THE SUPER-ORDINATE NATURE OF THE PSYCHOPATHY CHECKLIST-REVISED

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Abstract

Psychopathy, while perhaps the earliest and most recognized personality disorder, is the subject of intense debate about its nature and measurement. The most recent proposal on its structural nature suggests that it is a multifaceted construct, made up of at least four dimensions reflecting Interpersonal, Affective, Lifestyle, and Antisocial anomalies (Hare & Neumann, 2005, 2006). These dimensions are significantly interrelated, suggesting that they are indicators for a super-ordinate factor. The nature of this higher-order factor may reflect the unifying feature which comprehensively defines the disorder. To examine this super-factor, the current study used several very large data sets of male ($N = 4865$) and female ($N = 1099$) offenders, and forensic psychiatric patients ($N = 965$), who were assessed with the Psychopathy Checklist-Revised (PCL-R; Hare, 2003). Structural equation modeling results indicated that the four first-order factor dimensions could be explained by a single second-order cohesive super-factor.

Psychopathy is likely the first and perhaps most recognized of the personality disorders (Berrios, 1996; Trull & Durrett, 2005). The conspicuous focus on psychopathic personality is in part due to its significant link with violence, aggression, and other externalizing pathology (Hare, 2003). And yet, psychopathy remains an elusive psychological construct in terms of a consensus definition and full explanation of its etiology (Patrick, 2006). For example, some investigators (Cooke & Michie, 2001; Cooke, Michie, Hart, & Clark, 2004) have proposed that overt antisocial tendencies (e.g., poor behavioral controls, early behavior problems) should not be included in any (including the PCL-R) definition of the construct, though other behavioral traits (e.g., pathological lying, conning, irresponsibility) that entail antisocial behaviors are regarded as intrinsic and retained in their model. Moreover, there is strong evidence for a broad structural model of psychopathy that includes antisocial tendencies (Hare & Neumann, 2005, 2006; Neumann, Kosson, Forth, & Hare, 2006; Vitacco, Neumann, & Jackson, 2005). Similarly, studies of children (Dadds, Fraser, Frost, & Hawes, 2005) and adolescents (Blonigen, Hicks, Krueger, Patrick, & Iacono, 2005) within the general community have reported structural models of psychopathy that involve antisocial tendencies. Interestingly, the Dadds et al. study found that items reflecting antisocial tendencies loaded with one factor containing narcissistic items and another factor which contained callous/unemotional items. Given the evidence that antisocial tendencies are linked to the psychopathy construct in terms of both content and underlying structure, there is no empirical justification for regarding such tendencies as simply consequences of other psychopathic traits as opposed to integral facets of the construct (Neumann, Vitacco, Hare, & Wupperman, 2005). Even so, as psychopathy researchers continue to debate the strengths of various structural models, it is important to highlight that support for a

particular model hinges in large part on how well it is embedded within the theoretical and empirical literature (Bentler, 1995). This is especially true for models that are based on different covariance matrices, and thus not amenable to direct statistical comparison (Vitacco et al., 2005).

Given that psychopathy has been the focus of clinical speculation and empirical research for over one hundred years (Hare, 1999), there are numerous theories on its etiology, ranging from genetic/biological, affective deficit, and cognitive-motivational to more complex proposals involving combinations of biopsychosocial factors (Blackburn, 2006; Blair, 2005; Blair, Mitchell, & Blair, 2005; Forth, Kosson, & Hare, 2003; Kiehl, 2006; Hiatt & Newman, 2006). But of course, precise explanation can only follow from accurate description, and so, the quest continues to derive an exhaustive portrait of the psychopath.

Well aware of the perplexing nature of this disorder, Robins (1966) wrote that the personality functioning of psychopaths "may stem as much from the overwhelming strength of their drive to commit antisocial acts as from an inability to learn or feel loyalty" (p. 80). Lykken (2006) also discusses the psychopath, a product of failed socialization and lack of conscience, in terms of unconstrained "antisocial impulses" (p. 7). Relatedly, Gough (1948) theorized about a fundamental deficit in the ability to adopt social roles. Thus, for psychopathic individuals, it is impossible for them "to take even a slight interest in the tragedy or joy or the striving of humanity …" (Cleckley, 1976, p. 40). In this sense, the overall *dissocial* nature of the disorder is what stands out in comparison to the rest of humanity, which is in essence, made up of fundamentally social creatures (Adolphs, 2003; Book & Quinsey, 2004).

