



Gender moderates psychopathic traits' relations with self-reported childhood maltreatment



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ABSTRACT

Some cross-sectional research has revealed that childhood maltreatment is a robust statistical predictor of the behavioral, but not affective and interpersonal, features of psychopathy. Using a large sample of undergraduates ($N = 1169$), we sought to (a) expand upon previous research by examining the relations between childhood maltreatment and psychopathic traits, and (b) clarify the role of gender in these relations. Consistent with predictions, disinhibition and meanness were significantly positively associated with self-reported childhood maltreatment, whereas boldness was generally unrelated. Gender moderated the relations between psychopathy features and childhood maltreatment in two ways. The relations between boldness and childhood neglect were negative and small to moderate in males but near zero in females, while the relations between disinhibition and meanness and childhood maltreatment were stronger for males than females. We discuss the multiple conceivable interpretations of the main effects, call for genetically-informed research to better adjudicate between these possibilities, and raise the possibility that psychopathy's relations with childhood maltreatment depend on gender.

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Psychopathy (psychopathic personality) is a multidimensional personality construct that includes superficial charm, lack of empathy and guilt, and poor impulse control (e.g., Hare, 2003). The search continues for variables that may contribute to its development (Patrick, 2006). Some cross-sectional research has examined psychopathy's relations with child abuse and neglect (e.g., Bernstein et al., 1998; Graham et al., 2012; Kimonis et al., 2013; Schimmenti et al., 2015) and has revealed that childhood maltreatment is a robust statistical predictor of the behavioral, but not affective and interpersonal, features of psychopathy (e.g., Poythress et al., 2006). Other research has examined the role of gender in these relations with mixed results (e.g., Miller et al., 2011; MacMillan et al., 2001). In the present study, we sought to (a) expand upon previous research by examining the relations between childhood maltreatment and psychopathic traits (b) clarify the role of gender in these relations.

1. Psychopathy

There are a number of conceptualizations of psychopathy, but one prominent model (Patrick et al., 2009), termed the triarchic model, posits that psychopathy comprises three separable trait dimensions: Boldness, Meanness, and Disinhibition. Boldness intends to reflect a relative insensitivity to threat signals, and comprises interpersonal dominance, reduced stress reactivity, physical harm avoidance, and thrill seeking. Disinhibition is a predisposition toward deficits in impulse control marked by a lack of planfulness, foresight, and affect regulation. Finally, Meanness is marked by a lack of empathy and social attachment, guiltlessness, disdain toward others, and rebelliousness.

The triarchic dimensions ostensibly give rise to numerous phenotypic manifestations, in part because they bear differential correlates. For instance, although psychopathy is traditionally viewed as maladaptive, the boldness dimension encompasses several potentially adaptive features. Comprising social poise, self-confidence, and venturesomeness, bold individuals demonstrate a general lack of distress, even when faced with negative consequences, and are considered more emotionally stable and resilient than those low on this trait (Patrick et al., 2009). Whereas Boldness features are typically negatively associated with most forms of psychopathology, Disinhibition and Meanness features are positively

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¹ Data from the psychopathy scales were also used in a published manuscript (Latzman, Vaidya, et al., 2014), but as predictors of external criteria not examined in this manuscript.

associated with internalizing and externalizing psychopathology (e.g., Brislin et al., 2015).

2. Psychopathy and childhood maltreatment

In light of the differential correlates across psychopathy subdimensions, some researchers have begun to identify separable risk factors or potential etiological mechanisms that underlie each of the three subdimensions (e.g., Fowles & Dindo, 2006; Latzman et al., 2017). In addition to Karpman (1941) implicating the influence of upbringing in the development of secondary psychopathy, McCord and McCord (1964) viewed lack of parental affection (i.e., emotional neglect) as a key precipitant of psychopathic personality. Consistent with this theoretical perspective, some research implicates childhood abuse in the development of psychopathy (see Farrington et al., 2010, for a review of longitudinal and cross-sectional evidence), although the causal status of this relation requires clarification. Nevertheless, much of this research is cross-sectional, and thus the nature of the relationship between childhood maltreatment and psychopathy is subject to multiple interpretations (DiLalla & Gottesman, 1991; Jaffee, in press).

Childhood abuse is subsumed under the umbrella of childhood maltreatment, which refers to all forms of negligent and abusive treatment (i.e., emotional, physical, sexual) that results in actual or potential harm to a child's health or development (Edwards et al., 2003). Approaches to studying childhood maltreatment rely upon a variety of methods, ranging from file data to retrospective self-reports. The strengths and limitations of these methodological approaches notwithstanding, research suggests that childhood maltreatment is a robust predictor of psychopathic traits (e.g., Bernstein et al., 1998; Lang et al., 2002). For instance, Weiler and Widom (1996) observed that men who experienced childhood maltreatment (i.e., were abused and/or neglected) had significantly higher psychopathy scores compared with those who did not (see also Schimmenti et al., 2015). Nevertheless, the extent to which these findings reflect a causal link between maltreatment and later psychopathy remains unclear.

