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# A taxometric investigation of psychopathy in women

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#### ABSTRACT

The taxonomic status of psychopathy is the topic of considerable research interest. The latent structure of psychopathy will latent structure will guide the determination of the best assessment approaches, maximize the reliability and validity, will help to establish optimal cutting scores that minimize decision errors and will also facilitate the selection of the best research designs to advance the study of the construct. In the present study, taxometric analyses were used for assessing taxonicity, and they were applied to Psychopathy Checklist-Revised (PCL-R) ratings of 1218 female offenders. Hare's four-factor solution to the PCL-R was used as the bases of the analyses. The results of the various analytical strategies obtained dimensional solutions and corroborated that for females, as well as for males, psychopathy as measured by the PCL-R, may best be conceptualized as distinct configurations of extreme scores on personality traits rather than as a distinct, nonarbitrary class. These results reaffirm the fact that cut-off scores of are arbitrary in nature.

#### 1. Introduction

Psychopathy is a clinical construct defined by a cluster of interpersonal, affective, and behavioral traits and behaviors, including deception, manipulation, irresponsibility, impulsivity, stimulation-seeking, poor behavioral control, shallow affect, lack of empathy, guilt or remorse, and a range of unethical and antisocial behaviors not necessarily criminal. The modern conception of psychopathy is based firmly on a rich clinical tradition (e.g., Cleckley, 1941, 1976; Karpman, 1955; Arieti, 1963; Berrios, 1996; see historical overviews by Millon et al., 1998; Hare, 2003; Felthous and Saß, 2007; Hervé, 2007). The writings of Cleckley (1941, 1976) have been particularly influential in providing a framework for much of the research conducted over the last 50 years (Hare and Neumann, 2008; Lilienfeld et al., 2015a; Crego and Widiger, 2016).

### 1.1. Taxometrics and psychopathy

One important question about the construct of psychopathy involves the nature of its latent structure, specifically whether psychopathy is distributed as a dimension or category. Whereas in dimensional models psychopathic individuals are conceptualized as extreme variants, in categorical models they are conceived as qualitatively different from non-psychopaths. The taxometric analyses developed by Paul Meehl and his collaborators (Meehl and Yonce, 1994, 1996; Waller and Meehl, 1998; Meehl, 2004) have become the most widely accepted methods for investigating the latent structure of various constructs. Multiple studies have examined the taxometric structure of psychopathy. Early Psychopathy Checklist-Revised (PCL-R: Hare, 1991, 2003) studies found evidence that its Impulsive/Antisociality factor was distributed as a taxon (Harris et al., 1994; Skilling et al., 2001, 2002). These results are now known to be attributable to methodological and sampling problems (Edens et al., 2006; Guay et al., 2007; Walters et al., 2011). After resolving those issues, a review of the research conducted on adult males revealed clear evidence of dimensionality. The results were based on measures of the PCL family (Edens et al., 2006; Guay et al., 2007; Walters et al., 2007b, 2007c, 2011), self-report measures of psychopathy (Guay and Knight, 2003; Marcus et al., 2004; Walters et al., 2008) and on psychopathy-related measures (Walters et al., 2014). The results also consistently support dimensionality in taxometric studies of adolescents (Murrie et al., 2007; Edens et al., 2011; Walters, 2014).

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#### 1.2. Taxometric studies with women

The issue of whether psychopathy is distributed as a taxon or a dimension has not been thoroughly investigated in women. To our knowledge, there are only four taxometric studies of psychopathy in female samples, three based on self-report measures and one on the PCL: SV.

Walters and colleagues explored the distribution of psychopathyrelated scales in females in three of these four studies (Walters et al., 2007a, 2007c, 2008). All three found evidence for dimensional distributions. One used the Levenson Self Report Psychopathy scale (Levenson et al., 1995) in subsample of 555 women incarcerated in high-, medium-, and low-security institutions as part of a national mental health prevalence study involving 14 different federal correctional institutions (Walters et al., 2008). The second (Walters et al., 2007a) evaluated 464 female offenders on four subscales of the Personality Assessment Inventory (PAI: Antisocial Features [ANT] scale, Antisocial, Behaviors [ANT-A], Egocentricity [ANT-E], and Stimulus Seeking [ANT-S]; Morey, 2007). The third study by Walters et al. (2007c) combined four different samples totalling 735 women rated on the Psychopathy Checklist: Screening Version (PCL: SV; Hart et al. (1995)). In the fourth study, John (2009) used the Psychopathic Personality Inventory-Revised responses (PPI-R; Lilienfeld and Widows, 2005) of 367 incarcerated women to examine the latent structure at the factor level (Fearless Dominance, Self-Centered Impulsivity, and Cold-Heartedness) with MAMBAC and MAXEIG procedures. Again, no evidence for taxonic structure emerged.

Finally, Walters et al. (2007c) conducted a taxometric analysis of the PCL: SV with a pooled sample of 2230 male and female offenders and forensic/psychiatric patients (1505 males, 735 females). The results "uncovered consistent support for dimensional latent structure in PCL: SV-defined psychopathy" (p. 337). Further, these results applied to subsamples (men, women, Whites, Blacks, hospital patients, jail/prison inmates, file review with an interview, file review without an interview" (p. 330). The authors noted that, "The presence of dimensionality, however, does not preclude the use of cut scores. We would argue that cut scores can be helpful in both research and clinical contexts as long as the user recognizes that the cut score does not represent a taxonic boundary or that the group identified as psychopathic does not represent a natural category" (Walters et al., 2007c, p. 337).

