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PSYCHOPATHIC TRAITS' DIFFERENTIAL RELATIONS WITH AGGRESSION FORMS: CONSIDERING THE ROLES OF GENDER AND GENDER ROLE ADHERENCE

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Research has yielded inconsistent findings between psychopathy and aggression, with findings varying as a function of type of psychopathic trait (i.e., affective, behavioral) and aggression form (i.e., physical, relational). Although some research has explored the role of gender in these relations, gender role adherence has received scant attention. Using an undergraduate sample (N = 320), we aimed to clarify mixed findings on how psychopathic traits relate to aggression forms across males and females; examine how psychopathic traits relate to gender role adherence; and ascertain the roles of gender and gender role adherence in the relations between psychopathic traits and aggression. Psychopathic traits manifested differential relations with gender role adherence such that Psychopathic Personality Inventory-Revised (PPI-R) Fearless Dominance was most strongly and

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positively associated with Bem Sex-Role Inventory (BSRI) Masculinity, whereas PPI-R Self-Centered Impulsivity and Coldheartedness were negatively associated with BSRI Femininity. BSRI Masculinity and Femininity were uniquely and differentially associated with aggression forms, and remained associated with aggression forms above and beyond both psychopathy and gender. In addition, BSRI Masculinity moderated the relations between PPI-R Self-Centered Impusivity and physical aggression such that those high in both Masculinity and Self-Centered Impulsivity were most prone to physical aggression. In contrast, although BSRI Femininity was negatively associated with aggression, it did not buffer against aggression in the presence of psychopathic traits. Overall, our results underscore the importance of considering gender role adherence in understanding differences in psychopathy and aggression.

Keywords: psychopathic traits, gender, gender role, physical aggression, relational aggression

Psychopathy is a configuration of affective (e.g., emotional detachment, fearlessness), interpersonal (e.g., egocentricity, superficial charm, manipulativeness), and behavioral (e.g., sensation-seeking, nonplanfulness) features that are dimensionally distributed within the general population (e.g., Edens, Marcus, Lilienfeld, & Poythress, 2006). Although differing conceptual models and factor structures of psychopathy exist (e.g., Hare & Neumann, 2005; Patrick, Edens, Poythress, Lilienfeld, & Benning, 2006), psychopathic traits can typically be decomposed into two broad subdimensions, interpersonal-affective and impulsive-antisocial. Like psychopathy, aggression, one of the best-established correlates of psychopathy (Glenn & Raine, 2009; Porter, Woodworth, & Black, 2018), can be partitioned into subforms that distinguish between its functions (i.e., instrumental/proactive, impulsive/reactive; Porter et al., 2018) and forms (i.e., physical, relational; e.g., Marsee, Silverthorn, & Frick, 2005).

In a meta-analytic examination of the functions of aggression or violence, Blais, Solodukhin, and Forth (2014) found that psychopathy was broadly associated with both instrumental and reactive aggression, but that interpersonal features were more strongly associated with the former and lifestyle features more strongly with the latter (see also Reidy, Shelley-Tremblay, & Lilienfeld, 2011). Psychopathic traits' relations with aggression forms have not yet been the subject of a meta-analytic investigation. Previous studies of these relations have yielded mixed

findings, but some research suggests a stronger relation between impulsive-antisocial traits and both aggression forms (e.g., Colins, Fanti, Salekin, & Andershed, 2017; Hecht, Berg, Lilienfeld, & Latzman, 2016; Schmeelk, Sylbers, & Lilienfeld, 2008). Although the present study draws partially upon research examining aggression functions (i.e., proactive, reactive) to conceptualize gender differences in psychopathic traits' relations with aggression, we focused primarily on aggression forms to clarify the roles of gender and gender role adherence in the relations between psychopathic traits and aggression.

GENDER DIFFERENCES IN PSYCHOPATHY AND AGGRESSION

Historically, the majority of research on psychopathy and aggression has relied largely or exclusively on male samples, in part because the mean levels of both constructs are typically higher among males (Cale & Lilienfeld, 2002; Werner & Crick, 1999). These gender differences notwithstanding, research has demonstrated that psychopathy, aggression, and their correlates can be meaningfully studied among women (see Verona & Vitale, 2018, for a review), leaving open a line of research examining the extent and nature of gender differences in these constructs.

Researchers typically examine gender differences using two approaches. The more traditional approach examines mean-level differences in traits across gender. As noted briefly earlier, it is relatively well-established that males score higher on measures of psychopathy than females (Cale & Lilienfeld, 2002; Nicholls, Ogloff, Brink, & Spidel, 2005; Verona & Vitale, 2018). Moreover, these differences may be more pronounced for the interpersonal-affective features than the antisocial lifestyle features of psychopathy (e.g., Colins et al., 2017; Declercq, Carter, & Newmann, 2015; Falkenbach, Reinhard, & Larson, 2017). Similar to psychopathy, males consistently score higher on measures of physical aggression than females (Colins et al., 2017; Czar, Dahlen, Bullock, & Nicholson, 2011; Hyde, 1984). In contrast, despite being colloquially referenced as a female form of aggression, a host of studies suggest small or near zero mean-level gender differences in relational aggression among adults (e.g., Bagner, Storch, & Preston, 2007; Burton, Hafetz, & Henninger, 2007; Czar et al., 2011).

Although theoretically meaningful, mean-level differences in psychopathy do not necessarily bear on the extent to which relations between psychopathic traits and aggression are differentially expressed in males versus females. This question can be profitably addressed by comparing the associations (e.g., correlations) between psychopathy and aggression across gender. Several systematic examinations have yielded few or no gender differences in psychopathy across a broad swath of external correlates, including general personality traits, antisocial behavior (Miller, Watts, & Jones, 2011), and psychopathology (e.g., rule-breaking, internalizing; Oshukova et al., 2016).

