceptual clarity is achieved that valid operations and measures can be created. I end with a plea for more carefully considered application of statistical methods; applications that better fit the theoretical questions being posed.

Keywords: *Psychopathic personality disorder, Comprehensive Assessment of Psychopathic Personality, CAPP, Conceptual Model, Measurement*

1. Psychopathic Personality Disorder: Capturing an elusive concept

"*I can calculate the motion of the heavenly bodies, but not the madness of people*."
Sir Isaac Newton

Psychopathy has been described as an "unfortunate term with a disreputable history" (Mullen 1992, 343); while this may be true, clinicians encounter patients with profound symptoms of personality pathology which require description; patients about whom the clinician needs to communicate diagnostic formulations. Patients who suffer from Psychopathic Personality Disorder (PPD) can be particularly challenging; they are hard to assess and manage; they are resistant to standard treatments; they show an elevated risk of engaging in criminal behaviour, substance use and suicidal behaviour; they have difficulty in maintaining intimate relationships and they tend to die at a younger age than their peers (Cooke and Logan 2018; Douglas, Vincent, and Edens 2018; Ellingson et al. 2018; Hare 1991; Polaschek and Skeem 2018).

PPD is a dangerous concept: Within court proceedings the term may be more prejudicial than probative, it can have a profound impact on how someone is viewed and treated within the legal system (Edens, Petrila, and Kelley 2018); in certain jurisdictions those who are deemed to be psychopathic are more likely to suffer capital punishment (Edens et al. 2013); the diagnosis is often used as a reason to exclude the sufferer from treatment (Ogloff 2006). Nonetheless, the concept—and one measure of the concept, the Psychopathy Checklist-Revised (PCL-R, Hare 1991)—is one of the most widely used in forensic practice (Archer et al. 2006). PPD remains salient in clinical practice because there remains a cohort of patients whom clinicians need to identify and understand.

In this paper, I will describe an attempt to return to basics in order to articulate a concept map of the disorder—The Comprehensive Assessment of Psychopathic Personality (CAPP). I will discuss the growing evidence in support of the concept map and multiple methods for measuring it. I will further argue that greater care is required in the selection of statistical methodologies in order that the method fits the conceptual questions being posed with greater verisimilitude.

2. The history and mystery of the concept of psychopathic personality disorder

How robust is the concept of PPD; is it founded on rigorous underpinnings or founded in sand? PPD is a form of personality disorder. Personality disorders are forms of mental disorder that are chronic in nature, starting in adolescence or early adulthood; they affect how an individual thinks, feels and behaves; the consequences of these disorders are chronic disturbance in the individual's relations with self, others and their environment. This chronic disturbance leads, in turn, to subjective distress and/or a failure to properly fulfil social roles and obligations (American Psychiatric Association 2013). PPD is a particularly virulent form of personality disorder. Historically PPD has long been associated with criminal and antisocial behaviour including violent behaviour. There is evidence in pre-clinical writings (e.g., The Old Testament, Chaucer's Canterbury Tales and the Icelandic Sagas) that observers perceived symptom clusters that today would be considered prototypical of PPD, and critically, they linked these symptoms to criminal acts.

In early clinical descriptions three distinct strands linking personality pathology and criminal acts can be discerned (Arrigo and Shipley 2001; Berrios 1996). Clinical writers in the early part of the nineteenth century linked repeated acts of violence to a strand of personality pathology characterised by behavioural dyscontrol (e.g., recklessness and impulsivity) in patients who suffered neither psychotic symptoms nor impaired intellectual functioning (e.g., Pinel, Partridge, Prichard). Early twentieth century nosologists emphasised a second strand of personality pathology—an interpersonal aspect—that is characterised by persuasiveness and charm, self-confidence and social assertiveness; these traits were linked to crimes including swindling and fraud (e.g., Cleckley, Kraepelin, Schneider). Kraepelin graphically described these individuals as *morbid liars and swindlers* (Kraepelin 1904). A third strand that can be discerned in early clinical writings is an affective strand, an aspect that is characterised by the traits of being cold, callous, predatory and remorseless; these traits being linked particularly to instrumental violence (e.g., Schneider, Pinel, Rush). Thus, historically clinicians have identified three distinct aspects of PPD— interpersonal, affective and behavioural— each of which might be linked to criminal acts. It is for this reason, that of all mental disorders, PPD has featured so strongly in the forensic arena.

Despite its forensic importance PPD remains a controversial clinical concept (Hart and Cook 2012). Indeed, as a concept its definition remains obscure, at least a dozen distinctive clinical descriptions exist, each emphasising different patterns of symptoms (Arrigo and Shipley 2001; Berrios 1996). The lack of conceptual clarity inevitably leads to a lack of operational clarity; there exists little consensus about how best to assess and diagnose PPD (Cooke et al. 2012; Hart and Cook 2012).

Over several decades, the dominant measure of PPD has been the Psychopathy Checklist-Revised (PCL-R; Hare 1991). Using this procedure, a trained assessor gathers evidence concerning life-time patterns of behaviour and personality traits relating to twenty items thought, by the author of the test, to characterise PPD; the evidence is based on an interview(s) and a systematic file review. The PCL-R has informed the field about the nature of PPD, however, an unfortunate consequence of its dominance in the field is operationalism. Frequently, researchers and clinicians confuse the PCL-R score with the psychopathy concept rather than merely a fallible estimate of an underlying concept. This is equivalent to confusing a score on an IQ test with intelligence. Self-evidently, the diagnostic criteria for PPD—or indeed any other clinical condition—are not the same as that clinical condition anymore than a map is the same as the landscape that it depicts. A danger of such operationalism is that it is never possible to discern whether observations are the consequence of peculiar qualities of the measure, or whether they actually inform us about characteristics of the underlying construct (Skeem and Cooke 2010a).

Clearly, clinicians and researchers in psychology require tools and procedures for measuring PPD, however, unless the concept to be evaluated is mapped out prior to operationalising the concept then confusion may reign. That the explication of a concept must precede the development of measures of that concept has long been recognised in psychological science yet, regrettably, this necessity has frequently been ignored (Blashfield and Livesley; 1991; Cook and Campbell 1978; Smith, Fischer, and Fister 2003). Inevitably, incomplete concept explication will result in imperfect measures, and repeated analysis of imperfect measures cannot inform our understanding of concepts (Skeem and Cooke 2010a). Clear differentiation between a concept and the measures of that concept, promotes our understanding of associations amongst different measurement procedures, and may in turn further inform our understanding of the nature of the concept (Cook and Campbell 1978; Cooke et al. 2012; Hart and Cook 2012; Smith et al. 2003).