Some aspects of human social behavior are far from innocuous, and de Waal (2005) highlights that the Roman proverb "Homo homini lupus" (man is wolf to man) continues to inspire many areas of society today. However, a viable social system depends on social behaviors that consist of a fair degree of genuine (versus conning, manipulative), empathetic (versus callous, remorseless), structured (versus impulsive), and convivial (versus asocial) interactions (de Waal, 1996). These social dispositions may be instantiated within a widely distributed set of brain structures that allow for coordinated human social behavior (Adolphs, 2003), and disturbances in this neural system have been implicated in the manifestation of psychopathic behavior (Kiehl, in press). Individuals whose behavior involves the converse of these social dispositions will, in essence, be a-, anti-, or dissocial in nature, irrespective of whether they involve criminal or immoral interactions. Livesley (2003) proposes that failure to develop prosocial behavior and cooperative relationships is critical to signaling the presence of a personality disorder. Moreover, a recent review of the personality disorder literature suggests that an essential domain for understanding personality pathology involves dissocial or antagonistic tendencies (Trull & Durrett, 2005). Thus, it is reasonable to suggest that psychopathy involves a mix of dissocial elements.[1]

Current thinking, however, is that psychopathy is a multifarious construct. As such, some investigators have proposed that the construct be dismantled to isolate its specific personality facets (Widiger, 2006), whereas others have suggested integrating certain features of psychopathy into broader domains such as externalizing psychopathology (Krueger, 2006). However, an inherent danger in deconstructing the psychopathy construct is that the *whole* may be greater than the sum of the *parts*. On the other hand, integrating the disorder with other constructs could result in a dilution of the initial conceptualization of psychopathy. This is not to suggest that deconstructive or integrative approaches are not

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[1]Many individuals have mistakenly assumed that "Antisocial Personality Disorder and psychopathy are synonymous terms" (Hare, 1999, pp. 25). In using the term *dissocial* we intend a broader concept than APD.

worthwhile research pursuits, but rather that we view psychopathy from a different perspective.

Our approach to specifying the essence of psychopathy stems from the empirical investigations that have identified interpersonal, affective, impulsive, and antisocial lifestyle features of the disorder. Such characteristics suggest that psychopathy is essentially a personality disorder involving a failure to: (a) adopt the common interpersonal conventions of honesty, modesty, and trustworthiness, (b) experience full-fledged emotions concerning one's relation to others (e.g., love, empathy, guilt), (c) adopt widely shared sociocultural norms pertaining to financial responsibility and safe conduct, and (d) obey the laws of society. Although predicated on the four-factor model, our proposal regarding the nature of psychopathy is also consistent with classic views of the disorder. Regardless of whether one focuses on the failure of psychopathic individuals to inhibit antisocial actions (e.g., Lykken, 2006), adopt prosocial values (e.g., Robins, 1966), empathize with the feelings of others (e.g., Cleckley, 1976), or take another person's point of view (e.g., Gough, 1948), psychopathy appears to reflect a dissocial disposition that undermines socialization and thus distinguishes it from the rest of humanity.

Comprehensive large-sample analyses of the PCL-R and its derivatives, the Psychopathy Checklist: Screening Version (PCL: SV; Hart, Cox, & Hare, 1995) and the Psychopathy Checklist: Youth Version (PCL: YV; Forth et al., 2003), reveal that psychopathy can be represented by at least four dimensions that are moderately to strongly intercorrelated (Hare & Neumann, 2005, 2006), consistent with our proposal. The dimensions reflect disturbances in Interpersonal (e.g., conning, pathological lying) and Affective functioning (e.g., callousness, failure to accept responsibility), as well as Lifestyle (e.g., impulsive, parasitic, irresponsible) and under-controlled Antisocial tendencies (e.g., poor behavioral controls and items that reflect serious, persistent, varied, generalized rule-breaking behavior). The four dimensions adequately explain the manifestation of psychopathy in both adult and adolescent offenders, as well as individuals within the general community (Hare & Neumann, 2006; Neumann & Hare, 2006; Neumann et al., 2006). Similar results have been found for psychiatric samples (Hill, Neumann, & Rogers, 2004; Vitacco et al., 2005). Studies using a diverse set of measures (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; Blonigen et al., 2005) have also reported interpersonal-affective and impulsive-antisocial domains of psychopathy.

