



Prototypical Validity and Factor Structure of the French Version of the Comprehensive Assessment of Psychopathic Personality (CAPP) Model

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ABSTRACT

In a study undertaken to examine the content validity of the French-language version of the Comprehensive Assessment of Psychopathic Personality (CAPP), a lexically-based conceptual model and clinical assessment of psychopathy, 204 French-speaking mental health professionals rated the symptoms covered by the CAPP for prototypicality. The majority of the symptoms were deemed to be “moderately” to “highly” prototypical of psychopathy. Of the model’s six domains, *Dominance*, *Attachment* and *Self* were considered more prototypical than *Emotional*, *Behavioral* and *Cognitive*. Results were consistent with those of other prototypicality studies. Descriptives analyses suggested that the ratings of English-speaking mental health professionals were higher than their French-speaking counterparts. However, the effect sizes were small according to the Cohen’s *d* analyses. Confirmatory factor analysis revealed that *Attachment* was the only unidimensional domain. Finally, exploratory factor analysis yielded three factors—*Egotism*, *Interpersonal rigidity*, and *Lack of responsibility*. These factors were primarily underpinned by symptoms that entailed interpersonal and social cognitive traits.

KEYWORDS

Psychopathy; CAPP; prototypical analysis; conceptual model; interpersonal

Psychopathy is a complex clinical construct defined by a combination of interpersonal, affective, and behavioral characteristics, including egocentricity, manipulativeness, callousness, irresponsibility, relational instability, impulsiveness, lack of empathy, anxiety, remorse or guilt, and poor self-control (Hare, 2003). The most widespread measure of the concept of psychopathy is the Psychopathy Checklist–R (PCL–R). This measure is frequently described as being underpinned by two main factors and four facets (But see Cooke & Michie, 2001; Cooke et al., 2007). Factor 1 encapsulates affective, interpersonal, and narcissistic elements and breaks down into Facet 1, *Interpersonal*, and Facet 2, *Affective*. Factor 2 encapsulates the propensity for chronic antisocial behavior and breaks down into Facet 3, *Lifestyle*, and Facet 4, *Antisocial*. This measure represents a useful but imperfect approximation of the psychopathy construct (Cooke, 2018). In this regard, behind Hare’s definition of psychopathy (Hare, 2003) lies many cognitive-emotional (Burley et al., 2019; Patrick, 2018) and behavioral specificities (Douglas et al., 2018). It is necessary

to pay particular attention to “the constellations of psychopathic personality trait dimensions and richly describe individuals accordingly as opposed to discussing psychopathy in unitary terms” (Sellbom et al., 2022, p. 160).

Toward the inclusion of the specificities concerning the concept of psychopathy

Most of the research on the emotion recognition deficit associated with psychopathic traits evaluated with the PCL–R (Hare, 2003) and focused on facial expressions has yielded contradictory results that may potentially reflect these cognitive-emotional specificities. Some studies found impaired recognition of fear and/or sadness (Hastings et al., 2008; Marsh & Blair, 2008). Others found no impaired recognition of fear (Glass & Newman, 2006; Hansen et al., 2008) and/or sadness (Glass & Newman, 2006; Hansen et al., 2008). In addition, some studies found psychopathic traits to be associated with deficits in the recognition of other emotions, namely, disgust (Hansen et al., 2008;

Kosson et al., 2002) and happiness (Hastings et al., 2008), which calls into question the specificity of the deficit regarding fear and sadness. Indeed, psychopathy was long associated with significantly poorer recognition of fear, happiness, sadness and surprise, but not of anger or disgust (Dawel et al., 2012). What is more, some researchers found psychopathy to be unrelated to the ability to recognize most emotions in an offender sample (Beussink et al., 2020; Pham & Philippot, 2010). These incongruous results may be due to a lack of consideration for other functions such as cognitive abilities (Brook et al., 2013). For example, in a large cohort of inmates with a personality disorder and a history of serious violent or sexual offenses, those with more affective and antisocial characteristics of psychopathy showed low accuracy in fear and disgust recognition. However, these associations diminished when researchers controlled for cognitive ability (Igoumenou et al., 2017) as measured with the Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999). Similarly, attentional processes have been found to moderate the fear deficits common among people with psychopathic traits (Newman et al., 2010). In sum, determining the emotional functioning of these people requires identifying other domains, as we have just seen with cognitive functioning.

These specificities in terms of cognitive-emotional and behavioral functioning have led to the development of psychopathic subtypes (Hare, 2016; Hicks & Drislane, 2018; Krstic et al., 2018). The research in this regard indicates that psychopathy is more complex than and not limited to the binary perception of primary/secondary psychopathy (e.g., manipulative or sociopathic subtype; Krstic et al., 2018; Levenson et al., 1995). However, subtypes have emerged as a function of sample type (e.g., correctional, treatment or community), selection criteria (e.g., unselected samples vs. extreme manifestations of psychopathy), and statistical methods used (Hicks & Drislane, 2018; Mokros et al., 2015). In short, research highlights the importance of specifying selection criteria and psychopathic functioning according to clinical, legal and methodological context. It is in this context that the Comprehensive Assessment of Psychopathic Personality (CAPP) was developed (Cooke et al., 2004; Cooke et al., 2012).