3. The measurement challenge

In a modern-day parable, Richters (1997) related the case of the Hubble Space Telescope. The telescope, launched in 1990, in order to deliver high-resolution images of the universe, produced initial images that caused disappointment—if not dismay. The images were no clearer than those obtained from earth-based telescopes. Acceptance of the Hubble data as being accurate could have led to prolonged scientific endeavours focused on the wrong phenomena with resources being diverted away from the problem of interest. Fortunately, the problem was relatively easy to identify—spherical aberration deep in the complex optical structure of the telescope—because those trying to resolve the problem had access to the advanced and detailed knowledge base of physics and optics. Clearly, psychology lacks this detailed knowledge base, it is a comparatively young discipline, and indeed, the phenomena of concern to psychology are inherently more complex than those in the physical and biological sciences (Richters 1997).

Psychology lacks the articulated theories, methods or measures that characterise the more established sciences. Further, as Richters (1997) remarked: "Nor is it yet able to proceed with surefooted confidence in its ability to discriminate successfully between facts and artefacts, flawed data, real and illusory phenomena" (p. 194). This quote encapsulates the challenges inherent in the quest for a greater understanding of PPD—perhaps we have been looking at PPD through a faulty telescope. This challenge can only be tackled by asking the questions: What is PPD? This is the fundamental question that must be examined before we can start to evaluate those who might suffer from the disorder.

4. The development of a Concept Map of Psychopathic Personality Disorder

Cook and Campbell (1979) recommended "the careful pre-experimental explication of constructs so that the definitions are *clear* and in conformity with public understanding of the words being used" (p. 60; emphasis in original). Unfortunately, the explication of concepts is surprisingly rare in the field of psychopathology in general, and in personality disorder more particularly. My colleagues and I have endeavoured to rectify this position by developing a concept map of PPD (Cooke et al. 2012).

Concept maps are efforts to explicitly lay out knowledge about a particular topic in simple, graphical forms. Key informational elements of the topic are represented by circles or ovals; the relations amongst these key elements are generally represented by lines with or without arrowheads. (For an overview of concept maps, see Edwards and Fraser 1983; O'Donnell, Dansereau, and Hall 2002). We developed a concept map to represent key symptoms of PPD, named the Comprehensive Assessment of Psychopathic Personality or CAPP (Cooke et al. 2004). Our goal was to develop an explicit definition of PPD that could form the basis for content validation research as well as for the development of various measures of PPD.

Our endeavour was underpinned by six guiding principles. First, symptoms of PPD should belong to the domain of personal deviance, not social or cultural deviance; that is the symptoms belong to the domain of pathological personality traits not to the domain of acts that violate social norms e.g., sexual promiscuity or criminal behaviour (Blackburn 1992; Skeem and Cooke 2010a, 2010b). Symptoms that reflected personality pathology were selected. This reduces the tautological thinking inherent in many measures in the field whereby personality disorder is used to explain criminal behaviour but PPD is defined by reference to criminal behaviour. Second, clarity is enhanced when assessment is based on basic-level features (Rosch 1978). Clarity is achieved by defining symptoms in atomistic terms, that is, terms reflecting basic features of personality functioning in contrast to complex blends of symptoms such as are central to some PCL-R items. Third, we adopted the lexical hypothesis, a hypothesis which proposes that because humans are a highly linguistic species characteristics of personality—and personality disorder—will be well represented as single word descriptors within natural language (Saucier and Goldberg 2001). Our symptoms, therefore, were described in natural language. Jargon was eschewed. Fourth, there is growing evidence that the symptoms of personality disorder are not as stable as previously assumed (e.g., Tyrer 2005; Reichborn-Kjennerud et al. 2015); thus, within the CAPP model, symptoms were defined to reflect the dynamic nature of such symptoms. This contrasts markedly with the PCL-R which was designed to provide a life-time diagnosis and is thus unable to capture fluctuations or remission in symptoms either as a consequence of treatment or, indeed, natural maturation. Fifth, following theoretical accounts of normal personality (e.g., Clark 1995) we assumed that the atomistic symptoms could be grouped hierarchically in conceptually meaningful ways.

Grouping symptoms into conceptual domains has the advantage of providing additional context for interpreting symptoms, further reducing potential ambiguity in their meaning. Hierarchical models of personality provide a parsimonious organizational structure for symptoms, a structure which both provides breadth of description (i.e., bandwidth) and precision (i.e., fidelity). Sixth, we considered that the concept map should provide a comprehensive description of all putative symptoms of the disorder: Which symptoms are primary and which are secondary remains an empirical question. Symptoms can be deleted from the model after the fact; it is less easy to determine retrospectively which symptoms should be added.

Guided by these principles we undertook a number of processes in order to create our concept map—The Comprehensive Assessment of Psychopathic Personality or CAPP (Cooke et al. 2004, 2012). In psychology, concept development can be approached either as a top-down process or a bottom-up process. The PCL-R can be regarded as being based upon an orthodox top-down approach as it is based on the influential work of (Cleckley 1976). In the first edition of the PCL-R manual Hare explicitly acknowledged his debt to Cleckley: "To a large extent the 'Cleckley psychopath' is the clinical basis for the PCL-R and the PCL-R" (Hare 1991, 2). Unfortunately, the inherent vulnerability of the top-down approach is its very reliance on the views of one individual, views that will be shaped by their experience, including the source and types of patients referred to them and the culture within which they are embedded. The top-down approach may lead to faulty conceptualisation because of the inaccurate, idiosyncratic or inaccurate sampling of the clinical phenomena of concern.

Blashfield and Livesley (1991) are proponents of the bottom-up approach to concept specification in psychopathology; they provided a route map: "Ideally, representations of the construct are developed through many procedures, such as literature reviews, expert judgements, analysis of relevant research, and direct observations of behaviors provide a comprehensive representation of the construct" (Blashfield and Livesley 1991, 266).

Thus, it is clear that in order to build a concept map it is crucial to adopt a multi-method, multi-source approach to determining which informational elements to select, and how to structure them. It is important to identify all clinically relevant elements, but also, it is important to filter out secondary or irrelevant content (Blashfield and Livesley 1991; Clark and Watson 1995; Smith et al. 2003). We endeavoured to follow this route map.