Because the overall picture of the psychopathy construct involves the covariation of the four dimensions, it does not appear viable to omit one of these dimensions, or to hold certain features as a priori more central to the disorder than other features (Neumann et al., 2005). If the antisocial tendencies dimension is omitted important predictive relations are missed (Hill et al., 2004; Vitacco, Neumann, Caldwell, Leistico, & VanRybroek, 2006), and parameters for the other psychopathy factors may be underestimated when predicting both distal and proximal external correlates (Vitacco et al., 2005). Also, investigators (Taylor, Loney, Bobadilla, Iacono, & McGue, 2003; Viding, Blair, & Plomin, 2005) have reported bivariate analyses that suggest genetic influence on the covariance of psychopathy scales reflecting emotional detachment and antisocial tendencies. Finally, it does not appear to be the case that one component of psychopathy (e.g., callousness) necessarily causes other features (e.g., antisocial) of the disorder (Neumann et al., 2005). For instance, Frick, Kimonis, Dandreaux, & Farell (2003) reported that baseline antisocial tendencies predicted the longitudinal stability of other psychopathic traits, but at the same time, other research has found that callous, impulsive traits predict future antisocial behavior (Vitacco, Neumann, Robertson, & Durrant, 2002). Thus, the findings suggest that the different psychopathy dimensions are fundamentally interrelated.

Therefore, we propose that the strong statistical and empirical covariation of the psychopathy dimensions implies the presence of a higher-order psychopathy *super-factor*. This is not to suggest that a model with four correlated factors is statistically equivalent (MacCallum, 1995) to a model in which the four first-order factors load onto a single, higher-order factor. Rather, our intention is to test the latter model involving a higher-order psychopathy factor, to better understand the overarching nature of the (PCL-R based) psychopathy construct. Evidence of a super-factor may assist in understanding the unified nature of the construct, as opposed to viewing it in terms of separate lower-order dimensions, or that certain features are more central than others.

Using several large North American samples of male and female offenders and forensic psychiatric patients, we examined each sample separately and in combination to determine whether the four first-order factors are meaningful indicators of a single, higher-order factor. In other words, our goal was to determine if a super-factor could account for most of the variance in the first-order dimensions, and do so across different samples. Such a finding would suggest that the multifaceted features of psychopathy can be understood in terms of a cohesive higher-order factor. In addition, to further ascertain the implications of dropping the Antisocial dimension as some investigators have proposed, we also used just the Interpersonal, Affective, and Lifestyle factors as indicators for a single second-order factor.

Note that the current study is part of a larger project on the nature of psychopathy. Therefore, we did not conduct strict multi-sample analyses as this research has already been conducted and published (Bolt, Hare, Vitale, & Newman, 2004). In contrast, we present a comparison of unconstrained parameters across groups to better understand slight differences, as well as broad similarities, in parameters across samples.

METHOD

PARTICIPANTS

The data for the current study were from the North American participant samples, as described in the 2nd Edition of the PCL-R Manual (Hare, 2003). We used those participants who had complete data on all PCL-R items. There were 4865 male and 1099 female offenders, as well as a sample of 965 forensic psychiatric patients. Mean PCL-R total scores for these groups were: males, $M = 20.03$ ($SD = 7.30$), females, $M = 17.24$ ($SD = 6.87$), patients, $M = 19.72$ ($SD = 6.45$). (Note these values are different from those in the PCL-R Manual given that we used only those cases that had ratings for all items.)

MEASURE

The PCL-R is a 20-item construct rating scale for use in research, clinical, and forensic settings (Hare, 2003). It uses a semi-structured interview, file and collateral information, and specific scoring criteria to assess inferred personality traits and behaviors related to widely understood, traditional conceptions of psychopathy. The PCL-R yields dimensional scores, but also may be used to classify individuals for research and clinical purposes. Each item in the PCL-R is scored on a 3-point ordinal scale (0, 1, 2) according to the extent to which the rater judges that it applies to a given individual. Total scores can range from 0 to 40, reflecting the degree to which the individual matches the prototypical psychopath.

