



## Theory based gender differences in psychopathy subtypes



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### ABSTRACT

Psychopathy is conceptualized as a heterogeneous construct in both men and women. To investigate possible gender differences in Karpman's (1941) and Lykken (1995) typologies, a model-based cluster analysis was conducted on male and female undergraduates scoring high on the PPI. Two clusters emerged in men and women consistent with primary and secondary variants on PPI factors, behavioral inhibition, anxiety, aggression, and borderline features. The male and female clusters were not markedly different. However, secondary women did demonstrate more pathology and internalizing problems than secondary men. The significant differences found and their implications are discussed.

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### 1. Introduction

Psychopathy is an amalgam of personality and behavioral traits including callousness, grandiosity, shallow affect, and lack of empathy and anxiety (Cleckley, 1941). Despite initial observations in women and non-forensic individuals, the vast majority of psychopathy research has focused on male forensic samples. With the development of assessment tools like the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996), psychopathy has accumulated validity in female student samples (Falkenbach, Barese, Balash, Reinhard, & Hughes, 2015; Lee & Salekin, 2010). The PPI has a two-factor structure, with Factor 1 (F1; Fearless Dominance) comprising affective and interpersonal traits, and Factor 2 (F2; Impulsive Antisociality) comprising lifestyle and behavioral traits. As with forensic samples, differential factor correlates have been noted in non-forensic samples. F1 negatively correlates with anxiety and positively correlates with positive affect (PA), whereas F2 positively correlates with anxiety, negative affect (NA) (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; Del Gaizo & Falkenbach, 2008), and aggression (Schmeelk, Sylvers, & Lilienfeld, 2008).

Although evidence suggests similarities in the prevalence and personality structure of psychopathy in non-forensic men and women (Miller, Watts, & Jones, 2011; Poy, Segarra, Esteller, López, & Moltó, 2014), some findings indicate gender differences. Higher psychopathy total (Wall, Sellbom, & Goodwin, 2013), F1, and F2 scores (Falkenbach et al., 2015; Lilienfeld & Hess, 2001) have been observed in men;

however, other studies have found no gender differences in psychopathy scores (Lee & Salekin, 2010). Hamburger, Lilienfeld, and Hogben (1996) found similar psychopathy scores in male and female undergraduates; however, psychopathic males exhibited more antisocial personality traits, whereas psychopathic females exhibited more histrionic personality traits. Logan and Weizmann-Henelius (2012) argue that although psychopathic men and women demonstrate shallow affect and lack of remorse, men tend to display the characteristic lack of anxiety, whereas women are more likely to present as anxious and emotionally unstable. These gender differences may be related to differences in affect and symptom expression (Falkenbach, 2008; Verona & Vitale, 2006). For example, women generally experience more internalizing psychopathology (e.g., anxiety or depression) and NA, whereas men experience more externalizing psychopathology (e.g., aggression and substance abuse) and PA (Joiner & Blalock, 1995; Keenan & Shaw, 1997; Kessler et al., 1994; Robins & Regier, 1991). Although gender differences in psychopathy have been observed, it is not yet known how these differences manifest within subtypes of psychopathy.

Karpman (1941) first distinguished between primary and secondary variants of psychopathy. Primary psychopaths embody the affective deficits of psychopathy, typically lacking anxiety and fear. Secondary psychopaths are characterized by the impulsive and aggressive aspects of psychopathy, and may exhibit heightened anxiety. Lykken (1995) explained psychopathic heterogeneity using the reinforcement sensitivity theory (Fowles, 1980; Gray, 1975). The behavioral inhibition system (BIS) regulates responsiveness to punishment through anxiety, and may be deficient in primary psychopaths. The behavioral activation system (BAS) regulates motivation toward reward through impulsivity, and may be overactive in secondary psychopaths. Other subtyping

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models (i.e., Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003) suggest further subtype differences; primary psychopathy is associated with PA and instrumental aggression, and secondary psychopathy is associated with NA, hostile/angry aggression, and Borderline Personality Disorder (BPD) traits.

Model-based cluster analysis (MBCA) is the preferred method for disaggregating subtypes (Skeem, et al., 2003). Several studies have supported various subtype models using MBCA in male forensic (Poythress et al., 2010; Skeem, Johansson, Andershed, Kerr, & Loudon, 2007) and college (Falkenbach, Poythress, & Creevy, 2008; Falkenbach, Stern, & Creevy, 2014) samples. Falkenbach et al. (2008) found evidence of subtype differences in anxiety, aggression, BIS, and F1 scores consistent with Karpman's and Lykken's primary and secondary typologies. Falkenbach et al. (2014) found subtype distinctions based on F1 and F2 scores, anxiety, PA, NA, BPD, and aggression in line with Skeem et al.

Recent research has used MBCA to consider psychopathy subtypes in women. In a series of studies using male (Hicks, Markon, Patrick, Krueger & Newman, 2004) and female (Hicks, Vaidyanathan, & Patrick, 2010) prisoners, female psychopathic subtypes exhibited more maladjustment (i.e., stress, extreme personality traits) than their male counterparts. In Lee and Salekin's (2010) comparison of male and female college students, the male secondary subtype demonstrated more risky and criminal behavior than the primary subtype, but the female subtypes did not differ. Although these findings suggest gender differences in the presentation of psychopathy subtypes, no a priori subtyping theory was utilized. To rectify this issue, Falkenbach et al. (2015) tested Lykken's and Karpman's theories with female undergraduates and compared these results to their earlier male study (Falkenbach et al., 2008). The female and male subtypes were comparable; F1, BIS, anxiety, and hostile aggression differentiated primary and secondary subtypes, but F2 did not. However, unlike the male sample, the female secondary subtype had lower BAS scores than the primary, and no subtype differences were found for other types of aggression. These disparate results may be attributed to the separate samples used for men and women. In order to further explore gender differences in psychopathy subtypes, a MBCA with a solid theoretical base is needed in a non-forensic, mixed-gender sample.