First, we carried out a detailed literature review. Clark and Watson (1995) argued that this initial step can be used, not only to determine whether a new model is required, but also, to elucidate the description and limits of the target concept. We considered three broad literatures. First, we examined existing diagnostic criteria (e.g., American Psychiatric Association 2000; Hare 1991; Hart, Cox, and Hare 1995; World Health Organisation 1992). Second, we reviewed the detailed clinical descriptions of PPD provided by scholars (e.g., Arieti 1963; Cleckley 1976; Henderson 1939; Karpman 1948; McCord and McCord 1964; Millon and Davis 1996; Schneider 1958). Third, we consider the descriptions of PPD available in the research literature (e.g., Blackburn 1998; Lykken 1995).

From this process, we were able to garner a lengthy list of putative symptoms of PPD. However, as Blashfield and Livesley (1991) advised, it is also important to access expert judgements, and indeed, judgements based on direct observations of people who display the condition of interest. In order to achieve this, we consulted a cohort of subject matter experts (SMEs) from Europe and North America, that is, with a cohort of

clinicians who worked closely with patients with PPD. It was important to us to interview clinicians who adopted various different conceptual frameworks in their therapeutic work. These clinicians were asked to describe, in their own words, not only the symptoms of a recent patient with PPD, but also the symptoms they had observed in patients with PPD in the past.

These two processes, the review of the literatures and the interviews with subject matter experts, provided us with a large list of putative symptoms of this disorder. The conceptual challenge was how to brigade this information in a theoretically meaningful manner. As noted above we adopted the lexical hypothesis as the means by which to systematise our analysis of the putative symptoms. The lexical hypothesis proposes that salient individual differences are encoded in lay language in basic and simple terms; and further, that clusters of broadly synonymous terms for an attribute indicates that the attribute has psychological significance (Saucier and Goldberg 2001).

Having adopted the lexical approach to personality (Saucier and Goldberg 2001), we translated the various descriptions of PPD symptoms—obtained from the multiple sources—into natural language trait-descriptive adjectives or brief adjectival phrases. We then consolidated the list by grouping those symptoms that were (virtually) synonymous. To avoid premature closure on the concept we did not exclude symptoms or features of PPD that were controversial, although we excluded those that were highly idiosyncratic (i.e., identified by a single expert); put differently, we attempted to ensure that the CAPP reflected the consensus—as opposed to unanimous—views of the major sources.

The result of this process was a set of 33 symptoms, each a trait-descriptive adjective or adjectival phrase. Given that linguistic terms are inherently fuzzy (Block 1995) we "triangulated" the meaning of each symptom using three synonymous adjective or adjectival phrases. For example, the symptom *Antagonistic* was defined as *Contemptuous*, *Disagreeable*, and *Hostile*. Providing definitions for symptoms framed in natural (i.e., common or lay) language may sound unnecessary, but of course many words in English—and other languages—can have multiple meanings and most can have multiple connotations; the definitions, quite literally, help concept map readers to triangulate more precisely our intended meaning of the symptoms. This triangulation allows for nuanced definitions of symptoms and can provide ranked expressions of the symptom of concern. For example, the symptom *Aggressive* is defined in terms of intensity by three adjectives (*Threatening, Bullying,* and *Violent*), while the symptom *Unempathic* is defined in terms of intensity by three different adjectives (*Uncompassionate, Callous, Cruel)*.

Finally, we realised that the 33 symptoms could be distributed on a rational basis into six categories that reflect basic functional domains of personality functioning: *Attachment*, *Behavioural*, *Cognitive*, *Dominance*, *Emotional*, and *Self*. These basic domains have been identified in various empirically-derived models of personality (e.g., John and Srivastava 1999; Lee and Ashton 2004). The allocation of symptoms into these conceptual domains provided additional context for interpreting symptoms, further reducing potential ambiguity in their meaning.

The end product of this process was a concept map that is hierarchical, with PPD at the first (top) level; six domains of symptoms at the second level; 33 symptoms at the third level; and 99 defining adjectives or adjectival phrases at the bottom level.

The CAPP concept map is a graphical representation of the domain of PPD symptomatology that is comprehensive, yet comprehensible (see Figure 1 in Cooke et

al. 2012). This approach to construct explication has a number of practical and theoretical advantages. First, it avoids terms-of-art such as PCL-R item descriptions *Revocation of conditional release* or *Parasitic lifestyle* (Hare 1991) and should make communication with decision-makers more intelligible. Second, because symptoms are focused on basic features of personality functioning it is possible to parse the complex blends of symptoms found in other diagnostic approaches (e.g., DSM-5; American Psychiatric Association 2013 or PCL-R; Hare 1991) into their basic elements and, thereby, clarify their specific meaning for the client being assessed. For example, the PCL-R item *Shallow Affect* is regarded as a central symptom of PPD but it is a complex blend containing eight CAPP symptoms from three conceptual domains, i.e., from the *Attachment* domain (*Detached, Uncommitted, Uncaring*), from the *Emotions* domain (*Lacks Emotional Depth*, *Unempathic*, *Lacks Anxiety* and *Lacks Pleasure*) and from the *Dominance* domain (*Insincere*). This increased specificity is likely to yield incremental validity over alternative diagnostic procedures currently in use as well as enhancing the clarity of clinical formulation in the individual case (Dawson et al. 2012; Kreis and Cooke 2012).

Third, the CAPP concept map is specified by open concepts, that is, by concepts which are not defined in terms of fixed and restricted sets of behavioural indicators. This is not true of other diagnostic approaches to PPD or cognate disorders which rely to some degree on DSM-5, for example, "being irritable and aggressive as suggested by frequent assaults or physical fights" (American Psychiatric Association 2013) or Multiple marital relationships and Revocation of conditional release (PCL-R; Hare 1991). The specification of the model in terms of open concepts means that the symptoms are not tailored for use in limited contexts (e.g., institutional contexts), with specific populations (e.g., individuals of certain age, gender or race) or across specific time periods (e.g., past 2 years v. life-time), rather CAPP symptoms have a broad application.

The entire concept map, including all levels of the hierarchy, can be represented in about 180 words of text or a single graphic and is readily understood even by people with no training or experience in mental disorder. The CAPP model was developed explicitly to direct the development of new measures that could assist in clinical formulation and the detection of change in symptomatology brought about by intervention or natural variation (e.g., Cooke and Logan 2014, 2017; Cooke et al. 2012; Kreis and Cooke 2012).

5. Evaluating the CAPP concept map

As noted above, the CAPP concept map was designed to facilitate the development of different forms of psychological assessment—interviews, self-ratings, expert observation ratings and self-report inventories. However, prior to the development of instruments, it is important to demonstrate the validity of the concept to be measured—in psychology this is known as content validity.