DATA ANALYTIC PLAN

First, we used confirmatory factor analysis (CFA) to test the four correlated factors model using 18 PCL-R items, and we provide parameter estimates for each sample separately. We also combined the samples and tested this four-factor model. The model for PCL-R is represented by: Interpersonal (items, 1, 2, 4, 5), Affective (6, 7, 8, 16), behavioral Lifestyle

(3, 9, 13, 14, 15), and Antisocial (10, 12, 18, 19, 20) factors. Recent CFA studies have found good support for this model for the PCL-R (Hare & Neumann, 2005; Neumann et al., 2005), the PCL:SV (Hill et al., 2004; Vitacco et al., 2005), and the PCL:YV (Forth et al., 2003; Hare & Neumann, 2005; Neumann et al., 2006; Salekin, Neumann, Leistico, DiCicco, & Duros, 2004; Vitacco et al., 2006). These CFA studies are consistent with recent taxometric (Guay, Ruscio, Knight, & Hare, 2006) and multidimensional scaling (Bishopp & Hare, 2006) analyses of the PCL-R that indicate all four factors reflect continuous latent variable dimensions of psychopathy. Testing the model with each sample separately and in combination, without constraining parameters to be the same across samples, allowed for comparisons across the diverse samples.

Next, to address our primary study aim, we used structural equation modeling (SEM) to load each of the four psychopathy factors onto a single second-order factor to determine how much variance the second-order factor could account for in each of the first-order factors. We tested this SEM with each sample separately, and also ran this model after combining the various samples (i.e., males & females, $N = 5964$; males, females, & patients, $N = 6929$). In this way, we were able to assess how well the four psychopathy factors were underpinned by a cohesive super-factor within each sample, as well as across two mega-samples.

We used the Mplus modeling program (Muthen & Muthen, 2001) for all model analyses. The PCL-R items were treated as ordinal variables, and a robust weighted least squares statistical routine was used for parameter estimation. To gauge model fit, we used a relative fit index, the Tucker Lewis Index (TLI, also known as the Non-normed Fit Index, NNFI), to test how well each model fit relative to a null (unstructured) model. We also used an absolute fit index, the Standardized Root Mean Square (SRMR), to determine how well the models reproduced the observed data. Hu and Bentler (1999) recommend TLI and SRMR cut-off values, respectively, close to ≥ .95 and ≤ .08. However, there have been recent criticisms of the methodology used by Hu and Bentler (1999) to derive their recommendations for TLI, which may be overly conservative and might result in rejection of models that nonetheless acceptably fit the data (Marsh, Hau, & Wen, 2004). Thus, we also used the more traditional relative fit criterion of approximately .90 (Hoyle, 1995).

RESULTS

Model fit results for the four correlated factors model are shown in Table 1 for each sample separately, as well as for the combinations of samples. Overall, the SRMR index indicated that the model was able to reproduce the observed data with good precision in each sample separately and in the mega-samples. The TLI index was generally in the acceptable fit range, though it was slightly below a traditional fit recommendation for the patient sample. Nonetheless, each samples' parameter estimates (factor loadings and correlations) were generally large and all were highly significant, suggesting that this model was a good representation of the underlying PCL-R factor structure. See Figure 1 for the model parameters using the entire sample of participants ($N = 6929$).

For comparative purposes, the discrimination parameters (item factor loadings) and the extremity parameters (item threshold values) for each of the three samples are presented in Figures 2 and 3. The former provide information on how well an item discriminates individuals on the latent psychopathy trait, while the latter provide information on items that are endorsed or rated at higher (versus lower) levels of the latent trait (Reise, 1999). For the most part, there is considerable convergence in parameter profiles across samples, though a few pertinent differences stand out. For instance, for females PCL-R item 5 (conning/manipulative) and item 9 (parasitic orientation) did not discriminate individuals on the latent trait as well as they did for the male offenders in particular (also see Bolt et al., 2004, Table

2). Also of interest was that item 19 (revocation of conditional release) was generally a poor discriminator for individuals in both the female and patient samples. Finally, with respect to item thresholds, the results indicate that item 12 (early behavior problems) and item 20 (criminal versatility) were rated a 2 (versus a 1) for females at very high levels of the latent trait, relative to the two other samples. These latter results are intriguing in that they suggest early and versatile antisocial behavior are very important signifiers of psychopathy in women.