Development of the CAPP model

The CAPP (Cooke et al., 2004) is a hierarchical model of psychopathic personality disorder based on a bottom-up approach and the lexical hypothesis. Thirty-

three symptoms were initially defined in a fairly broad and exhaustive manner (Cooke et al., 2012) and were grouped into six domains: Attachment, Behavioral, Cognitive, Dominance, Emotional, and Self¹ (Table 1). The *Attachment* domain reflects difficulties with interpersonal affiliation. It focuses on the intimacy and acceptance by others that people attempt to achieve in interpersonal exchanges. The *Behavioral* domain reflects problems organizing goal-directed activities. It focuses on the regulation of behavior, including the inability to establish adaptive strategies to cope with life events. The *Cognitive* domain reflects problems with mental flexibility and adaptability. It focuses on mental actions, attentional processes, information processing, and problem solving. The *Dominance* domain reflects difficulties with interpersonal agency. It focuses on the degree of power or control that people seek to gain in interpersonal exchanges. The *Emotional* domain reflects problems with mood regulation. It focuses on the tone, depth, and appropriateness of people's affective responses. The *Self* domain reflects problems with identities. It is concerned with people's accurate consciousness of their own personality (traits, salient abilities, qualities and desires). Moreover, the self influences social roles and relations with others (Cooke et al., 2012).

The symptoms are described using natural language. Compared with the PCL model, the most influential measure of psychopathy, the CAPP describes the characteristics of psychopathy in simpler and more nuanced terms.

Evaluation of content validity is an important first step in the evaluation of the CAPP model and its translations. Content validity refers to the goodness of fit between a diagnosis, or its symptoms, and their targeted construct (Blashfield & Livesley, 1991; Broughton, 1990). It is the most important step in the construct validation of a new measure. Failure to carry out this step significantly limit construct validity (Haynes et al., 1995).

Prototypical analysis is one way to evaluate content validity (e.g., Kreis et al., 2012). Derived from prototype theory, this approach serves to determine the degree of representativeness of the symptoms of a personality construct (Rosch, 1973). Some symptoms will be clearly diagnostic, other symptoms less so. Under this theory, a prototype is the most redolent example of a category. This example involves members of the same category. Some members of the category are considered more representative than others (Rosch,

¹For more information on how the CAPP model was developed, see Cooke et al. (2012) and Cooke (2018).

Table 1. English and French versions of the CAPP model.

Domain/symptoms	
English-speaking	French-speaking
Attachment	Attachement
A1 - Detached	A1 - Détaché
A2 - Uncommitted	A2 - Manque d'engagement
A3 - Unempathic	A3 - Manque d'empathie
A4 - Uncaring	A4 - Indifférent
Behavioral	Behavioral
B1 - Lacks perseverance	B1 - Manque de persévérance
B2 - Unreliable	B2 - Manque de fiabilité
B3 - Reckless	B3 - Imprudent
B4 - Restless	B4 - Impatient/Agitation
B5 - Disruptive	B5 - Perturbateur
B6 - Aggressive	B6 - Agressif
Cognitive	Cognitif
C1 - Suspicious	C1 - Soupçonneux
C2 - Lacks concentration	C2 - Manque de concentration
C3 - Intolerant	C3 - Intolérance
C4 - Inflexible	C4 - Inflexible
C5 - Lacks planfulness	C5 - Manque de planification
Dominance	Dominance
D1 - Antagonistic	D1 - Antagonististe
D2 - Domineering	D2 - Dominateur
D3 - Deceitful	D3 - Fausseté/Mensonge
D4 - Manipulative	D4 - Manipulation
D5 - Insincere	D5 - Manque de sincérité
D6 - Garrulous	D6 - Loquacité
Emotional	Émotionnel
E1 - Lacks anxiety	E1 - Manque d'anxiété
E2 - Lacks pleasure	E2 - Manque de plaisir
E3 - Lacks emotional depth	E3 - Manque de profondeur émotionnel
E4 - Lacks emotional stability	E4 - Manque de stabilité émotionnel
E5 - Lacks remorse	E5 - Manque de remords
Self	Soi
S1 - Self-centered	S1 - Egocentrisme
S2 - Self-aggrandizing	S2 - Autoglorification/Surestimation
S3 - Sense of uniqueness	S3 - Sentiment d'être unique/exceptionnel
S4 - Sense of entitlement	S4 - Sentiment d'ayant droit
S5 - Sense of invulnerability	S5 - Sentiment d'être invulnérable
S6 - Self-justifying	S6 - Autojustification
S7 - Unstable self-concept	S7 - Idée de soi instable
Foils	Distracteurs
Dependent	Dépendant
Perfectionistic	Perfectionniste
Conscientious	Conscientieux
Considerate	Prévenant
Strange	Étrange
Restrained	Réservé
Shy	Timide
Cautious	Précautionneux
Self-conscious	Complexé

1978). The theory is based on a model of graded categorization. This means that the more a category has descriptive elements, the closer one gets to the prototype. It is a cognitive construct (Rosch, 1978) used to evaluate the members of a category in terms of the relevance of their membership in that category. It is a cognitive method that facilitates one's understanding of the environment where one finds oneself. For example, a robin is a good prototypical example of the concept bird. An ostrich, however, is not. It has feathers and wings but cannot fly. Though it belongs to the category of birds, it is not considered as a prototype (Kreis, 2008).

By relying on the representations of a multitude of experts, the deconstruction of CAPP symptoms in natural language is, in theory, lexically-based. Basically, CAPP evaluates the specific symptoms of psychopathy based on a prototypical approach and assesses major domains of personality in a dimensional construct (Cooke et al., 2004). Moreover, prototypical analysis is a better way to define psychopathic personality beyond underlying conceptual models (Delannoy & Pham, 2019). Prototypical analysis can gather the opinions of a variety of experts in the field of mental health orientations who encounter clinical cases of interest (Cooke et al., 2004). Pooling these

opinions makes it possible to gain an overview regardless of the underlying theoretical orientation of the experts. Given that disorders can vary by language, culture, age and gender, an effect referred to as pathoplasticity (Alarcón et al., 1998; Cooke et al., 2005) it is important to evaluate new translations and new context. For example, when prototypical analyses are based on the same model, intercultural comparisons make it possible to examine the variability of the manifestation of a personality disorder within different cultures.