Two broad streams of evidence support the content validity of the CAPP conceptual map; translations and prototypicallity studies. A first stream of evidence can be found in the work on translation of the model into languages other than English. As noted above, the lexical hypothesis proposes that salient predicates in the language attest to the significance of a psychological concept or phenomenon; the lexical hypotheses further proposes that salient psychological phenomenon should be represented in all languages (Saucier and Goldberg 2001). Thus, the ability to translate the CAPP conceptual model—content and structure— into other languages is a strong assay of the model

with the greater the distance of the language of translation from the source language—English—the more rigorous the test of the model (Saucier and Goldberg 2001).

To date successful translations have been completed into several of the West Germanic branch of Indo-European languages to which English belongs. These languages include Dutch and German, as well as closely related North Germanic branch that includes languages such as Danish, Norwegian, and Swedish (e.g., Hoff et al. 2012; Sörman et al. 2014). In addition, there have been successful translations into more distant branches of the same Indo-European family, such as Balto-Slavic (e.g., Lithuanian, Russian), Indo-Iranian (e.g., Persian; Shariat, personal communication, August 28, 2012), and the Romance languages (e.g., French, Italian, Spanish; Flórez et al. 2015). Of considerable interest is the fact and that the CAPP conceptual map can be reproduced in languages from completely different language families, including Afro-Asiatic (e.g., Semitic languages such as Hebrew), Austronesian (e.g., Malay), Koreanic (e.g., Korean), Sino-Tibetan (e.g., various dialects of Chinese). This work is still in progress with a number of other translations underway, however, the broad conclusion is that it is possible to find cognate terms for all of the CAPP symptoms and that these terms display similar networks of connections across languages. This body of evidence provides support for both the validity of the CAPP as a concept map and the cross-cultural relevance of the construct of PPD (Cooke 1996; Cooke and Michie 1999).

A second stream of research into the content validity of the CAPP concept map is based on prototypicallity methodologies. Prototypicality analysis is an approach that has been used to study concepts of mental disorder for many years (e.g., Westen, Shedler, and Bradley 2006). Diagnostic categories such as PPD are inherently fuzzy; they are essentially Roschian categories best represented by clear cases of PPD rather than by its boundaries with other categories. Rosch and colleagues (Rosch 1973), argued that most, if not all, natural language concepts have fuzzy boundaries; they are best conceptualised in terms of a prototype—or best exemplar—with other members of the concept being ordered in terms of their similarity to the theoretical ideal. Symptoms with high prototypicallity should be present in the majority of category members with less typical features only being present in a minority of members. In prototypicallity studies judges—expert or lay—are asked to consider the concept of interest and specify whether a feature is central or not as a defining feature of that concept. With respect to the CAPP conceptual map, prototypicality studies determine the extent to which CAPP symptoms are judged to be characteristic of the concept of PPD.

A variety of prototypicality studies have been undertaken using different language versions of the CAPP concept map and different populations. First, some studies have examined the overall prototypicality of individual CAPP symptoms; these symptoms have been contrasted with so-called "foil" symptoms, that is, with symptoms of personality disorders that are conceptually irrelevant to PPD. Studies of this type have been carried out in languages as diverse as English, Norwegian, French, Spanish, Persian and Korean (e.g., Flórez et al. 2015; Kreis et al. 2012; Pauli et al. 2018; Sea 2018). The overarching conclusions of this strand of research are that the CAPP symptoms are rated as significantly more prototypical of PPD than are foil symptoms and certain CAPP symptoms are more prototypical than others (e.g., *Lacks remorse*, *Unempathic*, *Self-centred* are rated highly prototypical). The prototypicality ratings for CAPP symptoms are highly consistent across groups of raters within a given language (e.g., mental health professionals versus lay-people) and across languages. These studies provide further support to the construct validity of the CAPP concept map.

Other prototypicallity studies have assessed the consistency of prototypicality of CAPP symptoms across groups such as age, gender (e.g., males versus females with PPD) or

across language/culture (e.g., different language versions of the CAPP). The general conclusions of this research are that prototypicality ratings are quite consistent across different groups implying that the concept may be less biased than other concepts of PPD. Pauli et al. (2018), for example, concluded that "…the CAPP symptoms are relatively gender-neutral" (p. 106).

Finally, some prototypicality studies have examined the boundaries of the PPD concept with related concepts such as borderline personality disorder. Viljoen et al. (2015) used a parallel concept map—the Comprehensive Assessment of Borderline Personality (CABP). The general conclusions of their research are that most CAPP symptoms have good specificity, that is, the symptoms are rated as moderately to highly prototypical of PPD but not of other disorders (Pauli et al. 2018; Viljoen et al. 2015). In sum, there is growing evidence of the content validity of the CAPP concept model. How can this model be applied in practice?

6. From concept to measurement

Concepts outdo operations; operational problems cannot be resolved when conceptual problems have not been tackled. However, the validation of the CAPP concept can only properly proceed when the concept map escapes from its ivory tower and impacts on the reality of real people, and real cases. This requires different operationalisations of the concept.

One of the challenges that has faced the field of research into PPD has been the over-reliance on the PCL-R and its progeny as a means of operationalising the concept: fundamentally, there is a danger of mono-method bias that means it is not possible to determine whether observations are a consequence of PPD or a consequence of idiosyncratic features of the measurement instrument (Skeem and Cooke 2010a). This over-reliance further threatens the validity of any knowledge derived about PPD as there are the twin hazards of construct under-representation (i.e., the failure to capture core features of the disorder) and construct irrelevance (i.e., the inclusion of features that are not cardinal features of the disorder or that are at best secondary or associated features. Such secondary features may have low sensitivity (i.e., features that are not found in all people with the disorder) or low specificity (i.e., features that are found in people diagnosed with many disorders not merely PPD). For example, criminal behaviour is something that may not be a symptom of PPD but rather a sequelae or consequence of the core personality structure of PPD (Cooke et al. 2006; Cooke and Sellbom in press; Skeem and Cooke 2010a). The heated debate over the role of criminal and antisocial behaviour as features of PPD is a good example of the problem that may emerge as a consequence of mono-method bias (Cooke, Michie, and Hart 2006; Cooke et al. 2006; Cooke and Sellbom in press; Poythress and Petrila 2010; Skeem and Cooke 2010a, 2010b).

The sufficiency of any operation is limited by the quality of the underpinning conceptualisation; it is tied inherently to that conceptualisation, careful explication must direct both the development and evaluation of any operations designed to measure the concept. Inevitably, explication that is inadequate will lead to inadequate measurement.