Other research suggests that psychopathy subdimensions relate differentially to childhood maltreatment. For instance, Graham et al. (2012) found that disinhibition (i.e., antisocial) traits were significantly related to reporting various forms of childhood maltreatment, both neglect and abuse, among adult men convicted of sexual offenses, whereas other psychopathy features, such as the interpersonal and affective traits, were related to reporting sexual abuse only (see also Poythress et al., 2006; Verona et al., 2005).

3. Gender differences in psychopathy

Until relatively recently, the majority of research on psychopathy relied upon exclusively or primarily male samples, and the extent to which there are meaningful differences in psychopathic traits across a function of gender was less understood (e.g., Cale & Lilienfeld, 2002). As such, a particular focus of the present study was to clarify the potential role of gender in the relations between psychopathy and childhood maltreatment. Traditionally, there have been two approaches to understanding gender differences in psychopathy. The first has been to examine mean-level differences in psychopathic traits across gender. Males consistently score higher on psychopathy measures (see Verona & Vitale, 2006, for a review) compared with females.

Nevertheless, mean-level differences in psychopathy do not bear on the extent to which psychopathic traits manifest equivalently² (i.e., are expressed differently) across gender. This question is addressed by comparing the relations (e.g., correlations) between psychopathy and

external criteria in males and females. Research support for the moderation of psychopathy's nomological network by gender has been decidedly mixed. For instance, in a systematic examination of 32 different correlates, such as general personality traits, externalizing behaviors, and retrospective reports of childhood maltreatment and parenting styles, Miller et al. (2011) found overwhelming support for psychopathy manifesting equally across gender (see also Sellbom et al., 2017; Verona & Vitale, 2006). Moreover, they found no support for gender differences in the correlates of self-reported maltreatment. Nevertheless, some research has found that the association between childhood maltreatment and psychopathy (Colins et al., 2016) and antisocial behaviour (MacMillan et al., 2001) was more pronounced among females compared with males.

4. Present study

Although informative, the existing literature is limited in several ways. First, most studies have focused on childhood abuse and not neglect (but see Graham et al., 2012; Kimonis et al., 2013, and Poythress et al., 2006). Some researchers (i.e., Kimonis et al., 2013) have posited that psychopathic traits' relations with childhood maltreatment types may differ as a function of maltreatment type such that these traits are more related to childhood abuse than neglect, or vice versa. Nevertheless, little research has examined psychopathic traits' relations with childhood neglect, and as such the extent to which psychopathy relates to reports of childhood neglect and to differing types of maltreatment is less clear. Second, this literature has tended to focus on all male (and typically predominantly Caucasian) samples of incarcerated adults or delinquent youth (e.g., Kimonis et al., 2013; Lang et al., 2002). The extent to which psychopathy relates to childhood maltreatment among more normative mixed-gender samples has received little attention (but see Miller et al., 2011); hence, whether these relations vary by gender warrants further consideration.

Using a large, racially-diverse sample of undergraduates, we examined (a) the relations between multiple types of self-reported childhood maltreatment (i.e., abuse and neglect) and psychopathic traits, and (b) gender differences in these relations, both mean-level and correlational. We hypothesized that disinhibition features would be positively associated with childhood maltreatment broadly construed (e.g., Kimonis et al., 2013; Schimmenti et al. 2015), but that boldness features would be unrelated or slightly negatively associated with these indices. Although meanness' relations with childhood maltreatment have not yet been explored, we hypothesized that these features would be as strongly positively associated with childhood maltreatment as disinhibition. We did not advance specific hypotheses regarding psychopathic traits' differential relations with maltreatment types. In addition, although we expected males to exhibit higher mean levels of psychopathic traits, we did not expect gender to moderate the relations between psychopathy and childhood maltreatment given that previous examinations have failed to yield robust and replicable gender moderation effects (Miller et al., 2011).

5. Method

5.1. Participants

Participants were 1169 undergraduates (73% female) enrolled at a large, public, urban university in Atlanta, Georgia. The participants were between the ages of 18 and 58 ($M_{\text{age}} = 20.71$, $SD = 4.65$) and were predominantly of black/African-American (37%), white/Caucasian (34%), or Asian/Asian-American (15%) descent. Participants completed an online survey via a secure website in partial fulfillment of a research requirement. On the basis of extreme responding on Psychopathic Personality Inventory-Revised validity scales (see Measures section), 9 protocols were identified as potentially problematic. As these cases did not affect the relations between psychopathy and childhood maltreatment,

² By "manifest equivalently," we mean that our moderation analyses examine differential expressions of an extant trait across levels of gender. Conceptually, differential expression reflects a conditional probability that indicates that the level of psychopathic traits given childhood maltreatment depends on another variable, in this case gender.

we retained the full dataset for all analyses. All procedures were approved by the university's Institutional Review Board.