Findings of prior prototypical studies

Prototypical analysis has a long history in the study of personality disorders (Blashfield & Livesley, 1991; Kreis, 2008; Livesley et al., 1987). Previous research has already investigated the prototypicality of antisocial personality disorder and various models of psychopathic personality disorder (Cruise et al., 2003; Flórez et al., 2015; Hoff et al., 2012, 2014; Kreis et al., 2012; Pauli et al., 2018; Rogers et al., 1994, 2000; Salekin et al., 2001; Sea, 2018). In a recent prototypical study of the PCL-R model (Verschuere & Te Kaat, 2020), forensic professionals ranked the interpersonal and affective traits of psychopathy as more important. Where the CAPP and CAPP-Basic model (Hannibal et al., 2021a) are concerned, the research has indicated that, regardless of sample type, practitioners deemed the typical symptoms of psychopathy to be more important than the foil symptoms, which are symptoms of personality disorders theoretically unrelated to psychopathic personality disorder (Flórez et al., 2015; Hannibal, Fuller, et al., 2021; Hoff et al., 2012; Kreis et al., 2012; Sea, 2018). Moreover, consistently across studies certain symptoms are considered more prototypical than others (e.g., Manipulative, Unempathic, Self-centered, Lacks remorse, Deceitful, Domineering, Aggressive, Uncommitted, Antagonistic). Studies have also examined the typicality of CAPP domains and have found some to be more typical than others. All have been rated high in terms of typicality but three have always topped the ranking: *Attachment*, *Dominance* and *Self*. These results are very interesting in that they prioritize the interpersonal characteristics in the perceptions of mental health professionals (MHP), rather than the affective traits of psychopathy. With both the CAPP model and the PCL-R model, research has shown that MHP focus more on personality characteristics than on antisocial behaviors.

To date, the CAPP model has been translated into a number of languages, including Danish, Norwegian,

Swedish, Lithuanian, Russian, Persian, Italian, Spanish, Korean, Sino-Tibetan, and Hebrew (Cooke, 2018). To our knowledge, the French version of the CAPP model had never been studied before among French-speaking MHP. Yet, it is recognized that societal, clinical and cultural differences, not to mention the particularities of different judicial systems (Fanti et al., 2018), can influence how MHP perceive psychopathy concepts.

Objectives

The aims of our study were threefold. First, we sought to conduct a prototypical analysis of how international French-speaking MHP perceived psychopathy. This section also analyzed the effect size between the French-speaking MHP perception with the original English MHP perception. Second, in order to evaluate the conceptual structure of the CAPP model, a confirmatory factor analysis (CFA) was carried out on the data gathered from French-speaking MHP. Third, an exploratory factor analysis (EFA) of these data was carried out to investigate other potential configurations of the symptoms.

Method

The study was registered and approved by the ethical committee of the Faculty of Psychology and Education of the University of Mons (Registration no.: 17-11-2017-DD).

Participants

The sample ($N=204$) was composed of French-speaking MHP from Belgium ($n=88$; 43.1%), France ($n=81$; 39.7%), Switzerland ($n=16$; 7.8%), Quebec ($n=13$; 6.4%) and others ($n=5$; 3.0%). They were for the most part psychologists ($n=70$; 34.3%), nurses ($n=48$; 23.5%) and psychiatrists ($n=31$; 15.2%) but included also a number of practitioners (criminologists, educators). The majority were women ($n=125$; 61.3%). The mean age of the sample was 38.59 years ($SD=12.02$; Min—Max = 21—69) and their mean number of years of experience was 10.52 ($SD=9.73$; Min—Max = 0—42).

Belgian translation of the CAPP

The CAPP model was translated in two stages. First, the team at the Social Defense Research Center translated the symptoms and adjectives. Second, this draft

was reviewed and refined by a bilingual translator. This version was used in the study.

Procedure

For the purposes of our study, we followed the *Universal protocol for conducting prototypicality studies with the CAPP* (Kreis, 2008; Kreis et al., 2012). A survey, hardcopy and online, was sent out to a large panel of MHP. In all, 995 professionals were contacted either at the start of a psychopathy assessment training activity or by mail through professional association, psychiatric institutions and private practices. The survey covered 42 symptoms, of which 33 were CAPP symptoms and 9 were foils; that is symptoms of personality disorder that are not generally regarded as being symptoms of psychopathic personality disorder (e.g. Strange, Shy, Perfectionistic, and so on). We also included a glossary providing a description of each symptom along with three related adjectives. Demographic information was collected from the participants, including age, years of experience in forensic field, nationality and gender.

The aim of our study was to assess the prototypicality in relation to an individual with psychopathic personality disorder. Participants were asked to rate the CAPP symptoms and foils in terms of prototypicality on a Likert scale of 1 to 7 (1 = Low typicality; 7 = High typicality). All participants were recruited on a voluntary basis and consented to take part in the research in accordance with the ethical principles of the Helsinki declaration and the right to the protection of privacy as stipulated under the Belgian law of July 30, 2018, concerning the processing of personal data.