Research has demonstrated decidedly mixed evidence for gender differences in the relations between psychopathy and aggression functions. When examined as a unitary construct, psychopathy appears to be more strongly related to physical aggression in boys and relational aggression in girls (Marsee et al., 2005). Other studies also raise the possibility of differential relations between psychopathy and aggression as a function of gender. For instance, longitudinal relations between (a) affective traits and physical and verbal aggression were stronger in girls compared with boys and (b) interpersonal traits and these functions of aggression were stronger in boys. Nevertheless, other research has revealed no such gender differences (Czar et al., 2011; Orue, Calvete, & Gamez-Guadix, 2016; Schmeelk et al., 2008). These null findings may be hampered by certain limitations. For instance, Czar and colleagues (2011) relied on a short and perhaps controversial psychopathy measure (i.e., Levenson Self-Report Psychopathy Scale [LSRP]; Levenson, Kiehl, & Fitzpatrick, 1995), which has been criticized for insufficient coverage of the interpersonal-affective dimensions of psychopathy (Sellbom, Lilienfeld, Fowler, & McCrary, 2018). Taken together, these two studies yielded varied findings surrounding gender differences in the relations between psychopathy and aggression forms.

Although not the focus of the present study, some research has demonstrated gender differences in psychopathic traits' relations with aggression functions. Hecht and colleagues (2016) examined the relation between psychopathic traits and aggression functions (i.e., proactive, reactive) among undergraduates using a comprehensive, self-report measure of psychopathy (i.e.,

Psychopathic Personality Inventory-Revised [PPI-R]; Lilienfeld & Widows, 2005). They found that the relations between impulsive-antisocial features and proactive aggression were more pronounced among males compared with females, whereas interpersonal-affective traits generally manifested equivalent relations with aggression functions across gender (Hecht et al., 2016). Additionally, Colins and colleagues (2017) demonstrated recently that females with affective traits reported higher relational aggression compared with males. Given such conflicting findings across the aforementioned studies and the well-known difficulties of replicating statistical interactions (Cronbach, 1975), the role of gender in psychopathy's nomological network warrants greater attention and replication efforts.

THE POTENTIAL UNIQUE CONTRIBUTION OF GENDER ROLE ADHERENCE

Consideration of gender role adherence—the degree of conformance to attitudes, behaviors, or emotions typically associated with masculinity or femininity (Bem & Lewis, 1975)—may help to account for gender differences in the psychopathy-aggression relationship. Gender role (Bem, 1974) encompasses gender-typed characteristics that are judged to be desirable in American society for males (e.g., self-sufficient, dominant) and females (e.g., gentle, yielding). These traits are thought to relate to and perhaps exert demonstrable influences on aggression and related behaviors (Moore & Stuart, 2005). Among males, adherence to gender-typed masculinity is associated with greater aggression (Cohn & Zeichner, 2006; Reidy, Shirk, Sloan, & Zeichner, 2009); one experimental study that behaviorally elicited physical aggression found that masculinity (i.e., male gender role adherence) was a stronger predictor of physical aggression than was gender (Hammock & Richardson, 1992). Among females, those higher in masculinity tend to exhibit greater aggression than those lower in masculinity (Kogut, Langley, & O'Neal, 1992; Reidy, Sloan, & Zeichner, 2009), whereas femininity is typically unrelated or negatively related to aggression (Reidy, Sloan, et al., 2009).

Regarding psychopathy's relations with gender role adherence, Hamburger, Lilienfeld, and Hogben (1996) found moderate relations between psychopathy and masculinity (positive) and femininity (negative). In the only investigation of how gender role adherence may moderate psychopathic traits' relations with external criteria, they found that gender but not gender role adherence moderated the relationship between psychopathy dimensions and personality disorder symptoms (antisocial personality disorder [ASPD], histrionic personality hisorder [HPD]) such that psychopathy was more likely to be expressed as ASPD features in males and HPD features in females. Nevertheless, gender roles tend to manifest robust relations with aggression, lending credence to the possibility that gender role adherence may play a unique role in the relations between psychopathy and aggression forms, even above and beyond those of gender.

In summary, extant research has not clarified the specific contributions of gender and gender role in the relations of psychopathic traits to aggression. Previous research implicates gender and/or gender role adherence in these relations (e.g., Czar et al., 2011; Hecht et al., 2016; Hammock & Richardson, 1992). Moreover, prior studies have demonstrated the incremental validity of gender role (masculinity, specifically) above gender in predicting correlates relevant to psychopathy (see Miller, Rausher, Hyatt, Maples, & Zeichner, 2014), including delinquency (Huselid & Cooper, 1994) and risk-taking (Meier-Pesti & Penz, 2008). As noted earlier, while gender has been examined as a moderator of the psychopathy-aggression relationship (e.g., Czar et al., 2011; Hecht et al., 2016; Schmeelk et al., 2008), gender role adherence has not. Nor has it been examined concurrently with gender in terms of its associations with aggression above and beyond psychopathy.

PRESENT STUDY

In the present study, we examined the roles of gender and gender role adherence in the relations between psychopathic traits within the broad PPI-R conceptualization and aggression forms. We considered (1) mean-level and correlational gender differ-

ences in psychopathic traits and aggression forms, (2) the moderating roles of gender and gender role adherence in the relations between psychopathic traits and aggression, (3) the incremental contributions of gender and gender role adherence to statistically predicting aggression forms above and beyond psychopathic traits, and (4) the incremental contributions of gender and gender role adherence to statistically predicting aggression forms above and beyond each other.