5.2. Measures

5.2.1. Psychopathic Personality Inventory—Revised (PPI-R; Lilienfeld & Widows, 2005)

The PPI-R is a 154-item self-report measure designed to assess psychopathic personality traits; it yields a total score and eight subscale scores. Seven of the eight lower-order subscales often coalesce into two higher-order dimensions (but see Neumann et al., 2008), Fearless Dominance ($\alpha = 0.87$) and Self-centered Impulsivity ($\alpha = 0.92$). Coldheartedness ($\alpha = 0.83$), the eighth subscale, is sometimes used as a standalone indicator of psychopathy reflecting guiltlessness, lovelessness, and remorselessness. PPI-R Fearless Dominance maps onto the triarchic dimension of Boldness, and PPI-R Self-centered Impulsivity maps onto Disinhibition and Meanness (Sellbom & Phillips, 2013). PPI-R Coldheartedness is conceptually related to Meanness, although the former largely reflects passive emotional detachment, whereas latter largely reflects more active antagonism (Lilienfeld & Widows, 2005; Patrick et al., 2009).

5.2.2. Levenson Self-report Psychopathy Scale

(LSRP; Levenson et al., 1995). The LSRP is a 26-item self-report psychopathy measure that yields scores on two factors. Factor 1 ($\alpha = 0.87$) comprises interpersonal and affective psychopathy features reflecting selfish, uncaring, and manipulative postures toward others, whereas Factor 2 ($\alpha = 0.75$) comprises antisocial behaviors and an impulsive and self-defeating lifestyle. Nevertheless, for the purposes of this study, we adopted the more recent three-factor model, which features an antisociality dimension akin to Factor 2 ($\alpha = 0.62$) but parses the interpersonal from the affective Factor 1 features (i.e., Egocentricity, $\alpha = 0.90$ and Callousness; $\alpha = 0.76$), all of which were derived from factor analyses of the LSRP (e.g., Christian & Sellbom, 2016). Recent evidence suggests that this factor structure is more valid among females than males (Christian & Sellbom, 2016).

5.2.3. Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994)

The CTQ is a 28-item self-report measure designed to assess childhood maltreatment. It contains 5 subscales assessing emotional, sexual, and physical abuse as well as emotional and physical neglect, with 5 items per subscale (subscales α s ranged from 0.71 to 0.94).

5.3. Data analysis

In addition to examining the zero-order relations between psychopathy subdimensions and childhood maltreatment, we examined the proportionate contribution of each psychopathy subdimension relative to the other subdimensions in statistically predicting childhood maltreatment. We did so by conducting relative importance analyses (Tonidandel & LeBreton, 2014) which decompose the predicted variance in the outcome accounted for by each predictor, taking into account each predictor's direct effect and its combined effect with the other predictors. We conducted these analyses within as opposed to across measures given the high degree of overlap between constructs across measures (i.e., PPI-R SCI and LSRP Egocentricity). We present the rescaled raw weights that reflect the proportion of predicted variance accounted for by each predictor. Lastly, to explore gender differences in the relations between psychopathy features and childhood maltreatment, we conducted hierarchical (moderated) regression analyses in which the psychopathy-by-gender multiplicative term was entered after the mean-centered psychopathy and gender main effects using the PROCESS macro, with the partialled product term reflecting the

statistical interaction (Hayes, 2016).³ Bootstrapped confidence intervals (based on 5000 samples and heteroscedasticity-consistent standard errors) were considered significant if they did not contain zero.

6. Results

6.1. Relations between psychopathy and childhood maltreatment

Table 2 displays the relations between psychopathy subdimensions and childhood maltreatment types for the combined sample collapsed across gender, as well as for females and males separately. Psychopathy subdimensions statistically explained 14% of the variance in childhood maltreatment outcomes on average when entered as simultaneous predictors within measure, ranging from explaining 6% of the variance in sexual abuse to 25% in physical neglect.

PPI-R Fearless Dominance was typically unrelated to childhood maltreatment; the magnitudes of these relations were near zero (r s ranged from -0.07 to 0.06). In contrast, PPI-R Self-centered Impulsivity, PPI-R Coldheartedness, LSRP Antisociality, and LSRP Callousness generally manifested medium-sized positive relations with abuse/neglect (r s ranged from 0.21 to 0.44, and 0.07 to 0.39, respectively). Broadly, psychopathy features' relations with childhood maltreatment did not depend on type of maltreatment, with a few notable exceptions. The associations between PPI-R Coldheartedness and LSRP Callousness, on the one hand, and childhood maltreatment, on the other, differed by type of maltreatment such that effects were slightly (but not always significantly) more pronounced for physical neglect and less pronounced for emotional, physical, and sexual abuse. PPI-R Self-centered Impulsivity were most related to physical neglect and least related to sexual abuse.