The determination of whether the core latent structure of a construct like psychopathy is distributed as a dimension or a taxon has important practical and theoretical implications (Ruscio and Ruscio, 2004a; Edens et al., 2006). Knowledge of a syndrome's latent structure will guide the choice of assessment approaches that will maximize the reliability and validity of clinical judgments and will help to establish optimal cutting scores that minimize decision errors. It will also facilitate the selection of the best research designs to advance the study of the construct. Thus, the conclusion of whether or not psychopathy constitutes a taxon has important implications both for clinical assessment and for research on its etiology and development in both men and women.

Although the distribution of psychopathy for males at the phenotypic levels assessed in behavioral rating scales and self-report measures appears solidly dimensional rather than taxonic, the issue for females requires more research. The results obtained by Walters et al. (2007b) and Walters et al. (2007c) suggest a dimensional solution, but these studies used the PCL: SV rather than the more widely-used PCL-R, which serves as the international standard for assessing the psychopathy construct (see overview by Hare et al., 2013). The prevalence, structure, behavioral manifestations, neurobiology, and correlates of this measure of psychopathy are well researched in males, but less so in females

Scores on PCL-R scales are often slightly lower for female offenders than for male offenders (e.g., Hare, 2003; Kennealy et al., 2007; Sturek et al., 2008; Neumann and Hare, 2008; Harenski et al., 2014; Tuente

et al., 2014; Tsang et al., 2015). This discrepancy may reflect actual differences in prevalence or in sex-related issues involving physical, cultural, socioeconomic, political, and legal factors.

The reliability of scores on the PCL scales among female offenders typically is as high as it is for males (e.g., Hare, 2003; Salekin et al., 2005; Warren and South, 2006; Schrum and Salekin, 2006; Kennealy et al., 2007; Vitale et al., 2002; Walters et al., 2007b; Harenski et al., 2014). Similarly, the factor structure for females is generally comparable to that commonly observed for males, with some minor differences (Neumann et al., 2007, 2015; Neumann and Hare, 2008; Kosson et al., 2013). At the item level, items reflecting the Lifestyle and Antisocial facets (Factor 2) were more prone to display greater differential item functioning and to be less informative than were the Interpersonal and Affective facet items (Factor 1). There also were sex differences in the functioning of some items, suggesting that women and men differ in some aspects of the psychopathy construct or in the ways in which they express psychopathic features, especially antisocial-externalizing tendencies and various relational forms of aggression (Verona and Vitale, 2006)

Discussion of the literature on sex differences in the external correlates of the PCL-R and its derivatives is beyond the scope of this article. Detailed analyses and reviews are available elsewhere (Salekin et al., 1998; Cale and Lilienfeld, 2002; Vitale et al., 2002; Hare, 2003; Richards et al., 2003; Warren et al., 2003; Verona and Vitale, 2006; Warren and South, 2006; McKeown, 2010; Lehmann and Ittel, 2012; Book et al., 2013; Forth et al., 2013; Hare et al., 2013; Warren and Burnette, 2013; Tuente et al., 2014; Cunliffe et al., 2016). In general, the psychometric properties and external correlates of the PCL-R and its derivatives are similar for women and men.

#### 1.3. The present study

Advances in taxometric analyses (Ruscio et al., 2004) have introduced bootstrapped sampling distributions of taxometric results using sample-specific simulated taxonic and dimensional comparison data and curve-fit indices to guide visual examination. In the present study we added these decision guides to Meehl's multiple consistency tests strategy for assessing taxonicity (Meehl, 1995). We applied these procedures to PCL-R ratings of female offenders sampled from multiple forensic settings. The basis for the analyses was Hare's (2003) four-factor solution for the PCL-R. We hypothesized that the latent structure of psychopathy as measured by the PCL-R is dimensional when using a large sample of incarcerated female offenders.

#### 2. Method

#### 2.1. Participants

Participants in this study were 1218 female prison inmates (553 African-Americans) incarcerated in North American institutions. Data were collected from six different samples across Canada (British Columbia and Ontario) and the United States (Wisconsin, Maryland, and Missouri). For a more detailed description of the sample composition and procedures, see Hare (2003, pp. 54–56). Vitale et al. (2002) provided Sample 1, which comprised 438 female inmates (215 Caucasians, 223 African-Americans) from a state prison in Wisconsin, with a mean (SD) PCL-R score of 18.2 (7.3). Richards et al. (2003) contributed Sample 2, which included 411 women (141 Caucasians, 270 African-Americans) incarcerated in a maximum-security prison in Maryland and screened for or enrolled in a year-long substance abuse program as part of a treatment effectiveness study. Their mean PCL-R score was 17.8 (6.9). Sample 3 contained 75 female inmates (56 Caucasians, 19 Natives) from minimum-, medium-, and maximum-security facilities in British Columbia, with a mean PCL-R score of 24.3 (7.4). Neary (1990) supplied Sample 4, which comprised 120 female inmates (60 Caucasians, 60 African-Americans) incarcerated in Missouri, with a mean

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