The present study used the PPI-R (Lilienfeld & Widows, 2005), a widely used self-report psychopathy measure. The PPI-R conceptualization parses interpersonal-affective traits into higher-order factors of Fearless Dominance (e.g., low fear, venturesomeness) and Coldheartedness (e.g., callousness, lack of guilt/remorse), whereas impulsive-antisocial traits are captured within Self-Centered Impulsivity (e.g., nonplanfulness, egocentricity). This measure assesses psychopathic traits pertinent to a broad range of external criteria (Edens & McDermott, 2010). For instance, Fearless Dominance assesses the largely adaptive psychopathy features (e.g., emotional stability, stress immunity) that are linked to psychologically healthy outcomes (e.g., decreased psychopathology; Lilienfeld et al., 2016), leading some to question its relevance to psychopathy (Miller & Lynam, 2012). In contrast, Self-Centered Impulsivity evinces relations with a plethora of maladaptive behaviors and psychopathology (e.g., anger, substance use, antisociality; Edens & McDermott, 2010). In all, the PPI-R conceptualization captures a wide swath of psychopathic features relevant to theoretically meaningful external criteria in nonforensic populations.

First, we hypothesized that males would obtain higher scores on all psychopathy subdimensions—Fearless Dominance, Self-Centered Impulsivity, and Coldheartedness—and physical aggression compared with females, whereas we hypothesized no mean-level gender differences in relational aggression compared with males (Colins et al., 2017; Czar et al., 2011; Miller & Lynam, 2003). Based on the existing literature, we predicted that all psychopathy subdimensions would relate positively to physical aggression, whereas only Self-Centered Impulsivity and Cold-

heartedness would positively relate to relational aggression (Colins et al., 2017; Czar et al., 2011; Schmeelk et al., 2008).

Second, we hypothesized that gender would incrementally predict aggression forms above and beyond psychopathy subdimensions, and that gender role adherence would incrementally predict aggression forms above and beyond both gender and psychopathy subdimensions, consistent with prior research on externalizing behaviors (e.g., Hammock & Richardson, 1992; Meier-Pesti & Penz, 2008). Specifically, we expected gender to be a significant predictor of aggression, with males reporting higher physical aggression and females higher relational aggression (e.g., Colins et al., 2017). Further, we expected masculinity and femininity to be positively and negatively associated with both aggression forms, respectively.

Third, consistent with previous research, we hypothesized that gender would moderate the relations between Self-Centered Impulsivity and Coldheartedness, but not Fearless Dominance, and aggression, such that the relations between (a) Self-Centered Impulsivity and physical aggression would be more pronounced in males and (b) Self-Centered Impulsivity and Coldheartedness and relational aggression would be more pronounced in females (Colins et al., 2017; Hecht et al., 2016). Further, we hypothesized that gender role would moderate these relations above and beyond gender, such that the relation between psychopathic traits and aggression would be more pronounced for those higher in masculinity and those lower in femininity (Castro, Carbonell, & Anestis, 2011; Reidy, Sloan et al., 2009). Given that impulsive-antisocial traits tend to relate most strongly to relational aggression (e.g., Hecht et al., 2016; Schmeelk et al., 2008) and experimental studies demonstrating masculinity effects on physical aggression (e.g., Reidy, Sloan et al., 2009), we provisionally anticipated a potentiating effect of gender role with Self-Centered Impulsivity in statistically predicting both forms of aggression. This hypothesis was largely exploratory given that no study has examined these three constructs in tandem; thus, we advanced no hypotheses for moderation analyses involving the other psychopathy domains.

METHOD

PARTICIPANTS AND PROCEDURE

Procedures were approved by the university's Institutional Review Board. Participants were 320 undergraduates enrolled in an introductory psychology course at a large public southeastern university who received course credit for participation. All measures were completed by hand. Data collection was part of a larger study on personality and gender roles, the data for which have been published elsewhere (Anestis, Caron, & Carbonell, 2011; Castro et al., 2011). Seven participants were excluded based on elevated scores on the PPI-R Inconsistent Responding scale (see Lilienfeld & Widows, 2005). The final sample (n = 313) was used in univariate analyses, but only complete cases (n = 287) were included in multivariate analyses.[1] Twenty-two participants had missing data across measures of interest, and five (1.6%) did not report their gender. Participants who reported their gender (n = 308) included 183 females (59.4%) and 125 males (40.6%). The final sample's age ranged from 18 to 26 (M = 19.03, SD = 1.40), and participants self-identified as 80.2% White, 10.9% African-American, 2.2% Asian, 1.0% American Indian, and 0.3% Native Hawaiian; 17 individuals did not report his/her race. Thirty-eight (12.1%) participants reported Hispanic or Latino/a ethnicity.

MEASURES

Psychopathic Personality Inventory–Revised (PPI-R). Psychopathic traits were operationalized using the PPI-R (Lilienfeld & Widows, 2005), which contains 154 items rated on a 4-point Likert-type scale. Importantly, the PPI-R includes validity scales

1. Participants excluded based on missing data did not significantly differ from complete cases based on: age, $t(307) = 0.70$, $p = .492$; ethnicity, $\chi^2(3, n = 301) = 4.95$, $p = .176$; Fearless Dominance, $t(288) = -0.08$, $p = .936$; Self-Centered Impulsivity, $t(287) = -0.54$, $p = .590$; Coldheartedness, $t(288) = -0.27$, $p = .789$; Femininity, $t(310) = 1.50$, $p = .132$, $d = .31$; Physical Aggression, $t(307) = .799$, $p = .425$, $d = .15$; or Relational Aggression, $t(307) = -.192$, $p = .848$, $d = .05$. Those excluded had a larger proportion of females, $\chi^2(1, n = 308) = 7.82$, $p = .005$) and higher mean levels of Masculinity, $t(311) = 2.97$, $p = .013$, $d = .56$.

to assess inconsistent and socially desirable responding (see Lilienfeld & Widows, 2005), which have demonstrable utility for detecting invalid responding (Anderson, Sellbom, Wygant, & Edens, 2013). Factor analyses of this measure in nonclinical samples have typically organized the measure's eight lower order subscales into higher-order factors of Fearless Dominance (α = .90), comprising low fear reactivity, social agency, and stress immunity, and Self-Centered Impulsivity (α = .90), comprising impulsivity, self-centeredness, lack of planning, and blame externalization. Coldheartedness (α = .80), which assesses deficits in guilt, empathy, and social attachments, does not load highly onto Fearless Dominance or Self-Centered Impulsivity and is often treated as a standalone dimension reflecting social affective deficits (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; but see Neumann, Malterer, & Newman, 2008, for an alternative factor structure).