Disinhibition and meanness features manifested similar relations with these outcomes; PPI-R Coldheartedness' relations were generally slightly lower in magnitude than those of the other scales. Relative importance analyses revealed that PPI-R Self-centered Impulsivity and LSRP Antisociality typically accounted for the majority of predicted variance in childhood maltreatment (accounting for between 50 and 94% of the predicted variance in the outcomes) when psychopathy subdimensions within-measure were entered as simultaneous predictors of childhood maltreatment. LSRP Egocentricity and Callousness also remained significant predictors of maltreatment after accounting for the other subdimensions (accounting for between 2 and 80% of the predicted variance), but the magnitudes of their predicted variances were generally significantly and appreciably smaller in magnitude than disinhibition features. Fearless dominance was not a significant predictor of abuse/neglect after accounting for disinhibition, coldness, and meanness.

6.2. Gender differences in psychopathy and childhood maltreatment

6.2.1. Differences in means and variances

As expected, males endorsed higher levels of these traits than did females (all t -tests for psychopathy subdimensions were significant at $p < 0.01$; Table 1). The magnitudes of these differences ranged from small (LSRP Antisociality, $d = -0.19$) to medium-large (PPI-R Coldheartedness, $d = -0.66$). Males reported higher and more varied levels of childhood maltreatment, with the exceptions of emotional and sexual abuse, than did females ($ps < 0.01$); the magnitudes of these differences

³ Although not the primary focus of the present study, we also examined race differences between Black and White participants in the associations between psychopathy and childhood maltreatment (see Supplemental Table 1). Only 4 of the 36 (11%) associations between psychopathy and childhood maltreatment were moderated by race, suggesting that the relations between psychopathy and childhood maltreatment were broadly equivalent across race. Of the significant effects, all indicated that the relations between psychopathy and childhood maltreatment were more pronounced among Black compared with White participants.

Table 1
Descriptive statistics for psychopathy and childhood maltreatment.

| | Total sample (N = 1169) | Females (N = 852) | Males (N = 317) | t-Test | Cohen's <i>d</i> | Levene's test | Intercorrelations | | | | | |
|------------------------|----------------------------|----------------------|--------------------|--------------|------------------|---------------|-------------------|-------------|------------------------|-------------|-------------|-------------|
| | M (SD) | M (SD) | M (SD) | | | | Psychopathy | | Childhood maltreatment | | | |
| Psychopathy | | | | | | | 1. | 2. | 3. | 4. | 5. | 6. |
| 1. PPI-R FD | 113.27 (16.43) | 111.53 (16.24) | 117.94 (16.05) | 6.02 | −0.40 | 0.40 | | 0.07 | 0.15 | 0.12 | −0.08 | 0.08 |
| 2. PPI-R SCI | 148.17 (24.22) | 146.10 (24.28) | 153.76 (23.17) | 4.86 | −0.32 | 2.17 | | | 0.30 | 0.59 | 0.67 | 0.38 |
| 3. PPI-R C | 33.56 (7.52) | 32.24 (6.98) | 37.12 (7.78) | 10.29 | −0.66 | 1.80 | | | | 0.39 | 0.16 | 0.54 |
| 4. LSRP Ego | 21.59 (6.72) | 20.93 (6.46) | 23.38 (7.08) | 5.64 | −0.36 | 3.67 | | | | | 0.56 | 0.30 |
| 5. LSRP Ant | 14.66 (3.64) | 14.47 (3.65) | 15.15 (3.55) | 2.78 | −0.19 | 0.18 | | | | | | 0.18 |
| 6. LSRP Cal | 9.96 (3.24) | 9.62 (3.13) | 10.85 (3.36) | 5.81 | −0.38 | 0.36 | | | | | | |
| Childhood maltreatment | | | | | | | 1. | 2. | 3. | 4. | 5. | 6. |
| 1. CTQ Total | 42.55 (16.97) | 41.27 (16.36) | 46.01 (18.09) | 4.08 | −0.27 | 15.22 | | 0.84 | 0.82 | 0.73 | 0.75 | 0.83 |
| 2. CTQ EA | 9.13 (4.55) | 9.02 (4.59) | 9.43 (4.44) | 1.36 | −0.09 | 0.06 | | | 0.70 | 0.51 | 0.54 | 0.57 |
| 3. CTQ PA | 8.16 (3.88) | 7.92 (3.78) | 8.83 (4.07) | 3.49 | −0.23 | 9.22 | | | | 0.59 | 0.40 | 0.61 |
| 4. CTQ SA | 7.30 (4.36) | 7.24 (4.42) | 7.45 (4.19) | 0.75 | −0.05 | 0.66 | | | | | 0.32 | 0.51 |
| 5. CTQ EN | 10.14 (4.92) | 9.76 (4.76) | 11.15 (5.21) | 4.15 | −0.28 | 6.18 | | | | | | 0.65 |
| 6. CTQ PN | 7.82 (3.72) | 7.32 (3.38) | 9.14 (4.23) | 6.84 | −0.48 | 54.33 | | | | | | |

Note. Bolded are significant at $p < 0.001$, italicized at $p < 0.05$.