Test of most hypotheses in the field of PPD—being dependent on variants of the PCL-R—are not risky in the Popperian sense as they do not entail, for example, different conceptualisations or different approaches to measurement including interview, expert observation scales and self-report (Sellbom et al. 2018). By comparing different

approaches to operationalization of the PPD construct it is more likely that method and concept can be disentangled. Clearly, when findings converge across different operationalizations of PPD this provides more compelling evidence about the concept *per se*. Further, when findings are sustained despite heterogonous irrelevances or variations in people, settings, or treatments the validity of knowledge is enhanced (Shadish, Cook, and Campbell 1999).

The CAPP concept map has served as the basis for a number of procedures for operationalizing the concept. As data accumulate using different operations they can provide information—that over time—can be used to further refine the CAPP model (Cooke and Logan 2018; Edwards and Bagozzi 2003).

7. Current measures of the CAPP model

At this time, there are four broad approaches available for operationalizing the CAPP model. The CAPP-Symptom Rating Scale-Clinical Interview (CAPP SRS-CI) provides the most detailed clinical analysis of an individual's psychopathic symptoms (see Cooke and Logan 2018 for a comprehensive description); it is used to evaluate overall symptom severity, both trait extremity and functional impairment. A trained interviewer, having carried out a detailed review of background files, carries out a semi-structured interview with the person of interest. This interview has been carefully tailored for the client group and is designed to yield information about the 33 symptoms in the CAPP conceptual map. The interviewer prompts the client to discuss each symptom related area by using one or more starter questions; the client's responses are followed-up using a series of more directed interview probes. The interview is carefully designed to support the development of rapport, it promotes listening and the observation of traits that are indicative of the disorder. These are essential element of the assessment process; they allow the interviewer to detect and monitor patterns of defensive and deceptive responding and also allow the interviewer to manage the impact that resistance and minimisation may have on the collection of information. A number of studies have demonstrated the field reliability of this method (e.g., Pedersen et al. 2010; Sandvik et al. 2012; Sea 2018).

A second approach is to capture the knowledge of an informant systematically. It is the case that assessments of PPD often take place in the context of secure settings—prisons and secure forensic hospitals. Staff who work in these facilities often have extensive knowledge of clients. The CAPP SRS-Informant Report (CAPP SRS-IR) was developed to tap into this valuable source of knowledge. The informant derived information provides a source of information from an alternative perspective, together with the CAPP SRS-CI this should provide a more comprehensive and nuanced depiction of the client's psychopathic symptomatology. The Informant Report may also assist in circumstances where the client refuses to partake in the CAPP interview—this does occur, albeit rarely, in forensic clinical practice.

A third approach to assess the CAPP traits, particularly for research rather than clinical purposes, is through the use of lexical markers. The CAPP Lexical Rating Scales (CAPP-LRS) are used when rating trait extremity or prototypicallity in contexts where it is not possible to evaluate functional impairment. As noted above participants are asked to rate the extent to which the adjectives used to define symptoms in the CAPP are characteristic of themselves or others. Technically, these are not ratings of symptoms as no attempt is made to determine the clinical severity, that is, the associated functional impairment; rather the ratings are essentially personality descriptions the meaning of which is self-evident (Goldberg 1993). Sellbom, Cooke and Hart (2015) analysed lexical

ratings of CAPP traits from a large sample of community-based participants. Their bifactor modelling approach demonstrated a strong general factor underpinning these ratings indicating that ratings can be conceived as reflecting a coherent construct. Further, the bifactor modelling approach allowed each lexical rating to be ranked in order of strength of its relationship with the underlying general factor. These factor loadings correlated at .76 with the prototypicallity ratings of these symptoms by experts (Kreis et al. 2012). This provides further support for the content validity of the CAPP model particularly given the very different conceptual and empirical processes used to derive the data. Correlations with CAPP lexical self-ratings can also be used to elucidate the meaning of items, subscales, and total scores of self-report measures of PPD (e.g., Gatner, Douglas, and Hart 2017); the CAPP model serving as a *Rosetta Stone* allowing cross-translations across different measures of the concept (Cooke et al. 2012).

The fourth approach to the operationalisation of the CAPP model is the development of a self-report inventory. The self-report assessment of PPD is clearly subject to a number of challenges, however, self-report methods are demonstrating something of a renaissance (Sellbom et al. 2018). A self-report scale (CAPP-SR, Sellbom and Cooke 2016) is currently being evaluated (Sellbom, Cooke, and Shou 2018). Initially, over 500 candidate items for the 33 CAPP symptoms were prepared. These items were evaluated by four independent CAPP experts and rated for quality and relevance to particular CAPP domains and symptoms. The resultant experimental form of 299 items was administered to 553 participants from a community sample designed to reflect the 2016 US census demographics. Items for the final version were selected by psychometric analysis using item response theory modelling and confirmatory factor analysis. These procedures allowed the systematic selection of items designed to maximise the information—in a technical psychometric sense—across the range of each of the CAPP symptoms. A final version of 99 items was developed and tested in two samples in the USA and New Zealand and showed promising pattern of convergent and discriminant validity with other self-report psychopathy scales as well as with independent prototypicality ratings. As such the new CAPP-SR inventory shows promise for furthering research into PPD. One obvious avenue of research is in populations of individuals where moderate to high levels of psychopathy occur but in the absence of an overt criminal history (Mullins-Sweatt et al. 2010).

In sum, data regarding the elements of the CAPP concept map can now be gathered using multimodal approaches to the assessment of these important symptoms. While this has practical significance, it can also contribute to our understanding of the disorder.

8. From measurement to concept

The development of different measurement technologies by which the conceptual model is instantiated not only allows assessment of the practical utility of the CAPP concept map, but also, provides means by which the conceptual model can be further validated (Edwards and Bagozzi 2000). Psychological science progresses through the iteration and refinement of both concepts and measures; new findings clarifying existing models which, in turn, assists with the development of new measures (Haynes, Richard, and Kubany 1995). As noted elsewhere (Cooke et al. 2012; Cooke and Logan 2015), from the beginning, we explicitly adopted an inductive approach to the construction of the CAPP measures as little can be known empirically about the underlying nature of the structure of the construct (Smith, Fischer, and Fister 2003). Progress can only be achieved through the successive iteration and refinement of both

the construct of interest and multiple putative measures of the construct of interest (Blashfield and Livesley 1991; Cook and Campbell 1979; Strauss and Smith 2009).

How data derived from these measures are analysed is an important challenge for the field. Science, like most human endeavours is subject to fashion: This can be problematic. Gigerenzer (2002) noted that psychological science is subject to rituals designed to make results appear highly informative; editors, reviewers and researchers alike sustain these rituals. Referring to psychological studies Ludwig Wittgenstein remarked trenchantly: "…the existence of the experimental method makes us think we have the means of solving the problems which trouble us; though problem and method pass each other by" (Wittgenstein 1958, 243). I would argue that if understanding is to progress not only is it essential to have clearer pre-experimental explication of the concept of interest, but it is essential to have more flexibility in our approaches to data analysis.