The final set of analyses involved testing the SEM. The full set of results are shown in Table 2, and Figure 4 displays the SEM results for all participants when combined into one mega-sample ($N = 6929$). Consistent with our expectation, the results show that a second-order psychopathy super-factor accounted for the majority of the variance in each of the first-order factors for both the male and female offenders. In terms of the patient sample, the super-factor accounted for the majority of the variance in all first-order factors, except for the Interpersonal factor (43%). Also, in the combined samples, the results indicate that the super-factor was able to account for the majority of the variance in three of the first-order factors and 50% of the variance in the Interpersonal factor.

Lastly, given that some investigators have proposed dropping the Antisocial factor from the psychopathy construct, we removed this factor from the model and re-ran the SEM. The results were surprising. Specifically, for all samples tested, the SEM results indicated that the super-factor could only account for the majority of the variance in the Interpersonal and Affective factors, but less than a majority of the variance in the Lifestyle factor for every sample tested. Most important, only a modest amount of the variance (38–39%) in the Lifestyle factor could be accounted for by the super-factor in the two mega-samples. Thus, the modeling results suggest that cleaving off the antisocial dimension from the four-factor model resulted in a substantive reduction in the scope and conceptual integrity of the psychopathy super-factor.

DISCUSSION

The current study provides additional support for a four-factor model of psychopathy. In previous studies, investigators have usually tested the four-factor model in terms of correlated factors (e.g., Hare & Neumann, 2005, 2006; Hill et al., 2004; Neumann et al., 2005; Vitacco et al., 2006). While these studies provide excellent support for this model, the current results reveal that the four-factors can be accounted for in terms of a cohesive super-ordinate factor across a diverse set of very large samples. Moreover, evidence of a cohesive super-factor is also consistent with recent analyses of a large cross-national sample of incarcerated male adolescents (Neumann et al., 2006). As such, we propose that the essential nature of this super-factor reflects pervasive dissocial features of psychopathic personality.

The overall pattern of results in Table 2 indicates that the super-factor accounted for the largest amount of variance in the Lifestyle factor, which in part reflects impulsive tendencies. This finding is notable, given that Berrios (1996, p. 428) discusses impulsivity as the "kernel" around which the early psychopathy construct developed. Thus, the current results indicate that the PCL-R is very much in-line with the historical origins of the psychopathy construct. Second, the super-factor was able to account for a sizeable percentage of the Affective factor's variance, and this finding is certainly consistent with contemporary thinking that the affective domain reflects a critical component of the psychopathy construct. The Antisocial factor was next in terms of variance accounted for by the super-factor, which clearly attests to the importance of this domain, and is consistent with the early insight by Robins (1966) on the role of antisocial tendencies as a driving force of psychopathic personality. More recently, Krueger (2006) has suggested that the antisocial

behavior features of psychopathy represent a "broad but coherent domain of human individual differences" (p. 196).

The fact that the results support the role of antisocial tendencies in models of the psychopathy construct is in direct contrast to the position by Cooke and Michie (2001) that they be dropped. Moreover, the proposed three-factor model (Cooke & Michie, 2001) appears to have unexpected implications for the larger conceptualization of psychopathy.[2] Specifically, our results indicate that the three-factor model, when tested in terms of a higher-order factor, could only account for the majority of the variance of the Interpersonal and Affective dimensions. A substantive consequence of the proposed three-factor model is that the Lifestyle factor essentially drops off the map in terms of being a major component of a cohesive hierarchical factor. As Cooke and colleagues (Cooke, Michie, & Hart, 2006) have proposed, if psychopathy is to be explained in terms of a coherent syndrome "it is therefore necessary to think hierarchically" (p. 96). Our results clearly show that the four-factor model can be understood with respect to a hierarchical factor (i.e., a super-factor).

By suggesting that the hierarchical nature of psychopathy involves dissocial or antisocial tendencies (broadly defined in terms of interpersonal, affective, and under-controlled behavioral disturbances) we do not mean to suggest that such individuals are incapable of social behaviors. Indeed, one of the most exquisite of all human social behaviors involves the ability to attribute mental states to other people, often referred to as a theory of mind (Adolphs, 2003), and it appears that this ability is generally intact in psychopathic individuals (Dolan & Fullam, 2004; Richell et al., 2003). Likewise, it would be incorrect to suggest that their personality is fundamentally distinct from normative personality, given that: (a) the four-factor model shows good fit in a large sample of individuals from the general community (Hare & Neumann, 2006), (b) recent taxometric (Guay et al., 2006) and multidimensional scaling (Bishopp & Hare, 2006) analyses of the PCL-R reveal that all four factors reflect continuous latent variable dimensions, and (c) it is quite feasible to map out in detail the associations between the PCL-R domains and the facets of normative personality (Lynam, 2002; Widiger & Lynam, 1998).