PPI-R = Psychopathic Personality Inventory—Revised; FD = Fearless Dominance; SCI = Self-centered Impulsivity; C = Coldheartedness; LSRP = Levenson Self-report Psychopathy Scale; Ant = Antisociality; Cal = Callousness; Ego = Egocentricity; CTQ = Child Trauma Questionnaire; EA = Emotional Abuse; PA = Physical Abuse; SA = Sexual Abuse; EN = Emotional Neglect; PN = Physical Neglect.

were small (CTQ Physical Abuse, $d = -0.23$) to medium (CTQ Physical Neglect, $d = -0.48$).

6.2.2. Gender moderation

Contrary to expectations, there was ample evidence for gender differences in the relations between psychopathy subdimensions and childhood maltreatment. Of the 36 zero-order correlations between psychopathy and childhood maltreatment, 19 were moderated by gender (53%; denoted in Table 2). On average, the addition of the psychopathy-by-gender interaction term accounted for a small but significant amount (average $R^2 \Delta$: 0.54%) of the variance in abuse/neglect above and beyond the main effects ($R^2 \Delta$ s for all moderation analyses ranged from 0.00 to 1.68%).

Two major patterns of findings emerged. First, gender moderated the relations between PPI-R Fearless Dominance and CTQ Neglect outcomes (i.e., CTQ Emotional Neglect, Physical Neglect) such that effects were negative and small to medium in magnitude for males and near zero for females. PPI-R Fearless Dominance was essentially unrelated to emotional and physical neglect among females (r s were -0.06 and 0.07 , respectively) but slightly negatively related to these outcomes among males (r s were -0.18 and -0.09); in both genders, however, the relations between Fearless Dominance and childhood maltreatment were largely nonsignificant.

Second, gender consistently moderated the relations between PPI-R Self-centered Impulsivity LSRP Antisociality, LSRP Callousness, and LSRP Egocentricity and childhood maltreatment such that effects were more strongly positive among males compared with females. For instance, the relations between PPI-R SCI and CTQ sexual abuse were small among females ($r = 0.16$, $p < 0.001$) and moderately positive among males ($r = 0.42$, $p < 0.001$). Taken together, there was consistent support for gender differences in the relations between psychopathy and childhood maltreatment in the domains of disinhibition and meanness. There was some support for gender differences in Fearless Dominance, but these differences were exclusive to neglect.

7. Discussion

7.1. Brief summary of key findings

We replicated and extended findings regarding the relations between psychopathic traits and childhood maltreatment among a large, racially-diverse sample of undergraduates. Although most research in

this domain has focused on clinical or forensic male populations, our findings suggest that psychopathy and childhood maltreatment can be studied meaningfully outside of clinical and forensic settings. Consistent with predictions, disinhibition and meanness features were significantly positively associated with self-reported childhood maltreatment, whereas boldness features were generally unrelated. Relative to one another, disinhibition features were the best predictors of childhood maltreatment, but meanness features remained significant predictors after taking into account other psychopathy features. There were few selective relations between psychopathy features and types of childhood maltreatment, with some notable exceptions. Taken together, these findings corroborate literature implicating disinhibition features in reporting or experiencing childhood maltreatment (Kimonis et al., 2013; Poythress et al., 2006), and are potentially consistent with the assertion that psychopathy subdimensions are associated with, and perhaps partially caused by, differing environmental processes (e.g., Fowles & Dindo, 2006; Latzman et al., 2017; Patrick et al., 2009).

The relations between psychopathy features and childhood maltreatment types varied as a function of gender in two ways. First, the relations between boldness features and childhood neglect were negative and small to moderate in males but near zero in females. Second, the relations between disinhibition and meanness features and childhood maltreatment were stronger for males than females. Contrary to research that has largely failed to find differences in the manifestation of psychopathic traits (Miller et al., 2011; Sellbom et al., 2017), our findings suggest that psychopathy's relations with ostensible etiological variables may differ across males and females.

These findings raise the possibility that males with pronounced boldness features (i.e., immunity to stress, fearlessness) are less likely to report or experience childhood maltreatment compared with their female counterparts, perhaps because individuals high in these traits are more resilient and less likely to experience past aversive events as reflecting maltreatment. Moreover, males with pronounced disinhibition and meanness features are more likely to report or experience these outcomes. Our findings contrast with the scattered research suggesting that the ties between psychopathy and environmental variables, including childhood maltreatment, are stronger among females than males (Colins et al., 2016); instead, they point to the opposite pattern of effects, and are consistent with research suggesting that the ties between childhood maltreatment and subclinical psychopathology are stronger for males compared with females (Samplin et al., 2013). If our gender difference findings are replicable, they would call for the

Table 2
Relations between psychopathy and childhood maltreatment.