Returning to the Hubble space telescope analogy not only is it necessary to consider PPD through many measurement lenses, it is also important to consider our data through many statistical lenses. Perhaps the best illustration of the conceptual and empirical cul-de-sac in the area of PPD is the debate about how many dimensions underpins the PCL-R items (Cooke and Skeem 2010a, 2010b; Hare and Neumann 2010). It can be argued that this illustrates Wittgenstein's point where there is a clear misalignment between how symptoms might be viewed and the analytic technique used to evaluate the question. Indeed, the over-reliance on confirmatory factor analysis (CFA) to explore the latent structure of psychopathy from PCL-R ratings, amongst other measures, is problematic (Booth and Hughes 2014; Furnhamet al. 2012; Hopwood and Donnellan 2010; Marsh et al. 2014).

Briefly, CFA models are founded on the independent clusters model; in other words, it is assumed that any symptom of PPD is underpinned by one—and only one— latent trait, and that each symptom has zero loadings on all other latent traits—an unrealistic assumption. Humans are active, reactive, interactive and adaptive organisms; traits combine in complex and unknown ways; their interplay may be synergistic—amounting to more than the sum of their individual effects—resulting in the disorder described as PPD. Richters (1997) expressed the essential nature of this challenge:

> The extraordinary human capacity for equifinal and multifinal functioning, however, renders the structural homogeneity assumption untenable. Very similar patterns of overt functioning may be caused by qualitatively different underlying structures both within the same individual at different points in time, and across different individuals at the same time (equi-finality). Conversely, different patterns of overt functioning may stem from very similar processes within the same individual over time, and across different individuals at the same time (multi-finality). (Richters 1997, 206-207)

Simple CFA models represent a mismatch between method and the problem to be tackled. Space precludes detailed discussion, however, there are a growing number of techniques that endeavour to model these complexities including exploratory structural equation modelling (ESEM; Cooke and Sellbom in press) and network analyses (Preszler et al. 2018; Verschuere et al. 2018). Within ESEM approaches the Independent Clusters Model is eschewed and symptoms are modelled so that they may be underpinned by more than latent factor. Within network analyses no assumption is made regarding a latent cause of PPD but rather it is assumed that the covariation among the symptoms of PPD are the consequence of the interactions amongst the

symptoms (Borsboom and Cramer 2013); symptoms may reinforce each other through positive feedback loops. For example, if we select symptoms from three CAPP conceptual domains, e.g., *Self-Aggrandising (Self* domain), *Antagonistic* (*Dominance* domain) and *Intolerant* (*Cognitive* domain) it is easy to conceive how these three symptoms could resonate in a positive feedback loop to result in an individual displaying the symptom *Aggressive* (*Behavioural* Domain).

To conclude, PPD remains an elusive concept yet it is one that has serious implications for those who suffer from the disorder—and for their victims. It is only through the processes of careful construct explication, the development of multi-modal measurement procedures, and the selection of appropriate analytic techniques, which truly model the complex patterns of equi-finality and multi-finality of human behaviour, that we will begin to capture the essence of this important concept. The research on the CAPP concept map described here represents the first step on a long road. This is a journey that could benefit from the rigour that philosophical discourse could inject.

REFERENCES

American Psychiatric Association. 2000. *Diagnostic and Statistical Manual of Mental Disorders: Text Revision*. Washington: American Psychiatric Association.

American Psychiatric Association. 2013. *Diagnostic and Statistical Manual of Mental Disorders: DSM-5*. Washington: American Psychiatric Association.

Archer, R. P., J. K. Buffington-Vollum, R. V. Stredny, and R. W. Handel. 2006. A survey of psychological test use patterns among forensic psychologists. *Journal of Personality Assessment* 87: 84-94.

Arieti, S. 1963. Psychopathic personality: Some views on its psychopathology and psychodynamics. *Comprehensive Psychiatry* 4: 301-312.

Arrigo, B., and S. Shipley. 2001. The confusion over psychopathy (1) Historical considerations. *International Journal of Offender Therapy and Comparative Criminology* 45: 325-344.

Berrios, G. E. 1996. *The History of Mental Symptoms: Descriptive Psychopathology since the Nineteenth Century*. Cambridge: Cambridge University Press.

Blackburn, R. 1992. Criminal behaviour, personality disorder, and mental illness: The origins of confusion. *Criminal Behaviour and Mental Health* 2: 66-77.

Blackburn, R. 1998. Psychopathy and Personality Disorder: Implications of Interpersonal Theory. In *Psychopathy: Theory, Research and Implications for Society* Vol. 1st, eds. D. J. Cooke, A. E. Forth, and R. D. Hare, 269-301. Dordrecht: Kluwer Academic Publishers.

Blashfield, R. K., and W. J. Livesley. 1991. Metaphorical analysis of psychiatric classification of a psychological test. *Journal of Abnormal Psychology* 100: 262-270.

Block, J. 1995. A contrarian view of the five-factor approach to personality description. *Psychological Bulletin* 117: 187-215.

Booth, T., and D. J. Hughes. 2014. Exploratory structural equation modeling of personality data. *Assessment* 21: 260-271.

Borsboom, D., and A. O. Cramer. 2013. Network analysis: An integrative approach to the structure of psychopathology. *Annual Review of Clinical Psychology* 9: 91-121.

Campbell, D. T., and D. W. Fiske. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin* 56: 81-105.

Clark, L. A. 1995. The challenge of alternative perspectives in classification: A discussion of basic issues. In *The DSM-IV Personality Disorders*, ed. W. J. Livesley, 482-505. New York: Guilford.

Clark, L. A., and D. Watson. 1995. Constructing validity: Basic issues in objective. *Psychological Assessment* 7: 309-319.

Cleckley, H. 1976. *The Mask of Sanity* (Vol. 5). St Louis: Mosby.

Cook, T. D., and D. T. Campbell. 1979. *Quasi-Experimentation, Design and Analysis Issues for Field Settings*. Chicago: Rand McNally College Publishing Company.

Cooke, D. J. 1996. Psychopathic personality in different cultures. What do we know? What do we need to find out? *Journal of Personality Disorders* 10: 23-40.

Cooke, D. J., S. D. Hart, C. Logan, and C. Michie. 2004. *Comprehensive Assessment of Psychopathic Personality–Institutional Rating Scale* (CAPP–IRS). Unpublished manual.