Data analysis

First, descriptive analyses were conducted to assess the degree of prototypicality of each symptom. In order to facilitate the understanding of the results, score categories were defined based on the existing literature (Hoff et al., 2012; Kreis et al., 2012; Rogers et al., 1992). Scores less than or equal to 3.99 were low, those from 4 to 4.99 were moderate, and those equal to or greater than 5 were considered high. Second, using the descriptive statistics (M , SD) from the study by Kreis et al. (2012), we computed the effect size between the mean ratings of the English- and French-speaking groups. For the purpose, we used Cohen's d (Cohen, 1992) and considered effect sizes to be small at 0.2, medium at 0.5, and large at 0.8. The Kreis et al. (2012) was chosen because their

sampling strategy was similar to ours. Next, we used MPlus to run a confirmatory factor analysis (CFA) to evaluate the unidimensionality of each domain in order to replicate the theoretical CAPP model (Kreis et al., 2012). According to MacCallum et al. (1999), such an analysis can be undertaken with a minimum sample size of 200 participants. For a valid theoretical factor model, the chi-square (χ^2) must be nonsignificant. However, it can be significant in the case of large samples. The comparative fit index (CFI) and the Tucker-Lewis Index (TLI) can be acceptable (.90) or good (.95) (Tabachnick et al., 2019). According to MacCallum et al. (1996), the root mean square error of approximation (RMSEA) can be categorized as mediocre (.08), good (.05) or excellent (.01). These three complementary indicators are necessary to confirm factorization fitness. In order to go beyond the replication of the model, we carried out an exploratory factor analysis (EFA) using SPSS 20 software. The extraction method used was principal component analysis. The rotation method used was the Oblimin with Kaiser normalization. For this type of analysis, a sample of 200 participants is considered fair (Comrey & Lee, 2013). Our correlation matrix presented correlations greater than 0.5. The Kaiser-Meyer-Olkin Index (KMO) of .867 that we obtained was considered excellent or meritorious. Bartlett's sphericity test proved significant ($\chi^2 = 3710.723$; $p < .001$). We therefore rejected the null hypothesis to the effect that our data came from a population for which the matrix was an identity matrix. These three indices indicated that symptoms could be factorized further.

Results

Descriptive analyses (Table 2)

Variability in typicality rating was found across symptoms (Table 2). The majority of the 33 CAPP symptoms were rated moderate to high. Fourteen were rated high and sixteen were rated moderate. Regarding foils, none of the symptoms of other personality disorders were considered typical by the MHP in order to define the concept of psychopathy.

Intercultural groups: Cohen's d effect sizes and Pearson's correlation of prototypicality ratings (Figure 1; Table 2)

Overall, the ratings of the English-speaking sample were a little higher than those of the French-speaking sample. In the *Attachment* domain, the effect size was small for *Uncommitted* and *Unempathic* and medium for *Detached* and *Uncaring*. In the *Behavioral* domain, the

Table 2. Descriptive analyses and effect sizes of the CAPP symptoms.

Domain/Symptoms	French-speaking MHP (N = 204)		English-speaking MHP (N = 132)		Effect size Cohen's <i>d</i>
	M	S.D.	M	S.D.	
Attachment	5.13	1.18	/	/	
A1 - Detached	4.73	1.64	5.64	1.32	.611
A2 - Uncommitted	4.76	1.55	5.37	1.35	.420
A3 - Unempathic	6.06	1.34	6.49	0.85	.383
A4 - Uncaring	4.97	1.56	5.93	0.98	.615
Behavioral	4.70	1.05	/	/	
B1 - Lacks perseverance	4.00	1.53	4.83	1.39	.542
B2 - Unreliable	5.04	1.51	5.99	1.19	.629
B3 - Reckless	4.70	1.61	5.75	1.07	.652
B4 - Restless	4.49	1.61	5.16	1.42	.416
B5 - Disruptive	4.99	1.51	5.58	1.04	.391
B6 - Aggressive	4.98	1.41	5.64	1.10	.461
Cognitive	4.43	1.07	/	/	
C1 - Suspicious	4.31	1.58	4.83	1.33	.329
C2 - Lacks concentration	3.75	1.56	3.84	1.48	.057
C3 - Intolerant	5.10	1.47	5.40	1.18	.204
C4 - Inflexible	4.68	1.55	4.60	1.49	.051
C5 - Lacks planfulness	4.32	1.73	5.00	1.46	.393
Dominance	5.24	1.15	/	/	
D1 - Antagonistic	4.51	1.61	5.19	1.35	.422
D2 - Domineering	5.38	1.53	5.72	1.13	.222
D3 - Deceitful	5.72	1.46	6.27	0.73	.376
D4 - Manipulative	5.98	1.31	6.44	0.74	.351
D5 - Insincere	5.43	1.51	6.26	0.83	.549
D6 - Garrulous	4.46	1.69	4.50	1.51	.023
Emotional	4.80	0.93	/	/	
E1 - Lacks anxiety	4.08	1.78	5.11	1.55	.578
E2 - Lacks pleasure	3.50	1.63	3.22	1.59	.171
E3 - Lacks emotional depth	5.33	1.61	6.40	0.82	.664
E4 - Lacks emotional stability	5.14	1.41	4.74	1.72	.283
E5 - Lacks remorse	5.96	1.39	6.56	0.72	.431
Self	4.90	1.00	/	/	
S1 - Self-centered	5.82	1.31	6.48	0.69	.503
S2 - Self-aggrandizing	5.25	1.56	6.14	0.84	.570
S3 - Sense of uniqueness	4.81	1.61	5.58	1.18	.478
S4 - Sense of entitlement	5.13	1.57	6.03	1.29	.573
S5 - Sense of invulnerability	4.79	1.50	5.61	1.08	.546
S6 - Self-justifying	5.00	1.67	6.03	1.03	.616
S7 - Unstable self-concept	3.53	1.56	3.96	1.69	.275
Foils	/	/	/	/	
Dependent	3.10	1.83	2.41	1.41	.377
Perfectionistic	2.58	1.42	2.63	1.50	.035
Conscientious	2.42	1.41	1.96	1.52	.326
Considerate	2.16	1.36	1.67	1.25	.360
Strange	3.05	1.72	3.03	1.47	.011
Restrained	2.67	1.48	2.46	1.48	.141
Shy	1.88	1.18	1.66	1.13	.186
Cautious	2.39	1.50	2.12	1.31	.180
Self-conscious	2.43	1.57	3.14	2.01	.452