| CTQ scales | | Emotional Abuse | | | | | | Physical Abuse | | | | | | Sexual Abuse | | | | | | Emotional Neglect | | | | | | Physical Neglect | | | | | |
|-------------|-------------------------|-----------------|-------------|-------------|-------------|-----------|-------------|-------------------------|-------------|-------------|-------------|-------------------------|-------------------------|--------------|-------------|-------------|-------------------------|-------------|-------------|-------------------------|-------------------|-------------|-------------|-------------|---|------------------|--|--|--|--|--|
| | | r | RS-RW | F | M | RS-RW | F | M | r | RS-RW | F | M | RS-RW | F | M | r | RS-RW | F | M | RS-RW | F | M | r | RS-RW | F | M | | | | | |
| Psychopathy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PPI-R FD | −0.01 ^m | 1 | 0.00 | −0.11 | −0.05 | 4 | −0.05 | −0.10 | 0.06 | 1 | 0.05 | 0.02 | 0.00 | 0 | 0.02 | −0.07 | −0.07 ^m | 5 | −0.06 | −0.18 | 0.06 ^m | 1 | 0.07 | −0.09 | | | | | | | |
| PPI-R SCI | 0.43^m | 78 | 0.38 | 0.52 | 0.31 | 94 | 0.49 | 0.34^m | 87 | 0.29 | 0.44 | 0.23^m | 82 | 0.16 | 0.42 | 0.36 | 53 | 0.34 | 0.35 | 0.44^m | 62 | 0.41 | 0.45 | | | | | | | | |
| PPI-R C | 0.26 | 21 | 0.20 | 0.30 | 0.04 | 2 | 0.04 | 0.11 | 12 | 0.13 | 0.15 | 0.13 | 18 | 0.09 | 0.23 | 0.32 | 42 | 0.26 | 0.39 | 0.36 | 37 | 0.31 | 0.32 | | | | | | | | |
| LSRP Ego | 0.31^m | 23 | 0.24 | 0.40 | 0.17 | 27 | 0.43 | 0.21^m | 48 | 0.24 | 0.42 | 0.21^m | 45 | 0.13 | 0.41 | 0.16 | 6 | 0.15 | 0.13 | 0.31 | 24 | 0.29 | 0.28 | | | | | | | | |
| LSRP Ant | 0.35^m | 49 | 0.30 | 0.44 | 0.29 | 72 | 0.49 | 0.30^m | 46 | 0.26 | 0.39 | 0.21^m | 49 | 0.14 | 0.42 | 0.24 | 24 | 0.24 | 0.21 | 0.31 | 28 | 0.28 | 0.34 | | | | | | | | |
| LSRP Cal | 0.24^m | 28 | 0.18 | 0.33 | 0.05 | 1 | 0.02 | 0.09 | 0.13 | 6 | 0.11 | 0.12 | 0.09^m | 6 | 0.05 | 0.18 | 0.36^m | 70 | 0.27 | 0.52 | 0.35 | 48 | 0.29 | 0.38 | | | | | | | |

Note. Bolded zero-order correlations are significant at $p < 0.001$, italicized at $p < 0.05$. ^m indicates significant gender moderation. RSRW = Rescaled-raw weights from relative importance analyses that reflect the proportion of predicted variance contributed by each within-measure predictor. Statistically significant RSRWs are bolded. PPI-R = Psychopathic Personality Inventory-Revised; FD = Fearless Dominance; SCI = Self-centered Impulsivity; C = Coldheartedness; LSRP = Levenson Self-report Psychopathy Scale; Ant = Antisociality; Cal = Callousness; Ego = Egocentricity; CTQ = Child Trauma Questionnaire; EA = Emotional Abuse; PA = Physical Abuse; SA = Sexual Abuse; EN = Emotional Neglect; PN = Physical Neglect.

need to examine higher-order moderators to reconcile the potential sources of gender differences in psychopathic traits.

7.2. Limitations and future directions

Although we are among the first to extend psychopathy's relations with childhood maltreatment to a sizeable and diverse sample of undergraduates, our findings must be considered within the context of several limitations. First, our sample comprised a wide range of psychopathic traits and childhood maltreatment. Nevertheless, because our sample may not have been marked by especially pronounced levels of psychopathic traits or childhood maltreatment, we cannot rule out the possibility that the relations between psychopathic traits and childhood maltreatment could be more pronounced at extreme levels of both constructs. Second, we relied upon self-reported personality and childhood maltreatment, and the relations presented here may be inflated due to shared method variance. Furthermore, the nature of the relations between psychopathic traits and childhood maltreatment requires clarification. Perhaps the most straightforward interpretation of the present findings is that individuals with pronounced disinhibition or meanness features are more likely than other individuals to experience childhood maltreatment. The extent to which these cross-sectional associations are causal remains unclear, but the associations between disinhibition and meanness are broadly consistent with liability models that implicate early childhood experiences, including childhood maltreatment, in the development of psychopathic traits (Gao et al., 2010; Patrick et al., 2009).

Nevertheless, even if partly causal, the relations between psychopathy and childhood maltreatment may reflect passive and/or reactive genotype-environment correlation (Plomin et al., 1977) such that (a) childhood maltreatment is a downstream effect of parental genotype, such as a shared predisposition toward aggressiveness (Caspi et al., 2002; Lutzman et al., 2009) or (b) psychopathic children may elicit childhood maltreatment arising from challenges that parents face during their upbringing, respectively (DiLalla & Gottesman, 1991; Jaffee, in press). Lastly, retrospective self-reports of childhood maltreatment are potentially subject to rater bias and false negatives, with the former reflecting participants reporting greater maltreatment than they experienced and the latter reflecting underreporting (Hardt & Rutter, 2004).