The PPI-R has generally demonstrated good covergence with other self-report psychopathy measures in nonforensic (Uzieblo, Verschuere, Van den Bussche, & Crombez, 2010) and offender samples (Poythress et al., 2010). In a construct validity examination across psychopathy measures (Poythress et al., 2010), Self-Centered Impulsivity more strongly converged with impulsive-antisocial traits of the clinician-administered Psychopathy Checklist-Revised (Hare, 1991), which is likely the most extensively construct validated psychopathy measure for forensic settings. Further, this PPI-R dimension was highly correlated with both interpersonal-affective and impulsive-antisocial traits of the LSRP (Levenson et al., 1995), which, like the PPI-R, is a well-validated self-report measure in nonforensic samples.

Bem Sex Role Inventory—Short Form (BSRI-SF). The BSRI-SF (Bem, 1981) is a 20-item self-report measure that assesses peoples' self-perceptions of their adherence to traditional or stereotypical masculine and feminine characteristics in American society. The BRSI-SF yields two subscales: Masculinity (10 items; α = .83) and Femininity (10 items; α = .90). Psychometric examinations (see Choi & Fuqua, 2003, for a review) indicate that the Masculinity subscale encompasses characteristics of self-sufficiency, instrumentality, and assertiveness (e.g., Independent, Competitive), whereas the Femininity scale encompasses characteristics of sen-

sitivity, expressiveness, and personal warmth (e.g., Sensitive to the needs of others, Understanding). Participants rate each item on a scale from 1 (Never or almost never true) to 7 (Always or almost always true). Although the original measure has not consistently yielded a two-factor structure (Choi & Fuqua, 2003), the BSRI-SF demonstrates improved psychometric properties by comparison (Choi, Fuqua, & Newman, 2009).

Self-Report of Aggression and Social Behavior Measure (SRASB). The SRASB (Morales & Crick, 1998) is a 56-item self-report measure. Items are rated on a 7-point scale from 1 (not true at all) to 7 (very true). Two of the SRASB scales were used for this study: physical aggression (6 items; $\alpha = .87$) and relational aggression (11 items; $\alpha = .85$). Although both scales can be parsed into aggression functions (i.e., proactive, reactive), these were combined in this study due to the primary focus on aggression forms.

RESULTS

DESCRIPTIVE STATISTICS AND GENDER DIFFERENCES

Table 1 presents descriptive statistics and zero-order correlations for study variables. As zero-order and semi-partial effects did not differ when age was included as a covariate (see Appendix A), results without controlling for age are presented. Independent *t*-tests indicated that, as expected, males exhibited significantly higher mean levels of psychopathic traits. Consistent with commonly accepted interpretive benchmarks (Cohen, 1988), these mean-level gender differences in psychopathic traits were medium-sized (*d*s ranged from 0.47 to 0.66), with the exception of Self-Centered Impulsivity, which was small in magnitude ($d = 0.29$). Males reported significantly higher levels of total and physical aggression (small to medium effects: *d*s were 0.24 and 0.40, respectively), whereas there were no significant mean-level differences in relational aggression. In contrast, females reported significantly higher levels of femininity (medium effect: $d = -0.55$), the difference for which was medium in magnitude, and there were no significant differences in Masculinity ($d = 0.13$).

TABLE 1. Descriptive Statistics and Zero-Order Relations for Study Variables

	Total	Males	Females	*d*	Zero-Order Correlations								
	***N*s 289-309**	***N*s 122-125**	***N*s 166-183**		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. PPI-R Total	288.86 (33.00)	299.84 (31.31)	281.07 (31.93)	**.59**	-								
2. Fearless Dominance	117.85 (17.73)	122.52 (17.06)	114.36 (17.52)	**.47**	**.67**	-							
3. Self-Centered Impulsivity	138.86 (22.09)	142.63 (22.35)	136.38 (21.30)	*.29*	.81	*15*	-						
4. Coldheartedness	32.15 (6.78)	34.61 (6.87)	30.33 (6.15)	**.66**	.48	*.17*	.27	-					
5. Masculinity	49.18 (10.16)	48.35 (10.13)	49.72 (10.26)	.13	.40	**.48**	.20	.05	-				
6. Femininity	50.04 (11.31)	46.46 (11.27)	52.43 (10.73)	**.55**	–.28	.01	–.28	–.52	.08	-			
7. Total Aggression	29.50 (10.08)	30.94 (10.01)	28.58 (10.07)	*.24*	.36	.01	.44	.30	***.17***	**–.35**	-		
8. Physical Aggression	9.07 (4.42)	10.06 (5.00)	8.32 (3.73)	**.40**	.39	*.17*	.36	.26	**.28**	**–.24**	**.78**	-	
9. Relational Aggression	20.64 (7.84)	21.11 (7.15)	20.45 (8.08)	.09	.28	-.08	.41	.25	.09	**–.32**	**.94**	**.55**	-

Notes. Significant zero-order effects are italicized at $p < .05$ and bolded at $p < .001$.

PSYCHOPATHIC TRAITS' RELATIONS WITH AGGRESSION FORMS

Zero-Order Relations. According to commonly accepted interpretive benchmarks, correlation coefficients (*r*) of 0.10 represent a small effect, 0.30 a medium effect, and 0.50 a large effect (Cohen, 1988). In zero-order relations (point biserial for categorical variables; Pearson product moment for continuous), Self-Centered Impulsivity and Coldheartedness displayed small-to-medium positive relations with aggression forms, whereas Fearless Dominance displayed a small positive relation with physical aggression (*r*s ranged from 0.17 to 0.41). The PPI-R dimensions differentially related to gender roles: Fearless Dominance and Self-Centered Impulsivity positively related to Masculinity (*r*s = 0.48 and 0.20, respectively), whereas Self-Centered Impulsivity and Coldheartedness negatively related to Femininity (*r*s = −0.28 and −0.52, respectively). Notably, Masculinity displayed a medium positive relation with physical ($r = 0.28$) but was unrelated to relational aggression ($r = 0.09$), whereas Femininity displayed medium negative relations with both (physical: $r = -0.24$; relational: $r = -0.32$).