High typical (≥ 5); Moderately typical (between 4 and 4.99); Low typical (≤ 3.99)

effect size was small for *Restless*, *Disruptive* and *Aggressive* and medium for *Lacks perseverance*, *Unreliable* and *Reckless*. In the *Cognitive* domain, the effect size was small for all the symptoms: *Suspicious*, *Lacks concentration*, *Intolerant*, *Inflexible* and *Lacks planfulness*. In the *Dominance* domain, the effect size was small for a majority of the symptoms (*Antagonistic*, *Domineering*, *Deceitful*, *Manipulative* and *Garrulous*) but medium for *Insincere*. In the *Emotional* domain, the effect size was small for *Lacks pleasure*, *Lacks emotional stability* and *Lacks remorse* and medium for *Lacks anxiety* and *Lacks emotional depth*. In the *Self* domain, the effect size was small for *Sense of uniqueness* and *Unstable*

self-concept and medium for *Sense of entitlement*, *Sense of invulnerability*, *Self-centered*, *Self-aggrandizing* and *Self-justifying*. Finally, the effect size for all the foil symptoms was small. Pearson's coefficient between the group means was large, $r = .965$, $p = .000$.

Confirmatory factor analysis (Table 3)

By default, MPlus suggests improvements to a model only when the modification indices (MI) for correlated errors are greater than 10. For the *Dominance* and *Attachment* domains, as no MI exceeded this threshold, the question whether to make changes to

Table 3. Confirmatory factor analysis (CFA).

Domains	χ_2	ddl	CFI	TLI	RMSEA
Attachment	4.8 ns	2	.98	.95	.08
Behavioral	47.4***	9	.86	.76	.15
Behavioral B1xB2	30.24***	8	.92	.85	.12
Behavioral B5xB6	19.38***	7	.95	.90	.09
Cognitive	45.7***	5	.80	.59	.20
Cognitive C2xC5	15.11**	4	.95	.86	.12
Dominance	20.37*	9	.97	.95	.08
Emotional	35.57***	5	.71	.42	.09
Soi	46.27***	14	.93	.89	.11
Soi - S7	20.25**	15	.97	.95	.08

* $p < .05$.** $p < .01$.*** $p < .001$.

Note: ddl=degree of liberty, CFI=Comparative Fit Index, TLI=Tucker-Lewis Index, RMSEA=root mean squared error of approximation.

the model on this basis did not arise. For all the other domains, the first or second correlated error had an MI greater than 15 and the fit indices were not satisfactory or the chi-square was significant. The χ_2 for the *Attachment* domain was not significant, the CFI and TLI indices were both good, and the RMSEA was acceptable. Evidence suggested that the empirical model fit the theoretical model very well. After correlating errors to control the shared variance, the χ_2 for the *Behavioral* domain proved significant, though the CFI was still good and the TLI and the RMSEA were acceptable. Still, the empirical model did not match the theoretical model perfectly. After correlating errors in the *Cognitive* domain where the χ_2 was significant, results indicated a good CFI, an unacceptable TLI, and a mediocre RMSEA. Consequently, again, the empirical model did not match the theoretical model. The χ_2 for the *Dominance* domain was significant as well though results indicated a good CFI and TLI and an acceptable RMSEA. However, because of the significant χ_2 , the empirical model did not match the theoretical model perfectly. The χ_2 for the *Emotional* domain was significant, too. Moreover, the CFI and TLI values were both unacceptable and the RMSEA was mediocre, which meant that the empirical model did not match the theoretical model. After removing symptom S7 (*Unstable self-concept*) on account of a negligible estimated R-squared (.003), the χ_2 was still significant, though the other fit indices improved. Results indicated a good CFI and TLI and an acceptable RMSEA. However, because of the significant χ_2 , the empirical model did not match the theoretical model perfectly.

Exploratory factor analysis (Table 4, Figure 2)

Factor extraction was performed using a symptom saturation threshold of .40 in order to limit symptom

Table 4. Exploratory factor analysis (EFA).

Factors	Explained variance (%)	Egotism	Interpersonal rigidity	Lack of responsibility	Agitator	Detachment (Superficial Relationships)	Dominance	Emotional deficit
Eigen values	28,76	28,76	12,67	6,88	5,44	4,42	3,73	3,44
Symptoms (overload)	9,492	9,492	4,179	2,271	1,794	1,460	1,232	1,137
	S4 - Sense of entitlement (.910)	C4 - Inflexible (.810)	B1 - Lacks perseverance (.756)	B5 - Disruptive (-0.808)	A4 - Indifferent (.756)	D6 - Garrulous (.851)	S7 - Unstable Self-concept (.784)	
	S3 - Sense of uniqueness (.795)	C1 - Suspicious (.653)	C5 - Lacks planfulness (.700)	B6 - Aggressive (-0.714)	A1 - Detached (.703)	E1 - Lacks anxiety (.582)	E2 - Lacks pleasure (.639)	
	S2 - Self-aggrandizing (.717)	C3 - Intolerant (.599)	C2 - Lacks concentration (.615)	B3 - Reckless (-0.549)	A3 - Unempathic (.529)	D2 - Domineering (.473)	E3 - Lacks emotional depth (.414)	
	S5 - Sense of invulnerability (.699)					D1 - Antagonistic (.445)		
	S1 - Self-centered (.528)					B2 - Unreliable (.467)		