As such, self-reports of childhood maltreatment may be partial proxies for negative emotionality, such that individuals with pronounced disinhibition or meanness may be more likely to feel neglected or abused by their parents despite not experiencing childhood maltreatment. Although most individuals with pronounced disinhibition or meanness are unlikely to fabricate their experiences, negative emotionality, which is associated with disinhibition and meanness (Benning et al., 2005), may exacerbate the extent to which individuals feel neglected or abused, perhaps partly reflecting (hostile attribution bias. As noted earlier, our findings cannot adjudicate among these possibilities, and we encourage further research that clarifies the role of childhood maltreatment in the development of psychopathic traits. Genetically informed research, such as studies of the psychopathological outcomes of identical twins discordant for early maltreatment histories, may provide more stringent tests of competing causal models. The nature of the relation between psychopathy and childhood maltreatment notwithstanding, our findings suggest that these relations may vary as a function of gender.

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References

Benning, S. D., Patrick, C. J., Blonigen, D. M., Hicks, B. M., & Iacono, W. G. (2005). Estimating facets of psychopathy from normal personality traits: A step toward community epidemiological investigations. *Assessment, 12*, 3–18.

- Bernstein, D. P., Fink, L., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., ... Ruggiero, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *The American Journal of Psychiatry*, *151*, 1132–1136.
- Bernstein, D. P., Stein, J. A., & Handelsman, L. (1998). Predicting personality pathology among adult patients with substance use disorders: Effects of childhood maltreatment. *Addictive Behaviors*, *23*, 855–868.
- Brislin, S. J., Drislane, L. E., Smith, S. T., Edens, J. F., & Patrick, C. J. (2015). Development and validation of triarchic psychopathy scales from the Multidimensional Personality Questionnaire. *Psychological Assessment*, *27*, 838–851.
- Cale, E., & Lilienfeld, S. (2002). Sex differences in psychopathy and antisocial personality disorder: A review and integration. *Clinical Psychology Review*, *22*, 1179–1207.
- Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Martin, J., Craig, I. W., ... Poulton, R. (2002). Role of genotype in the cycle of violence in maltreated children. *Science*, *297*, 851–854.
- Christian, E., & Sellbom, M. (2016). Development and validation of an expanded version of the three-factor Levenson Self-Report Psychopathy Scale. *Journal of Personality Assessment*, *98*, 155–168.
- Colins, O., Fanti, K., Salekin, R., & Andershed, H. (2016). Psychopathic personality in the general population: Prevalence, manifestation, and associated features across gender. *Journal of Personality Disorders*.
- DiLalla, L. F., & Gottesman, I. I. (1991). Biological and genetic contributors to violence: Widom's untold tale. *Psychological Bulletin*, *109*, 125–129.
- Edwards, V. J., Holden, G. W., Felitti, V. J., & Anda, R. F. (2003). Relationship between multiple forms of childhood maltreatment and adult mental health in community respondents: Results from the adverse childhood experiences study. *American Journal of Psychiatry*, *160*, 1453–1460.
- Farrington, D. P., Ullrich, S., & Salekin, R. T. (2010). Environmental influences on child and adolescent psychopathy. In R. T. Salekin, & D. R. Lynam (Eds.), *Handbook of child and adolescent psychopathy* (pp. 202–230). New York, NY: Guilford Press.
- Fowles, D. C., & Dindo, L. (2006). A dual-deficit model of psychopathy. In C. Patrick (Ed.), *Handbook of psychopathy* (pp. 14–34). New York: Guilford Press.
- Gao, Y., Raine, A., Chan, F., Venables, P. H., & Mednick, S. A. (2010). Early maternal and paternal bonding, childhood physical abuse and adult psychopathic personality. *Psychological Medicine*, *40*, 1007–1016.
- Graham, N., Kimonis, E. R., Wasserman, A. L., & Kline, S. M. (2012). Associations among childhood abuse and psychopathy facets in male sexual offenders. *Personality Disorders: Theory, Research, and Treatment*, *3*, 66–75.
- Hardt, J., & Rutter, M. (2004). Validity of adult retrospective reports of adverse childhood experiences: Review of the evidence. *Journal of Child Psychology and Psychiatry*, *45*, 260–273.
- Hare, R. D. (2003). *The Hare psychopathy checklist-revised (PCL-R)*. Toronto, Ontario: MultiHealth Systems.
- Hayes, A. F. (2016). PROCESS macro for SPSS and SAS (version 2.16) [Computer software].
- Jaffee, S. R. (2017). Child maltreatment and risk for psychopathology. In T. Beauchaine, & S. Hinshaw (Eds.), *Child and adolescent psychopathology* (3rd edition). Hoboken, NJ: Wiley (in press).