Cooke, D. J., S. D. Hart, C. Logan, and C. Michie. 2012. Explicating the construct of psychopathy: Development and validation of a conceptual model, the Comprehensive Assessment of Psychopathic Personality (CAPP). *International Journal of Forensic Mental Health* 11: 242-252.

Cooke, D. J., and C. Logan. 2015. Capturing clinical complexity: Towards a personality-oriented measure of psychopathy. *Journal of Criminal Justice* 43: 262-273.

Cooke, D. J., and C. Logan. 2018. Capturing psychopathic personality: Penetrating the mask of sanity through clinical interview. In *The Handbook of Psychopathy* (2 ed.), ed. C. J. Patrick. London: Guildford Press.

Cooke, D. J., and C. Michie. 1999. Psychopathy across cultures: North America and Scotland Compared. *Journal of Abnormal Psychology* 108: 55-68.

Cooke, D. J., C. Michie, and S. D. Hart. 2006. Facets of clinical psychopathy: Towards clearer measurement. In *Handbook of psychopathy* (Vol. 1st), ed. C. J. Patrick, 91-106. New York: The Guilford Press.

Cooke, D. J., and M. Sellbom. under review. *An Examination of Psychopathy Checklist-Revised Latent Factor Structure via Exploratory Structural Equation Modeling*.

Dawson, S., E. McCuish, S. D. Hart, and R. R. Corrado. 2012. Critical issues in the assessment of adolescent psychopathy: An illustration using two case studies. *International Journal of Forensic Mental Health* 11: 63-69.

Douglas, K. S., G. M. Vincent, and J. F. Edens. 2018. Risk for criminal recidivism: The role of psychopathy. In *Handbook of Psychopathy*, ed. C. J. Patrick. New York: The Guildford Press.

Edens, J. F., K. M. Davis, K. Fernandez Smith, and L. S. Guy. 2013. No sympathy for the devil: Attributing psychopathic traits to capital murderers also predicts support for executing them. *Personality Disorders: Theory, Research, and Treatment* 4: 175-181.

Edens, J. F., J. P. Petrila, and S. E. Kelley. 2018. Legal and ethical issues in the assessment and treatment of psychopathy. In *Handbook of Psychopathy*, ed. C. J. Patrick. New York: The Guilford Press.

Edwards, J., and K. Fraser. 1983. Concept maps as reflectors of conceptual understanding. *Research in Science Education* 13: 19-26.

Edwards, J. R., and R. P. Bagozzi. 2000. On the nature and direction of relationships between constructs and measures. *Psychological Methods* 5: 155-174.

Ellingson, J. M., A. K. Littlefield, A. Verges, and K. J. Sher. 2018. Psychopathy and substance abuse disorders. In *Handbook of Psychopathy*, ed. C. J. Patrick. New York: The Guilford Press.

Flórez, G., A. Casas, M. K. Kreis, L. Forti, J. Martínez, J. Fernández., M. Conde, R. Vázquez-Noguerol, T. Blanco, H. A. Hoff, and D. J. Cooke. 2015. A prototypicality validation of the Comprehensive Assessment of Psychopathic Personality (CAPP) model Spanish version. *Journal of Personality Disorders* 29: 707-718.

Furnham, A., N. Guenole, S. Levine, and T. Chamorro-Premuzic. 2012. The NEO-PI-R: Factor structure and gender invariance from exploratory structural equation modelling analyses in a high-stakes setting. *Assessment* 20: 14-23.

Gatner, D. T., K. S. Douglas, and S. D. Hart. 2017. Comparing the lexical similarity of the Triarchic model of psychopathy to contemporary models of psychopathy. *Journal of Personality*. doi: 10.1111/jopy.12337

Gigerenzer, G. 2002. *Reckoning with Risk: Learning to Live with Uncertainty*. London: Penguin.

Hare, R. D. 1991. *The Hare Psychopathy Checklist - Revised*. Toronto, Ontario: Multi-Health Systems.

Hare, R. D., and C. S. Neumann. 2010. The role of antisociality in the psychopathy construct: Comment on Skeem and Cooke (2010). *Psychological Assessment* 44: 446-454.

Hart, S. D., and A N. Cook. 2012. Current issues in the assessment and diagnosis of psychopathy (psychopathic personality disorder). *Neuropsychiatry* 2: 497-508.

Hart, S. D., D. N. Cox, and R. D. Hare. 1995. *The Hare Psychopathy Checklist: Screening Version.* Toronto: Multi-Health Systems Inc.

Haynes, S. N., D. C. S. Richard, and E. S. Kubany. 1995. Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment* 7: 238-247.

Henderson, D. K. 1939. *Psychopathic states*. New York: W. W. Norton and Co.

Hoff, H. A., K. Rypdal, A. Mykletun, and D. J. Cooke. 2012. A Prototypicality Validation of the Comprehensive Assessment of Psychopathic Personality Model (CAPP). *Journal of Personality Disorders* 26: 414-427.

Hopwood, C. J., and M. B. Donnellan. 2010. How should the internal structure of personality inventories be evaluated? *Personality and Social Psychology Review* 14: 332-346.

John, O. P., and S. Srivastava. 1999. The Big Five trait taxonomy: History, measurement, and theoretical perspectives. *Handbook of Personality: Theory and Research* 2: 102-138.

Karpman, B. 1948. The myth of psychopathic personality. *American Journal of psychiatry* 104: 523-534.

Kraepelin, E. 1904. Lecture XXIX: Morbid personalities. *Lectures on clinical psychiatry*, 282.

Kreis, M. K., and D. J. Cooke. 2012. The manifestation of psychopathic traits in women: An exploration using case examples. *International Journal of Forensic Mental Health* 11: 267-279.

Kreis, M. K. F., D. J. Cooke, C. Michie, H. A. Hoff, and C. Logan. (2012). The Comprehensive Assessment of Psychopathic Personality (CAPP): Content validation using prototypical analysis. *Journal of Personality Disorders* 26: 402-413.

Lykken, D. T. 1995. *The Antisocial Personalities* (Vol. 1). Hillsdale: Lawrence Erlbaum.

Marsh, H. W., A. J. Morin, P. D. Parker, and G. Kaur. 2014. Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology* 10: 85-110.

McCord, W., and J. McCord. 1964. *The Psychopath: An Essay on the Criminal Mind* (Vol. 1). Princeton NJ: Van Nostrand.

Millon, T., and R. D. Davis. 1996. *Disorders of Personality DSM-IV and Beyond* (Vol. 2nd). New York: Wiley.