Conversely, all human social behavior can, at times, be conning/manipulative (e.g., poker players, car salesmen, politicians), cold and callous (e.g., people stampeding over others to obtain holiday sale bargains), impulsive (e.g., people making rapid lane changes while driving at high speeds), or antisocial (e.g., employees stealing materials from work, individuals pocketing the too-much tendered return from a cashier). Along this same line of reasoning, Buss (2005) has recently proposed that the human mind has developed adaptations to kill, and that murder is not something outside of human nature nor specific to pathological individuals. However, this does not imply that most individuals in society are psychopathic. First, it is the level and persistence of dissocial traits that distinguishes the psychopath from the rest of humanity. Moreover, fundamental to the conceptualization of psychopathy is the *covariation* of Interpersonal, Affective, Lifestyle, and Antisocial tendencies that precisely captures this personality disorder (Hare & Neumann, 2006; Neumann et al., 2005).

Although these four interrelated dimensions are important for our definition and understanding of psychopathy, it is possible that the *presence* of these features do not completely explain the full nature of the psychopath. Theoretically, it is possible that

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[2]There are also significant problems with the use of testlets in the three-factor model, which are essentially first-order factors. Specifically, in the Cooke and Michie (2001) hierarchical three-factor model there are six testlets (first-order factors), three second-order factors, and one third-order factor, which means that the model requires 10 factors to explain the variance/covariance of 13 items. As a result, this model results in untenable parameters, such as negative variances (see Neumann et al., 2005; Vitacco et al., 2005 for further discussion of this topic), and has been referred to as an over-factored model (Skeem, Mulvey, & Grisso, 2003).

psychopathic personality stems, in part, from what is *absent* (i.e., prosocial behavior), as well as from what is so distressing to society (i.e., dissocial behavior). For instance, Krueger and colleagues (Krueger, Hicks, & McGue, 2001) found that antisocial and altruistic behavior were uncorrelated and explained by unique personality correlates and distinct etiologies. There may even be a genetic contribution to prosocial behavior (Rushton, 2004). In this way, psychopathy could stem in part from the absence of certain factors that keep dissocial tendencies in check. This idea is consistent with the notion that human nature is akin to a "Janus head" and that human social behavior is the "product of opposing forces, such as the need to think of our own interests and the need to get along" (de Waal, 2005, p. 220).

Paradoxically, while the current hierarchical modeling results may assist in understanding the unified nature of psychopathy, recent research has also suggested links between the specific psychopathy dimensions and various external correlates (e.g., Hall, Benning, & Patrick, 2004; Hill et al., 2004; Salekin, Neumann, Leistico, & Zalot, 2004; Vitacco et al., 2005). Future research will have to address the conditions under which a single super-factor model versus a correlated (first-order) factors model will be best for studying links with external correlates. The answer to this dilemma may depend on the aims of the study (e.g., treatment outcome versus prediction of different risks factors) and the nature of the criterion (global versus specific). For instance, Caspi, Roberts, and Shiner (2005) have suggested that lower-order traits, such as sociability, may provide better prediction of specific behavioral outcomes than broad higher-order traits such as extraversion. On the other hand, use of both higher-order and lower-order dimensions may be necessary. For instance, Livesley (1998) discussed that genetic variation of personality and personality disorder traits involves common variance across lower-order traits that is best represented by general higher-order trait dimensions. However, it is also the case that there are specific residual genetic components related to particular lower-order trait dimensions (Livesely & Jang, 2000; Livesely, Jang, & Vernon, 1998). Similarly, our understanding of the brain *systems* involved in psychopathy may benefit from viewing the disorder in terms of a higher-order construct, whereas understanding of the roles played by *specific* brain structures may benefit from treating psychopathy as a set of highly interrelated lower-order dimensions. In sum, analyses of psychopathy instruments at both higher- and lower-order levels may provide a more comprehensive explanation of psychopathy.