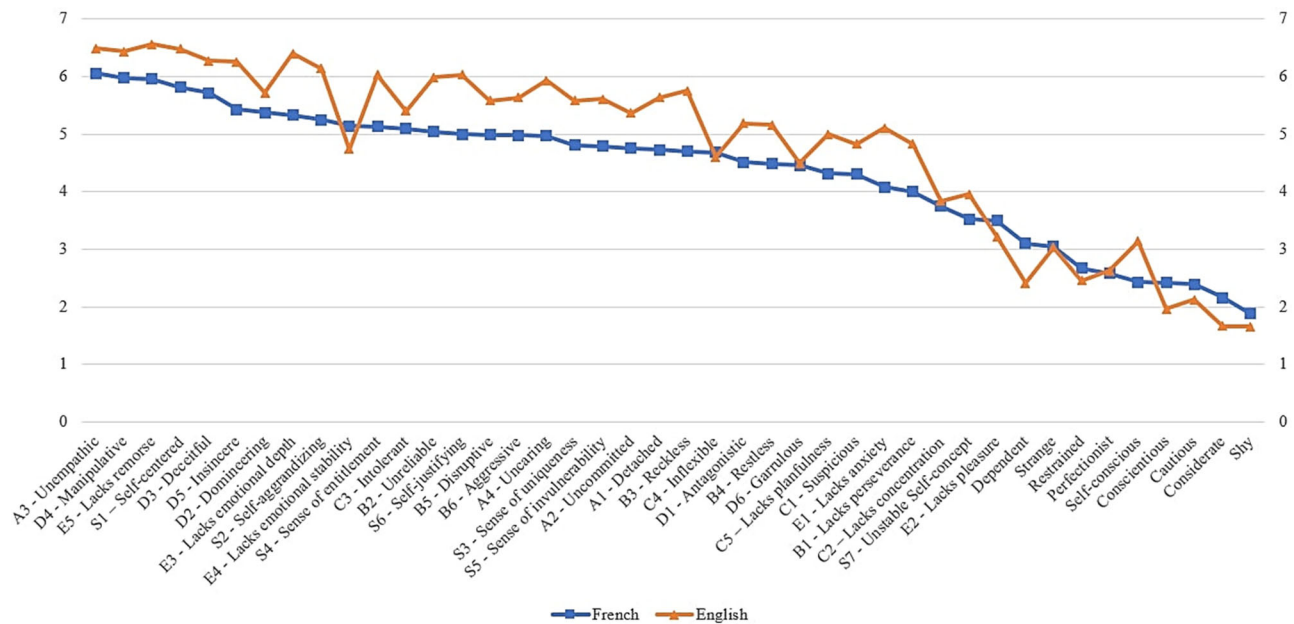


Figure 1. Comparison between English and French CAPP symptoms.

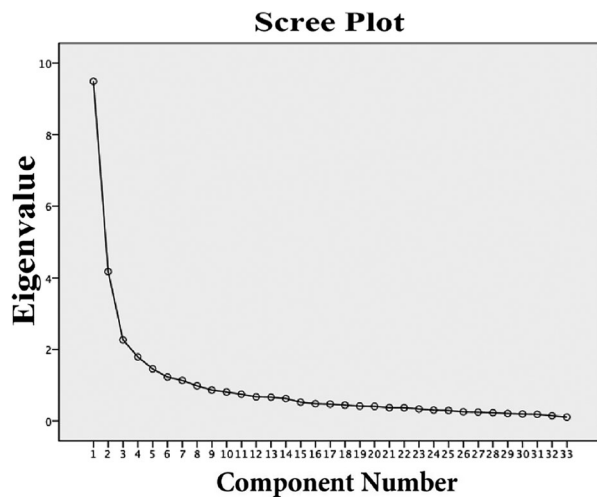


Figure 2. Scree plot of the exploratory factor analysis.

overlapping between factors. We therefore applied the Kaiser rule for eigenvalues greater than 1. The model obtained comprised seven factors and explained 65.35% of the total variance. It retained 25 of the 33 symptoms of the CAPP model. The model was composed of all factors: *Egotism, Interpersonal rigidity, Lack of responsibility, Agitator, Detachment, Dominance, and Emotional deficit*). Eight symptoms were excluded because of two-factor overlap or saturation below .40: A2 *Uncommitted*, B4 *Restless*, D3 *Deceitful*, D4 *Manipulative*, D5 *Insincere*, E4 *Lacks emotional stability*, E5 *Lacks remorse*, and S6 *Self-justifying*. However, the Scree test retained only three factors: *Egotism, Interpersonal rigidity, and Lack of responsibility*. This procedure resulted in a significant

loss of the model's symptoms and a much smaller explained variance.

Discussion

Prototypicality of the CAPP model

The primary objective of our study was to undertake a prototypical analysis of the concept of psychopathy in an international population of French-speaking MHP. Results show that the *Dominance, Attachment and Self* domains were perceived as the most important in describing this personality disorder. Professionals focused more on the interpersonal characteristics associated with the symptoms in these domains (e.g., *Unempathic, Manipulative, Sense of entitlement*). However, the *Emotional, Behavioral and Cognitive* domains were prototypical, too, though less representative in the eyes of the MHPs.