Multivariate Relations. We next conducted two sets of hierarchical within-measure regressions. Regressions included the following steps: Mean-centered PPI-R factors were entered simultaneously to obtain semi-partial relations with aggression forms while covarying for their shared variance in Step 1, either gender or gender role adherence was entered in Step 2, and the corresponding variable from Step 2 (either gender or gender role adherence) was entered in Step 3 (see Tables 2 and 3). As such, the two hierarchical regressions facilitated examining the incremental predictive validity of gender and gender role adherence above and beyond each other. For regression analyses, f square (f^2) was calculated as a measure of effect size with commonly accepted interpretive benchmarks of 0.02 representing a small effect, 0.15 a medium effect, and 0.35 a large effect (Cohen, 1988). Semi-partial relations indicated that Self-Centered Impulsivity and Coldheartedness remained positively associated with aggression forms, whereas Fearless Dominance evinced a negative relation with relational aggression after covarying for Self-Cen-

TABLE 2. Incremental Validity of Gender and Gender Roles over Psychopathy Dimensions in Predicting Physical Aggression

Physical Aggression											
Gender Roles over Gender						Gender over Gender Roles					
	R^2	ΔR^2	β	f^2	95% CI		R^2	ΔR^2	β	f^2	95% CI
Step 1	.17	-		.20	.10, .32	Step 1	.17	-		.20	.10, .32
FD			.09			FD			.09		
SCI			.30***			SCI			.30***		
CH			.16**			CH			.16**		
Step 2	.17	.01		.21	.11, .34	Step 2	.23	.06***		.29	.12, .36
FD			.08			FD			−.02		
SCI			.30***			SCI			.24***		
CH			.13*			CH			.11		
Gender			.10			Masculinity			.27***		
-						Femininity			−.15*		
Step 3	.24	.08***		.32	.19, .49	Step 3	.24	.01*		.32	.19, .49
FD			−.05			FD			−.05		
SCI			.23***			SCI			.23***		
CH			.08			CH			.08		
Gender			.13*			Masculinity			.29***		
Masculinity			.29***			Femininity			−.13*		
Femininity			−.13*			Gender			.13*		

Notes. Each regression model was significant at $p < .001$. Gender was coded as 0 Female, 1 Male.
*$p < .05$; **$p < .01$; *** $p < .001$.

tered Impulsivity and Coldheartedness. Further, psychopathic traits together yielded a medium-sized effect on aggression forms (physical: $f^2 = 0.20$, relational: $f^2 = 0.26$).

When entered in Step 2, gender did not contribute significantly to statistically predicting physical (β = 0.10) or relational aggression (β = −0.04) above and beyond psychopathy subdimensions. All psychopathic traits remained significant predictors of aggression forms in Step 2. Once Masculinity and Femininity were added in Step 3, Masculinity (physical: β = −0.29; relational: β = 0.16) and Femininity (physical: β = −0.13; relational: β = 0.22) contributed significantly to predict aggression forms. Gender remained a non-significant predictor and Coldheartedness was no longer a significant predictor of physical (dropping from β = 0.13 to β = 0.08) or relational aggression (dropping from β = 0.18 to β = 0.09). Alternatively, Fearless Dominance (physical: dropping

TABLE 3. Incremental Validity of Gender and Gender Roles over Psychopathy Dimensions in Predicting Relational Aggression

Relational Aggression											
Gender Roles over Gender						Gender over Gender Roles					
	R^2	ΔR^2	β	f^2	95% CI		R^2	ΔR^2	β	f^2	95% CI
Step 1	.21	-		.26	.14, .41	Step 1	.21	-		.26	.14, .41
FD			−.17**			FD			−.17**		
SCI			.38***			SCI			.38***		
CH			.18**			CH			.18**		
Step 2	.21	.00		.26	.14, .41	Step 2	.26			.35	.21, .53
FD			−.16**			FD			−.22***		
SCI			.38***			SCI			.32***		
CH			.19**			CH			.08		
Gender			−.04			Masculinity			.17**		
-						Femininity			−.22**		
Step 3	.26	.05***		.35	.21, .53	Step 3	.26			.35	.21, .53
FD			−.21**			FD			−.21**		
SCI			.32***			SCI			.32***		
CH			.09			CH			.09		
Gender			−.04			Masculinity			.16**		
Masculinity			.16**			Femininity			−.22***		
Femininity			−.22***			Gender			−.04		

Notes. Each regression model was significant at $p < .001$. Gender was coded as 0 Female, 1 Male.
*$p < .05$; **$p < .01$; ***$p < .001$

from β=0.08 to β=-0.05; relational: dropping from β = 0.30 to β = 0.23) and Self-Centered Impulsivity (physical: rising from β = −0.16 to β = −0.21; relational: dropping from β = 0.38 to β = 0.32) largely maintained predictive validity of aggression forms.