Mullen, P. E. 1992. Psychopathy: A developmental disorder of ethical action. *Criminal Behaviour and Mental Health* 2: 234-244.

Mullins-Sweatt, S. N., N. G. Glover, K. J. Derefinko, J. D. Miller, and T. A. Widiger. 2010. The search for the successful psychopath. *Journal of Research in Personality* 44: 554-558.

O'Donnell, A. M., D. F. Dansereau, and R. H. Hall. 2002. Knowledge maps as scaffolds for cognitive processing. *Educational Psychology Review* 14: 71-86.

Ogloff, J. R. 2006. Psychopathy/antisocial personality disorder conundrum. *Australian and New Zealand Journal of Psychiatry* 40(6-7): 519-528.

Pauli, M., K. Essemyr, K. Sörman, K. Howner, P. Gustavsson, and J. Liljeberg. 2018. Gendered expressions of psychopathy: Correctional staffs' perceptions of the CAPP and CABP models. *International Journal of Forensic Mental Health* 17: 97-110.

Pedersen, L., C. Kunz, K. Rasmussen, and P. Elsass. 2010. Psychopathy as a risk factor for violent recidivism: Investigating the Psychopathy Checklist Screening Version (PCL: SV) and the Comprehensive Assessment of Psychopathic Personality (CAPP) in a forensic psychiatric setting. *International Journal of Forensic Mental Health* 9: 308-315.

Poythress, N., and J. P. Petrila. 2010. PCL-R psychopathy: Threats to sue, peer review, and potential implications for science and law. A commentary. *International Journal of Forensic Mental Health* 9: 3-10.

Polaschek, D. L., and J. Skeem. 2018. Treatment of adults and juveniles with psychopathy. In *Handbook of Psychopathy*, ed. C. J. Patrick. New York: The Guilford Press.

Preszler, J., D. K. Marcus, J. F. Edens, and B. E. McDermott. 2018. Network analysis of psychopathy in forensic patients. *Journal of Abnormal Psychology* 127: 171-182.

Reichborn-Kjennerud, T., N. Czajkowski, E. Ystrøm, R. Ørstavik, S. Aggen, K. Tambs, . . . R. Krueger. 2015. A longitudinal twin study of borderline and antisocial personality disorder traits in early to middle adulthood. *Psychological Medicine* 45: 3121-3131.

Richters, J. E. 1997. The Hubble hypothesis and the developmentalist's dilemma. *Development and Psychopathology* 9: 193-229.

Rosch, E. 1978. *Principles of Categorization: Cognition and Categorization*. Hillsdale NJ: Erlbaum.

Rosch, E. H. 1973. Natural categories. *Cognitive psychology* 4: 328-350.

Sandvik, A. M., A. L. Hansen, M. V. Kristensen, B. H. Johnsen, C. Logan, and D. Thornton. 2012. Assessment of psychopathy: Inter-correlations between Psychopathy Checklist Revised, Comprehensive Assessment of Psychopathic Personality–Institutional Rating Scale, and Self-Report of Psychopathy Scale–III. *International Journal of Forensic Mental Health* 11: 280-288.

Saucier, G., and L. R. Goldberg. 2001. Lexical studies of indigenous personality factors: Premises, products, and prospects. *Journal of Personality Disorders* 69: 847-879.

Schneider, K. 1958. *Psychopathic Personalities* (Vol. 9th). London: Cassell.

Sea, J. 2018. *Cross-cultural generalizability of the Comprehensive Assessment of Psychopathic Personality (CAPP) in South Korea* (Doctoral dissertation, Arts and Social Sciences: Department of Psychology). Simon Fraser University, Canada.

Sellbom, M., D. J. Cooke, and S. D. Hart. 2015. Construct validity of the Comprehensive Assessment of Psychopathic Personality (CAPP) concept map: Getting closer to the core of psychopathy. *International Journal of Forensic Mental Health* 14: 172-180.

Sellbom, M., D. J. Cooke, and Y. Shou. 2018. Development and initial validation of the Comprehensive Assessment of Psychopathic Personality - Self-Report (CAPP-SR). Paper under review.

Sellbom, M., S. O. Lilienfeld, K. A. Fowler, and K. L. McCrary. 2018. The self-report assessment of psychopathy: Challenges, pitfalls, and promises. In *Handbook of Psychopathy*, ed. C. J. Patrick, 211-258. New York: The Guilford Press.

Shadish, W. R., T. D. Cook, and D. T. Campbell. 1999. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston: Houghton Mifflin Company.

Skeem, J. L., and D. J. Cooke. 2010a. Is criminal behavior a central component of psychopathy? Conceptual directions for resolving the debate. *Psychological Assessment* 22: 433-445.

Skeem, J. L., and D. J. Cooke. 2010b. One measure does not a construct make: Directions toward reinvigorating psychopathy research. *Psychological Assessment* 22: 455-459.

Smith, G. T., S. Fischer, and S. Fister. 2003. Incremental validity principles in test construction. *Psychological Assessment* 15: 467-477.

Sörman, K., J. F. Edens, S. T. Smith, O. Svensson, K. Howner, M. Kristiansson, and H. Fischer. 2014. Forensic mental health professionals' perceptions of psychopathy: A prototypicality analysis of the Comprehensive Assessment of Psychopathic Personality in Sweden. *Law and Human Behavior* 38: 405-417.

Strauss, M. E., and G. T. Smith. 2009. Construct validity: Advances in theory and methodology. *Annual Review of Clinical Psychology* 5: 1-25.

Tyrer, P. 2005. Temporal change: The third dimension of personality disorder. *Journal of Personality Disorders* 19: 573-580.

Verschuere, B., S. van Ghesel Grothe, L. Waldorp, A. L. Watts, S. O. Lilienfeld, J. F. Edens, J. L. Skeem, and A. Noordhof. 2018. What features of psychopathy might be central? A network analysis of the Psychopathy Checklist-Revised (PCL-R) in three large samples. *Journal of Abnormal Psychology* 127: 51-65.

Viljoen, S., A. N. Cook, Y. L. Lim, B. K. Layden, N. K. Bousfield, and S. D. Hart. 2015. Are psychopathic and borderline personality disorder distinct, or differently gendered expressions of the same disorder? An exploration using concept maps. *International Journal of Forensic Mental Health* 14: 267-279.

Westen, D., J. Shedler, and R. Bradley. 2006. A prototype approach to personality disorder diagnosis. *American Journal of Psychiatry* 163: 846-856.

Wittgenstein, L. 1958. *Philosophical Investigations*. Oxford: Blackwell.

World Health Organisation. 1992. *The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines*. Geneva: World Health Organisation.