Finally, the PCL-R has been described by prominent psychopathy investigators as the "gold standard" for the assessment of psychopathy in adulthood (Lynam & Gudonis, 2005, p. 383), and was referred to in the 16th Mental Measurements Yearbook as "the gold standard for the assessment of psychopathy" (Acheson, 2005). No doubt, it is a very successful and important assessment tool, which is in part due to the intense scrutiny it has survived (Hare & Neumann, 2005). However, it is important to reflect on why it continues to be a critical tool for assessing psychopathy. From the perspective of the current study, what stands out is how well the PCL-R items perform in serving as indicators of their respective psychopathy factors. Across fundamentally different samples, the items show remarkable uniformity in their ability to discriminate individuals on the latent psychopathy dimensions. Indeed, in other research (Hare & Neumann, 2006), we have been able to show that the item parameters show consistency across adults and adolescents, even though different variants of the PCL were used. Yet, such findings should not be surprising, as they can easily be explained in terms of modern model-based measurement theory (Reise, 1999). Thus, a fruitful approach would be to identify item characteristics (item loadings, thresholds) from diverse measures that match or compliment the PCL-R items, so that future research is grounded in psychometrically sound measures which precisely represent the construct in a mathematical form that can be easily understood. A clear and precisely articulated construct can then be studied with respect to various external correlates. Furthermore, by using CFA,

Item Response Theory, and latent growth modeling, it would be possible to generate parallel versions of the PCL items to study change (or lack thereof) across individuals over time. In this way, through use of rigorous statistical approaches, a more complete portrait of psychopathic personality may be revealed.