When entered in Step 2, gender role adherence contributed significantly in predicting aggression forms above and beyond psychopathic traits. Masculinity and Femininity evinced positive (physical: β = 0.27; relational: β = 0.17) and negative (physical: β = −0.15; relational: β = −0.22) relations with aggression forms, respectively. After entering gender role adherence in Step 2, Coldheartedness became non-significant as a predictor for physical (from β = 0.16 to β = 0.11) and relational aggression (from β = 0.18 to β = 0.08), whereas the other psychopathy domains maintained their predictive validity from Step 1. When entered in Step 3, gender evinced a positive relation with physical aggression (β

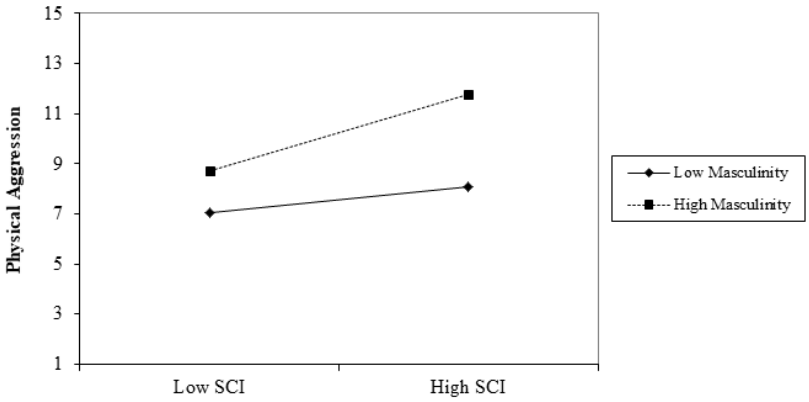

FIGURE 1. Moderating effect of masculinity on the relation of PPI-R Self-Centered Impulsivity and Physical Aggression.
Notes. High and low values correspond to +/− 1.0 standard deviation from the mean, respectively.

= 0.13) such that male gender was associated with a 1.13 value increase on the SRASBM scale, above and beyond psychopathy and gender role. Nevertheless, this incremental predictive validity of gender was not present for relational aggression (β = −.04). Taken together, the predictors yielded a medium-to-large effect (f^2 = 0.32) on physical and a large effect (f^2 = 0.35) on relational aggression.

INTERACTIONS OF PSYCHOPATHIC TRAITS WITH GENDER AND GENDER ROLE ADHERENCE

To examine gender and gender role differences in the magnitude of psychopathy's relations with aggression forms, we conducted moderation analyses using the PROCESS macro in SPSS 24.0 (Hayes, 2013), which enters the multiplicative (interaction) term between psychopathy subdimension and gender or gender role following main effects; confidence intervals were generated using 5,000 bootstrapped samples. Following significant interactive effects, analyses of simple slopes were examined, using standard cutpoints of +/− one standard deviation. *F* square (f^2) was used as a measure of effect size (Cohen, 1988).

Interactions with Gender. One of six (16.7%) psychopathy*gender models were significant. Specifically, gender moderated the relationship between Self-Centered Impulsivity and relational aggression ($b = -0.04$; SE =0.02; $p = .035$, $f^2 = 0.01$), with significantly greater effects for females ($b = 0.18$; $SE = 0.03$; $p < .001$, 95% CI = 0.13, 0.23) compared with males ($b = 0.10$; $SE = 0.03$; $p = .001$, 95% CI = 0.04, 0.15). This finding was partially consistent with expectations, but must be viewed with caution given the risk of experiment-wise error.

Interactions with Gender Role. Contrary to expectations, gender role did not moderate most combinations of the relations between psychopathic traits and aggression forms after controlling for gender. One of twelve (8.3%) psychopathy*gender roles models were significant. All psychopathic traits were tested as in relation to physical and relational aggression. Masculinity displayed a small potentiating effect on the relation between Self-Centered Impulsivity and physical aggression (see Figure 1; $b = 0.00$; $SE = 0.00$, $p = .008$, $f^2 = 0.02$) such that effects increased from low ($b = 0.03$, $SE = 0.01$, $p = .039$) to medium ($b = 0.06$, $SE = 0.01$, $p < .001$) to high levels of Masculinity ($b = 0.08$, $SE = 0.01$, $p < .001$). This finding was partially consistent with expectations, but must be viewed with caution given the risk of experiment-wise error.

DISCUSSION

We aimed to contribute to the discourse on gender differences in the relations between psychopathic traits and aggression by considering the dual roles of gender and gender role adherence. First, we aimed to clarify prior mixed research on gender differences in the relations of psychopathic traits and aggression forms. Second, we sought to ascertain the contributions of gender and gender role to statistically predicting aggression forms above and beyond psychopathic traits and each other, as well as their interactive effects with psychopathy. Additionally, this study adds to the understanding of masculine and feminine gender roles within the nomological net of psychopathy.

Largely consistent with predictions, Self-Centered Impulsivity and Coldheartedness dimensions exhibited positive relations with both aggression forms. Much of the existing literature (e.g., Czar et al., 2011; Schmeelk et al., 2008) has focused on Self-Centered Impulsivity or impulsive-antisocial traits—those associated with poor impulse control and hostility—and their relations with aggression forms, but our findings suggest that Coldheartedness or affective traits—those associated with callousness and guiltlessness—are also relevant predictors of aggression.

Contrary to our hypothesis, Fearless Dominance was not significantly related to physical aggression, and even evinced a negative relation with relational aggression. The former finding runs contrary to those of prior studies using the same measure of psychopathy that found positive relations, particularly to physical aggression (Hecht et al., 2016; Schmeelk et al., 2008), although others similarly found no significant relations of this dimension to aggression (e.g., Ostrov & Houston, 2008). Although Fearless Dominance purportedly encompasses largely adaptive functioning (Miller & Lynam, 2012), recent literature has suggested a positive relation with aggression, both as a stand-alone dimension (Long, Felton, Lilienfeld, & Lejuez, 2014) and perhaps in interaction with Self-Centered Impulsivity (Smith, Edens, & McDermott, 2013). Therefore, further research is necessary to clarify the conditions under which Fearless Dominance relates to aggression.

Taken together, our findings indicate that psychopathy subdimensions diverge in their relations with aggression forms. Moreover, the affective traits of psychopathy, which have received relatively little attention in the literature relative to the impulsive-antisocial lifestyle traits, also demonstrate meaningful relations with aggression. Broadly, our findings support parsing psychopathy into its constituent subdimensions as opposed to construing the construct as a global indicator, thereby supporting conceptualizations of psychopathy as multidimensional (e.g., Lilienfeld, 2013).