These results are consistent with those of previous studies to the effect that personality traits are key cores symptoms in the concept of psychopathy (Flórez et al., 2015; Hoff et al., 2012, 2014; Kreis et al., 2012; Skeem & Cooke, 2010; Smith et al., 2014). While the domains cover an overall expression of the concept of psychopathy, symptoms further specify the psychopathic characteristics of people. Generally speaking, the symptoms can be re-arranged into two main groups: interpersonal (*Intolerant, Domineering, Deceitful, Manipulative, Insincere, Self-centered, Self-aggrandizing and Self-justifying*) and emotional (*Unempathic, Lacks Emotional Depth, Lacks Emotional Stability and Lacks Remorse*).

In French-speaking European countries, not many professionals are familiar with the CAPP model and the use of structured assessments is not widespread whether for psychopathy or for risk assessment, in general. It is therefore interesting to note that even here MHP focus more on personality traits than on behavioral aspects, which is what multi-method studies using prototypicality ratings, IRT and network analysis tend to demonstrate (Cooke et al., 2021; McCuish et al., 2019; Sellbom et al., 2021). It is also interesting to note that foils were not seen as part of psychopathic functioning as was the case in other international studies (Hoff et al., 2012; Sea, 2018). For practitioners, the interpersonal and emotional characteristics of the CAPP model are enough to describe this functioning.

Prototypical symptoms are those most commonly associated with a psychopathic personality. Though the general symptoms are few in number, not all are considered prototypical by MHP. In the *Cognitive* domain, for example, the definition of *Lacks planfulness* is closely related to executive functions in terms of social cognition. Moreover, the *Cognitive* domain is the least prototypical of the CAPP model. In the absence of a global deficit, the literature hypothesizes that criminal people with psychopathic personality disorder have specific deficits related to executive functions (Bagshaw et al., 2014; Blair et al., 2006; Pham et al., 2003). However, this association does not seem to be enough for these symptoms to be considered among the most representative of the disorder. It is possible that the cognitive component is encompassed in a more general interpersonal perspective of the descriptive adjectives of the CAPP symptoms.

In the *Emotional* domain, *Lacks pleasure* was less prototypical than other symptoms. According to the CAPP glossary (Cooke et al., 2004), this symptom is defined by three adjectives: *Pessimistic*, *Gloomy* and *Unenthusiastic*. French-speaking individuals might associate it with the concept of anhedonia initially described in the French clinical literature by Ribot (1896). Anhedonia is characterized by “a loss of pleasure” and, more recently, by reward circuit regulation problems (Gaillard et al., 2013). Moreover, several studies have outlined the negative relationship between depression diagnosis and psychopathy (Price et al., 2013; Willemsen et al., 2011). This may explain why MHP have trouble seeing *Lacks pleasure* as a prototypical symptom.

Finally, *Unstable self-concept* in the *Self* domain was not regarded as a prototypical symptom. The authors of the CAPP considered it perhaps to be peripheral to

the disorder, but evidence was needed to confirm this (Cooke et al., 2012). As it happens, this symptom corresponds more to one of the criteria of borderline personality as defined in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013). The *Self* domain symptoms of psychopathic personality area are more akin to grandiosity and self-centeredness (Viljoen et al., 2015).

The two non-prototypical characteristics—*Lacks pleasure* and *Unstable self-concept*—may indeed be more congruent with the diagnoses of depression and borderline personality (Hoff et al., 2012). However, these disorders are common comorbidities with antisocial personality (Black et al., 2010) or even the sociopathic subtype of psychopathy (Krstic et al., 2018).

The CAPP model can be conceptualized as a developmental process similar to models of personality development where, according to MHP, the attachment, interpersonal, and self-perception domains should be priority therapeutic targets in order to reduce the risk of developing negative cognitive, emotional, and behavioral consequences. It would be interesting to develop research to test this developmental process aspect of psychopathic personality disorder. The majority of studies to date have focused on treatment of criminal behaviors (Looman et al., 2005; Olver, 2016; Olver et al., 2013). However, if the cognitive and behavioral components of psychopathy are consequences of interpersonal attitudes, perhaps treatment should also target its narcissistic traits.

Our inter-sample comparison with Kreis et al. (2012) revealed that English-speaking MHP rated a large part of the symptoms a little higher than their French-speaking counterparts did. However, the Cohen's *d* effect size was small for most of these. The effect size for a few symptoms was medium, but this could be explained by sampling differences between the studies or cultural and justice-system differences across countries. Indeed, the MHP across studies practice in different countries where the justice systems have developed differently with particularities of their own (Fanti et al., 2018). For example, there may be a positive relation between a more cold-blooded representation of the psychopathic personality (Detached, Uncaring, Unreliable, Reckless, Lacks emotional depth and Self-justifying) in United States of America and the higher criminal penalties, up to and including capital sentences (Edens et al., 2005). This situation contrasts with European countries where capital sentences have been abolished.

This context might influence how the concept of psychopathy is perceived. Nevertheless, the following symptoms are generally considered to be more prototypical of psychopathy by both French- and English-speaking MHP: *Unempathic, Deceitful, Domineering, Aggressive, Uncommitted, Antagonistic, and Lacks pleasure* (Hannibal, Fuller, et al., 2021; Kreis et al., 2012; Sea, 2018). In the end, what counts above all is that research participants have the same or a very similar perception of the concept of psychopathy. The correlation between mean ratings supports this conclusion.