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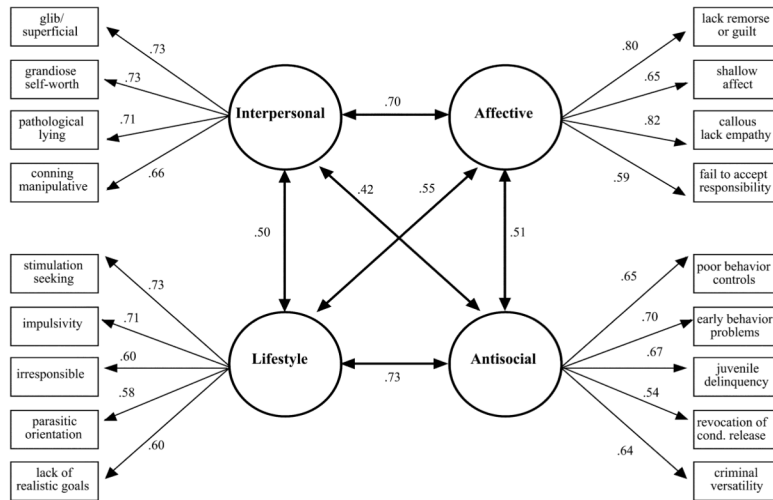
FIGURE 1.
Item titles are from The Hare Psychopathy Checklist: Youth Version by A. E. Forth, D. S. Kosson, and R. D. Hare and Multi-Health Systems, Inc., 3770 Victoria Park Avenue, Toronto, Ontario, Canada M2H 3M6. All rights reserved. Reprinted by permission. Note that the items cannot be scored without reference to the formal criteria contained in the PCL: YV Manual.
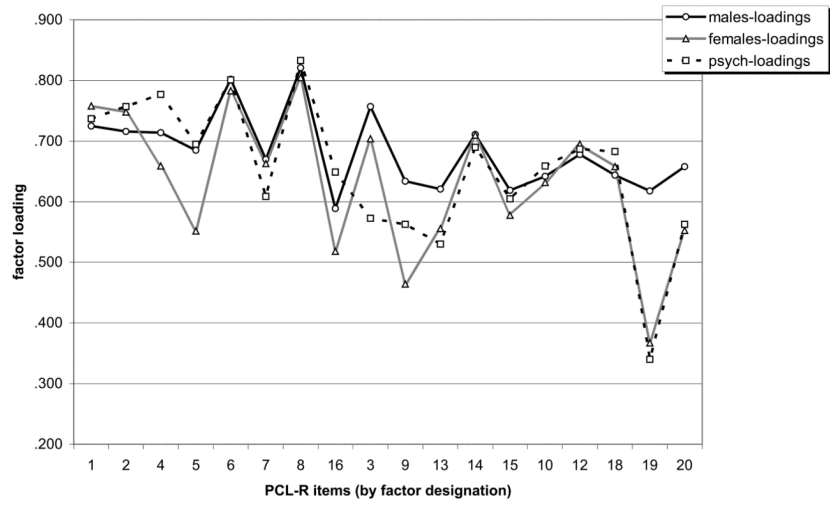
FIGURE 2.
PCL-R factor loadings by sample
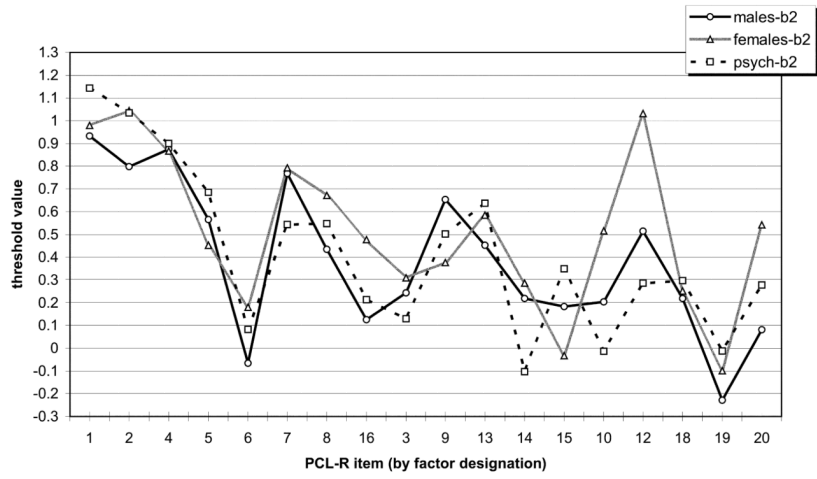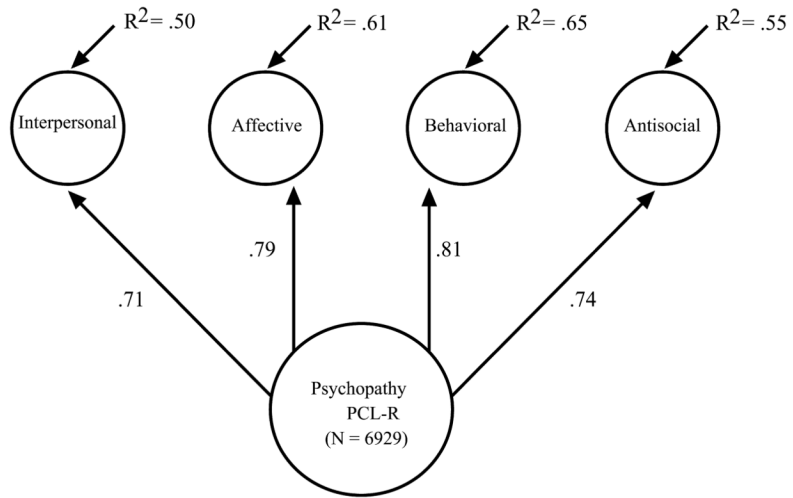
FIGURE 3.
PCL-R item thresholds (b2) by sample

FIGURE 4.

TABLE 1

Structural Equation Modeling Results: Four-Factor Model

Samples	Mplus Fit Indices			
	RWLS-X^2	*df*	TLI	SRMR
1. Male offenders	2752.33	89	.94	.05
2. Female offenders	679.30	84	.90	.07
3. Forensic psychiatric pts.	778.03	79	.88	.07
1 & 2 samples	3241.12	91	.94	.05
1 & 2 & 3 samples	3842.63	91	.93	.05

Note. RWLS-X^2 = Mplus generated robust weighted least square Chi Square and degrees of freedom (*df*), which cannot be used for calculating Chi Square difference tests (see Muthen & Muthen, 2001). TLI = Tucker-Lewis index (aka Non-normed Fit Index-NNFI), SRMR = Standardized root mean square.

TABLE 2

Variance Accounted for in Psychopathy First-Order Factors By the PCL-R Super-Factor

Samples	% Variance Accounted For			
	Interpersonal	Affective	Lifestyle	Antisocial
1. Male offenders	51	63	67	57
2. Female offenders	54	51	57	51
3. Forensic psychiatric pts.	43	57	71	51
1 & 2 samples	52	62	64	55
1 & 2 & 3 samples	50	61	65	55