CONSIDERING THE ROLES OF GENDER AND GENDER ROLES

Mean-level gender differences across psychopathic traits and aggression forms were consistent with both our hypotheses and the literature (Colins et al., 2017; Czar et al., 2011), with higher reported levels of psychopathic traits and physical, but not relational, aggression among males. Contrary to hypotheses and despite mean-level gender differences, relations between psychopathic traits and aggression forms generally manifested equivalently in males and females (i.e., there were no significant gender moderation effects) with one exception: the relations between Self-Centered Impulsivity and relational aggression were significantly more pronounced among females than males (see also Hecht et al., 2016). Nonetheless, previous investigations of whether gender moderates psychopathy's relations with aggression-related variables have yielded decidedly mixed findings (e.g., Czar et al., 2011; Hecht et al., 2016; Schmeelk et al., 2008), with varying effects potentially stemming from the type of aggression form or function measured, psychopathy measure used, sample type, or sample size. The inconclusive findings encourage consideration of potential influences on the reported gender differences, such as gender role adherence.

Consistent with prior research on gender role adherence among undergraduates, females reported significantly higher levels of Femininity compared with males, but there were no mean-level gender differences in Masculinity (e.g., Conway, 2000). In the exploratory moderation analyses, gender role adherence generally did not moderate the relations between psychopathic traits and aggression forms, with one exception. Beyond gender, the relation between Self-Centered Impulsivity and physical aggression was most pronounced at high levels of Masculinity, broadly consistent with research pointing to Masculinity as a predictor of aggression among females (e.g., Kogut et al., 1992) and postulating the importance of "hyper-masculinity" to psychopathy (Reidy, Shirk et al., 2009). Contrary to prior research on externalizing behaviors (Castro et al., 2011; Reidy, Sloan et al., 2009), Femininity did not moderate the relations between any psychopathic traits

and aggression, suggesting that Femininity does not operate as a protective factor. Although some authors have speculated that feminine traits bear theoretical and empirical relevance to aggression (e.g., Reidy, Sloan et al., 2009), our findings indicate that psychopathic traits' relations with aggression forms may not vary as a function of feminine traits.

In sum, the exploratory interactions between psychopathic traits and gender roles appeared to function similarly to those of gender. Although the interpersonal-affective traits evince relations to gender roles (e.g., Fearless Dominance and heightened Masculinity), their relations with aggression appear largely consistent across differing levels of gender role adherence. In contrast, the magnitude of Self-Centered Impulsivity's relation to aggression appears more associated with gender and gender role adherence.

CONSIDERING THE INCREMENTAL PREDICTIVE VALIDITY OF GENDER AND GENDER ROLE ADHERENCE

To our knowledge, no study has examined gender role adherence while concurrently examining psychopathy, gender, and aggression. This consideration facilitates a two-fold examination of (a) how gender and gender role adherence contribute above and beyond psychopathic traits and (b) how psychopathic traits function as predictors when accounting for gender-related variables, which speaks to conceptual overlap or redundancy. First, each gender role contributed uniquely to statistically predicting aggression forms, with Masculinity evincing positive relations and Femininity evincing negative relations, above and beyond psychopathic traits or gender. In isolation, gender was unexpectedly a nonsignificant predictor of aggression forms, but the findings echo prior research positing the importance of gender role in statistically-predicting externalizing behavior above and beyond gender (e.g., Hammock & Richardson, 1992).

Although psychopathic traits largely maintained significant relations with aggression after accounting for gender-related

variables, Coldheartedness decreased in magnitude to the point of non-significance after accounting for gender role adherence (but not gender). Conceptually, this finding potentially reflects trait overlap. Coldheartedness traits (e.g., callousness, low emotionality) inherently feature a lack of traditionally feminine traits as assessed by the BSRI (e.g., compassionate, sensitive to other's needs). Overall, affective traits, including callousness and a lack of empathy, have recently been indicated as psychopathy's most central feature (Verschuere et al., 2018). A major theoretical component of femininity, affective empathy was demonstrated to statistically account for the relation between callousness traits and relational aggression (White, Gordon, & Guerra, 2015), similar to the incremental predictive validity observed in the present study.

The broader literature has focused on a host of affective features and correlates to account for the psychopathy-aggression link (e.g., Kimonis, Frick, Fazekas, & Loney, 2006; Long et al., 2014). Moreover, some affective variables purportedly differ across gender. For example, females typically exhibit lower levels of affective deficits of psychopathy compared with other psychopathy-related traits (Forouzan & Cooke, 2005). Additionally, low emotion regulation, a correlate of impulsive-antisocial traits (Miller et al., 2010) and aggression (Vidal, Skeem, & Camp, 2010), appears particularly pronounced among psychopathic females (Kreis & Cooke, 2011). Considering prior findings, this study may provide a context for further understanding of the well-documented gender differences in psychopathy, particularly regarding affective traits. Alternatively, relations of impulsive-antisocial traits to aggression appear less associated with femininity, which maps in part onto the construct of affective empathy, and may be more readily influenced by other traits relevant to affect-related psychopathology (e.g., emotion regulation; Long et al., 2014).

LIMITATIONS AND FUTURE DIRECTIONS

Certain limitations of the present study should be acknowledged. First, all measures were self-reported, potentially inflating the magnitudes of associations arising from method covariance. Second, the data collection was cross-sectional, prohibiting any conclusions regarding temporal stability, let alone causality. Third, assessment of psychopathic traits relied on a single measure and the relations of normative personality traits (e.g., neuroticism, antagonism) were not examined, precluding more conclusive findings regarding the specificity of psychopathic traits' relations to aggression forms. Fourth, due to a reliance on an undergraduate sample, our findings may not generalize to other populations in which gender roles may bear different correlates. For instance, in the entrenched masculine culture of prison populations (Jewkes, 2005), gender roles may more prominently relate to and perhaps impact the behavioral expression of psychopathic traits, including Fearless Dominance.