- Karpman, B. (1941). On the need for separating psychopathy into two distinct clinical types: Symptomatic and idiopathic. *Journal of Criminology and Psychopathology*, *3*, 112–137.
- Kimonis, E. R., Cross, B., Howard, A., & Donoghue, K. (2013). Maternal care, maltreatment and callous-unemotional traits among urban male juvenile offenders. *Journal of Youth and Adolescence*, *42*, 165–177.
- Lang, S., Af Klinteberg, B., & Alm, P. O. (2002). Adult psychopathy and violent behavior in males with early neglect and abuse. *Acta Psychiatrica Scandinavica*, *106*, 93–100.
- Latzman, R. D., Elkovitch, N., & Clark, L. A. (2009). Predicting parenting practices from maternal and adolescent sons' personality. *Journal of Research in Personality*, *43*, 847–855.
- Latzman, R. D., Vaidya, J. G., Malikina, M. V., Berg, J. M., & Lilienfeld, S. O. (2014). Exploring associations between psychopathic personality and components of Disinhibition vs. Constraint. *Journal of Psychopathology and Behavioral Assessment*, *36*, 497–509.
- Latzman, R. D., Patrick, C. J., Freeman, H. J., Schapiro, S. J., & Hopkins, W. D. (2017). Etiology of triarchic psychopathy dimensions in chimpanzees (*Pan troglodytes*). *Clinical Psychological Science*, *5*, 341–354.
- Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology*, *68*, 151–158.
- Lilienfeld, S. O., & Widows, M. R. (2005). *Psychopathic personality inventory — Revised*. Lutz, FL: Psychological Assessment Resources.
- MacMillan, H. L., Fleming, J. E., Streiner, D. L., Lin, E., Boyle, M. H., Jamieson, E., ... Beardslee, W. R. (2001). Childhood abuse and lifetime psychopathology in a community sample. *American Journal of Psychiatry*, *158*(11), 1878–1883.
- McCord, W., & McCord, J. (1964). *The psychopath: An essay on the criminal mind*. New York: Van Nostrand Reinhold.
- Miller, J. D., Watts, A., & Jones, S. E. (2011). Does psychopathy manifest divergent relations with components of its nomological network depending on gender? *Personality and Individual Differences*, *50*, 564–569.
- Neumann, C. S., Malterer, M. B., & Newman, J. P. (2008). Factor structure of the Psychopathic Personality Inventory (PPI): Findings from a large incarcerated sample. *Psychological Assessment*, *20*(2), 169–174.
- Patrick, C. J. (2006). *Handbook of psychopathy*. New York, New York: Guilford Press.
- Patrick, C. J., Fowles, D. C., & Krueger, R. F. (2009). Triarchic conceptualization of psychopathy: Developmental origins of disinhibition, boldness, and meanness. *Development and Psychopathology*, *21*, 913–938.
- Plomin, R., DeFries, J. C., & Loehlin, J. C. (1977). Genotype-environment interaction and correlation in the analysis of human behavior. *Psychological Bulletin*, *88*, 245–258.
- Poythress, N. G., Skeem, J. L., & Lilienfeld, S. O. (2006). Associations among early abuse, dissociation, and psychopathy in an offender sample. *Journal of Abnormal Psychology*, *115*, 288–297.
- Samplin, E., Ikuta, T., Malhotra, A. K., Szeszko, P. R., & DeRosse, P. (2013). Sex differences in resilience to childhood maltreatment: Effects of trauma history on hippocampal volume, general cognition and subclinical psychosis in healthy adults. *Journal of Psychiatric Research*, *47*, 1174–1179.
- Schimmenti, A., Di Carlo, G., Passanisi, A., & Caretti, V. (2015). Abuse in childhood and psychopathic traits in a sample of violent offenders. *Psychological Trauma: Theory, Research, Practice, and Policy*, *7*, 340–347.
- Sellbom, M., & Phillips, T. R. (2013). An examination of the triarchic conceptualization of psychopathy in incarcerated and nonincarcerated samples. *Journal of Abnormal Psychology*, *122*, 208–217.
- Sellbom, M., Donnelly, K. M., Rock, R. C., Phillips, T. R., & Ben-Porath, Y. S. (2017). Examining gender as moderating the association between psychopathy and substance abuse. *Psychology, Crime & Law*, *23*, 376–390.
- Tonidandel, S., & LeBreton, J. M. (2014). RWA-Web — A free, comprehensive, web-based, and user-friendly tool for relative weight analysis. *Journal of Business and Psychology*.
- Verona, E., Hicks, B. M., & Patrick, C. J. (2005). Psychopathy and suicidal behavior in female offenders: Mediating influences of temperament and abuse history. *Journal of Consulting and Clinical Psychology*, *73*, 1065–1073.
- Verona, E., & Vitale, J. (2006). Psychopathy in women: Assessment, manifestations, and etiology. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 415–436). New York, NY: Guilford Press.
- Weiler, B. L., & Widom, C. S. (1996). Psychopathy and violent behaviour in abused and neglected young adults. *Criminal Behaviour and Mental Health*, *6*, 253–271.