Factor structure of the CAPP model

Our second objective was to evaluate the conceptual structure of the CAPP through a CFA. The model was originally developed through a hierarchical process (Cooke et al., 2012) where the opinions of experts from different backgrounds were collected. The symptoms identified were then categorized into six theoretical domains. Unlike other prototypicality studies (Hoff et al., 2012; Kreis et al., 2012), ours did not fully confirm the structure of the model. Some of the domains (e.g., *Lacks Concentration* from the *Cognitive* domain; Hoff et al., 2012) turned out to be unidimensional after some symptoms were removed and corrections did not improve the fit indices. Perhaps the theoretical representation that MHP have of the concept of psychopathy is at odds the CAPP model itself. Indeed, the generalization of responses from professionals with different backgrounds (e.g., psychodynamics) may be remote from a very specific and focused model such as the CAPP (Cooke et al., 2012). Moreover, MHP come from different fields of practice (e.g., clinical psychology, nursing, psychiatry) and do not necessarily receive the same education and training (Training vs. Awareness psychopathic assessment) regarding personality disorders.

The third and final objective of our study was to examine the data expression through an EFA. The analysis yielded a different structure that includes factors that describe the psychopathic personality from a broader perspective. The symptoms in this new structure come from different CAPP domains. If we keep the factors based on the Scree test, the symptoms are related mostly to interpersonal and social cognitive traits. The *Egotism* factor is composed of symptoms related to self-perception: *Sense of entitlement, Sense of uniqueness, Self-aggrandizing, Sense of invulnerability* and *Self-centered*. This composition indicates that these symptoms are associated with interpersonal

interaction. In this model, *Egotism* is the stronger factor. This characteristic seems to be a central component of psychopathy. Depending on the measure used, narcissistic personality is often strongly associated with psychopathy (Lynam, 2011). The *Interpersonal rigidity* factor is composed of symptoms related to social cognition: *Inflexible, Suspicious* and *Intolerant*. This factor explains the cognitive adjustment operated in social interactions. People with *Egotism* are not receptive to the opinions of others. Moreover, the cognitive rigidity of psychopaths is not limited to interpersonal behaviors. Studies have demonstrated its presence also in intolerant attitudes against people (Curry et al., 2011; Jones, 2013). Finally, the *Lack of responsibility* factor is composed of symptoms related to skills required to function adequately in social contexts: *Lacks perseverance, Lacks planfulness, and Lacks concentration*. This factor is comparable in part to the *disinhibition* factor that emerged from a construct validity study conducted with a large international community cohort (Sellbom et al., 2015). This set of symptoms reflects the difficulty of people with psychopathic personality to be socially adapted in different contexts. In this regard, Blickle and Schütte (2017) demonstrated how individuals with psychopathic personality are socially dysfunctional in their workplace. The *Detachment* factor seems less central in the French version of the CAPP model (Sellbom et al., 2015). Other studies of the model exist but they focused on different population types (i.e., students, forensic patients, incarcerated offenders), which makes their results difficult to compare with ours (Cooke et al., 2021; Hannibal et al., 2021a, 2021b). However, these methodological approaches are necessary for the development of the CAPP model.

In sum, MHP consider psychopathy to be a personality disorder that alters interpersonal relationships through characteristics related to *Egotism, Interpersonal rigidity* and *Lack of responsibility*. It may be that this factor model fits better with their clinical practice.

Limitations

There are a number of limitations to our study and the generally positive results should be viewed in that light. First, the French translation of the CAPP did not go through the back-translation process. However, the method applied took full account of cultural aspects in the French language. Despite this, some symptoms may have been associated with a symptom different from the one defined by the authors of the

CAPP. For example, *Lacks pleasure* and *Unstable self-concept* overlap with different diagnoses. Second, MHP were provided with a glossary of symptoms but may not have used it to best effect. However, low prototypicality does not automatically lead to ejection from the model (Rosch, 1978). Prototype theory makes it possible to grasp several members within a same category. If we apply this to psychopathic personality disorder, we can exemplify it with the different subtypes of psychopathic functioning from Hare's model (Hare, 2003, 2016). Third, as mentioned by Flórez et al. (2015), one limitation in this type of study may be the strong representation of Hare's model among professionals. Psychiatrists and psychologists are taught the PCL-R model explicitly and trained in the use of the instrument, and other care professionals may also be impacted by the model in their workplace. Fourth, the medium size of our sample and its heterogeneity in terms of professional background and locations of the French-speaking participants, constitutes other limitations of our study. This may restrict how much we can generalize the results to the entire population of French-speaking MHP. Fifth, measuring the correlation between means is not the most effective procedure to understand the relationship between populations from different cultures. A correlational analysis between the raw data of each population would have provided clearer results. Sixth, the symptoms were not presented in a random order. The CAPP model is neither widespread and nor well known among the French-speaking populations. Therefore, it is unlikely that the order of the symptoms presentation affected the results. Moreover, a large panel of studies analyzing the factor structure of the PCL-R does not change the order of the items in the test (Weizmann-Henelius et al., 2010). Finally, given that sociodemographic characteristics vary across studies (e.g., mean age or age groups, years of experience in the forensic profession or years of practice with psychopathic individuals, prevalence of different MHP or psychologists only, gender), it would be worthwhile in future to consider the weight of these variables in the results.

Conclusion

In sum, French-speaking MHP consider most of the CAPP symptoms to be prototypical and focus most on the interpersonal characteristics of psychopathy. Moreover, effect sizes indicate that French-speaking and English-speaking MHP demonstrate strong similarities. It will be interesting to compare our sample

empirically against others with different cultural and linguistic backgrounds (e.g., Asian languages, other Romance languages, German, North Germanic languages). Finally, the factor structure extracted from the data by way of EFA could be useful in a clinical context.

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Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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