Finally, the BSRI's construct validity has been criticized on the basis that its subscales measure instrumental or agentic traits and expressiveness or nurturance traits rather than Masculinity or Femininity, respectively (Spence, 1993). Furthermore, the BSRI tends to conceptualize gender role as a dispositional trait (Moradi & Parent, 2013), perhaps essentializing gender role as a more stable construct than is warranted. One possibility is that the BSRI scales function as proxies for diverse personality dispositions that are broadly reflective of traditional gender differences.

Moreover, similarity of content across some measures (particularly BSRI Femininity and PPI-R Coldheartedness scales) may contribute to inflated relations. Indeed, the problem of partially tautological (circular) content overlap between indices has been described as a challenge to the construct validation of the BSRI and many other self-report measures (Nicholls, Licht, & Pearl,

1982). For example, consider the finding that PPI-R Coldheartedness was highly negatively correlated with BSRI Femininity (Table 1). One could legitimately contend that this correlation is at least partly tautological given that both measures contain numerous items assessing emotional empathy, nurturance, warmth, and the like. Although one might suggest reconducting the correlational analyses after removing the overlapping items from the PPI-R Coldheartedness scale, such an approach would be misguided in that low emotional empathy, nurturance, worth, and so on, are intrinsic components of the coldheartedness construct (see Nicholls et al., 1982, for a discussion). That is, removing the overlapping item content would also fundamentally change the construct. This limitation could be at least partly addressed in future work by conceptually replicating our findings using alternative measures of coldheartedness, such as laboratory measures of emotional empathy or informant reports of social warmth and attachment.

Taken together, these findings underscore the importance of considering gender role adherence in addition to gender within the context of psychopathy and aggression. Although psychopathic traits have largely manifested equivalently across gender with regard to external criteria (e.g., Miller et al., 2011; Oshukova et al., 2016), sex differences in the manifestation of psychopathy with respect to aggression have remained unclear (e.g., Colins et al., 2017; Czar et al., 2011). We expanded on past research relating gender role adherence to psychopathy (Hamburger, Lilienfeld, & Hogben, 1996) and aggression (e.g., Reidy, Sloan et al., 2009), finding support for its complex influence with differential relations across traits and types of aggression. For instance, Masculinity appears to be a correlate and a potential risk factor for physical aggression in combination with impulsive-antisocial traits, whereas Femininity may be negatively related to aggression in isolation, but may not buffer the well-established association between psychopathy and aggression. Although this study was limited to an examination of aggression forms, gender role adherence, a previously unexplored variable in this literature, may play an unappreciated role in the nomological network of psychopathic traits.

APPENDIX A

CORRELATIONAL ANALYSES COVARYING FOR AGE

Table A1. presents zero-order correlations for study variables with age as a covariate. Within-measure regressions were also calculated, with higher-order PPI-R factors entered simultaneously to obtain semi-partial, direct effects on aggression forms while controlling for shared variance among factors and age (see Table A2).

TABLE A1. Zero-Order Relations for Study Variables and Semi-Partial Effects of Psychopathic Traits on Aggression Forms by Sex Covarying for Age

	Zero-Order Effects								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. PPI-R Total	-								
2. Fearless Dominance	**.67**	-							
3. Self-Centered Impulsivity	**.81**	*.15*	-						
4. Coldheartedness	**.47**	*.17*	**.27**	-					
5. Masculinity	**.41**	**.49**	**.20**	**.05**	-				
6. Femininity	**–.27**	.03	**–.27**	**–.51**	.09	-			
7. Total Aggression	**.36**	.01	**.44**	**.39**	*.20*	**–.37**	-		
8. Physical Aggression	**.38**	*.16*	**.36**	**.25**	**.30**	**–.25**	**.78**	-	
9. Relational Aggression	**.28**	–.08	**.41**	**.25**	.12	**–.34**	**.94**	**.54**	-

Notes. Significant effects are *italicized* at $p < .05$ and **bolded** at $p < .001$.

TABLE A2. Semi-Partial Effects of Psychopathic Traits on Aggression Forms by Sex Covarying for Age

	Physical Aggression					Relational Aggression				
	R^2	*B(SE)*	*95% CI B*	β	*p*	R^2	*B(SE)*	*95% CI B*	β	*p*
Total Sample (*N* = 287)	.17					.22				
Age		−.02 (.18)	−.37, .33	−.01	.911		.20 (.31)	−.40, .81	.03	.521
Fearless Dominance		.02 (.01)	−.00, .05	.09	.094		−.07 (.02)	−.12, −.03	−.17	.002
Self-Centered Impulsivity		.06 (.01)	.04, .08	.31	< .001		.13 (.02)	.10, .17	.39	< .001
Coldheartedness		.10 (.04)	.03, .17	.16	.006		.20 (.06)	.08, .32	.17	.002
Females (*n* = 164)	.16					.27				
Age		−.17 (.27)	−.70, .36	−.05	.524		.13 (.55)	−.96, 1.22	.02	.810
Fearless Dominance		−.00 (.02)	−.03, .03	−.01	.874		−.08 (.03)	−.14, −.02	−.17	.015
Self-Centered Impulsivity		.07 (.01)	.04, .09	.39	< .001		.17 (.03)	.12, .23	.45	< .001
Coldheartedness		.03 (.05)	−.06, .13	.06	.455		.21 (.09)	.02, .39	.16	.028
Males (*n* = 122)	.15					.14				
Age		−.04 (.26)	−.54, .47	−.01	.888		.21 (.38)	−.54, .96	.05	.581
Fearless Dominance		.05 (.03)	−.00, .09	.16	.073		−.07 (.04)	−.14, .01	−.16	.069
Self-Centered Impulsivity		.06 (.02)	.02, .09	.26	.004		.09 (.03)	.04, .14	.28	.002
Coldheartedness		.12 (.06)	−.00, .24	.17	.057		.20 (.09)	.02, .38	.19	.036

Notes. Each regression model was significant at p < .001. One individual did not report sex; thus, the total sample size is greater than males and females combined.

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