### 1.1. Current study

The current study aimed to assess potential gender differences in psychopathy subtypes based on Lykken (1995) and Karpman's (1941) theories in a non-forensic sample. Using MBCA of PPI factors, anxiety, BIS, and BAS, it was hypothesized that at least two clusters would emerge in men and women. A primary psychopathy cluster was expected to exhibit high F1, and low BIS and anxiety. A secondary psychopathy cluster was expected to exhibit high F2, BAS, and anxiety. In order to validate the clusters, it was hypothesized that the secondary groups would demonstrate elevations in aggression (particularly hostile and angry), NA, and BPD traits, and the primary groups would demonstrate elevated PA. Based on previous research, men were expected to report more psychopathy, aggression, and PA, and less anxiety and NA than women. Given these gender differences, the potential for gender differences in subtypes exists. However, due to a lack of previous comparisons, no a priori hypotheses were made regarding gender differences in psychopathic subtypes; the comparison of male and female subtypes was exploratory.

## 2. Method

### 2.1. Participants and procedures

Analyses were performed on 303 male and female undergraduates from an archival dataset. The initial data was collected from students 18 years or older in exchange for course credit at a Northeastern University, following all IRB procedures. Participants were 38.61% male ( $n =$

117) and 61.39% female ( $n = 186$ ). The age ranges and means for men (18–34,  $M = 20.03$ ,  $SD = 2.81$ ) and women (18–45,  $M = 19.47$ ,  $SD = 2.77$ ) were typical of college students. The sample was racially diverse, with 20.1% ( $n = 61$ ) African American, 19.5% ( $n = 59$ ) Caucasian, 46.9% ( $n = 142$ ) Hispanic, 4.0% ( $n = 12$ ) Asian, and 9.2% ( $n = 28$ ) identifying as Other or with missing information.

In order to examine differences between psychopathy subtypes, participants with the top third highest PPI scores ( $n = 100$ ) were categorized as “higher psychopathy” and used in the MBCA.<sup>1</sup> This subsample included 39% ( $n = 39$ ) men and 62% ( $n = 61$ ) women, with PPI-Total scores ranging from 344.00 to 454.75 ( $M = 380.05$ ,  $SD = 25.34$ ). A “non-psychopathic” comparison group was created using the rest of the sample ( $n = 203$ ). It included 38.42% ( $n = 78$ ) men and 61.58% ( $n = 125$ ) women, with PPI-Total scores ranging from 236.00 to 375.00 ( $M = 318.70$ ,  $SD = 28.38$ ).

### 2.2. Measures

#### 2.2.1. Psychopathy Personality Inventory (PPI; Lilienfeld & Andrews, 1996)

The PPI is a 187 item self-report measure of psychopathy, utilizing a four-point Likert scale ranging from 1 (True) to 4 (False). The PPI yields a total psychopathy score and eight subscales. The subscales, except Coldheartedness, map onto two factors: PPI-I (Fearless Dominance) and PPI-II (Impulsive Antisociality) (Benning, et al., 2003).

#### 2.2.2. Behavioral inhibition system/Behavioral Activation System Scales (BIS/BAS; Carver & White, 1994)

The BIS/BAS scale is a 20 item self-report measure using a four-point Likert scale ranging from 1 (Disagree strongly) to 4 (Agree strongly). The BIS scale assesses response to signals of adverse situations or punishment. The BAS scale detects increased sensitivity to rewards.

#### 2.2.3. State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970)

The STAI is a 40 item self-report scale, using a four-point Likert scale ranging from 1 (Almost never) to 4 (Almost always). The current study used the 20 item Trait scale to measure trait levels of anxiety.

#### 2.2.4. Aggression Questionnaire (AQ; Buss & Perry, 1992)

The AQ is a 29 item self-report measure of aggression, using a four-point Likert scale ranging from 1 (Extremely uncharacteristic of me) to 4 (Extremely characteristic of me). Total scores and four subscales are reported: Physical (AQ-P), Verbal (AQ-V), Anger (AQ-A), and Hostility (AQ-H).

#### 2.2.5. Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)

The PANAS self-report scales measure PA (PANAS-P) and NA (PANAS-N) using 20 items rated on a five-point Likert scale ranging from 1 (Slightly or Not at all) to 5 (Extremely).

#### 2.2.6. Personality Diagnostic Questionnaire-Revised (PDQ-R; Hyler & Rieder, 1987)

The PDQ-R is a true/false self-report questionnaire. It assesses personality disorders based on DSM-III-R (American Psychiatric Association, 1987) diagnostic criteria. The nine item BPD subscale (PDQ-B) was used to assess BPD traits.

### 2.3. Analysis

The Mclust library in R (R Core Team, 2013) was used to perform MBCA. In MBCA, six models, each with specific covariance matrix

<sup>1</sup> Using the top one-third highest scores is consistent with previous non-forensic research (Lee & Salekin, 2010). The term “higher psychopathy” refers to the top one-third, and is meant to be descriptive rather than diagnostic.

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