Fall 12-2018

Pathways of Psychopathic Traits to Aggression Through Affective Correlates

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PATHWAYS OF PSYCHOPATHIC TRAITS TO AGGRESSION THROUGH AFFECTIVE CORRELATES

by

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A Thesis
Submitted to the Graduate School,
the College of Education and Human Sciences
and the School of Psychology
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts

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December 2018

Published by the Graduate School

ABSTRACT

This thesis project examines the roles of empathy facets and emotion dysregulation in the relationship between psychopathic personality traits and aggression within an undergraduate sample. The project addresses three gaps in research – how psychopathic personality traits relate to empathy facets from a recently developed measure of empathy (Affective and Cognitive Measure of Empathy [ACME]; Vachon & Lynam, 2016); how psychopathic traits indirectly affect aggression functions (i.e., reactive, proactive) through empathy facets; and how emotion regulation contributes to these relations, above and beyond empathy. The sample was comprised of 368 university students. Findings indicated that largely all psychopathic traits were negatively related to empathy; however, the traits diverged in association to emotion dysregulation. Path modeling indicated that impulsive-antisocial psychopathic traits exerted positive indirect effects on proactive and reactive aggression through different affective correlates (i.e., empathy, emotion dysregulation, respectively). Similarly, interpersonal-affective traits had indirect effects through affective correlates, but with some differential implications for increased proactive aggression through empathy and decreased reactive aggression through level of emotion dysregulation. In all, this study contributes to further conceptualization of affective correlates of psychopathic traits and towards understanding the contributions of empathy and emotion regulation to aggression in psychopathy. This understanding may potentially inform efforts to reduce aggression among individuals with varying levels of psychopathic traits.

ACKNOWLEDGMENTS

I would like to express my greatest appreciation to my thesis committee chair and major professor, Dr. Joye Anestis, for her continued guidance, support, patience, and encouragement. This mentorship was integral to completing this study and thesis document. I also would like to thank my committee members, Dr. Nora Charles and Dr. Michael Anestis, for their guidance and support.

DEDICATION

I dedicate this work to all those who supported and encouraged me during my education, including my parents, brother, friends, and four-legged family members. I also want to extend my gratitude to my friends within the clinical psychology program at USM, who have been incredible sources of support and understanding during my time in graduate school.

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LIST OF ABBREVIATIONS

PPI-R	Psychopathic Personality Inventory-Revised
FD	Fearless Dominance
SCI	Self-Centered Impulsivity
CH	Coldheartedness
ACME	Affective and Cognitive Measure of Empathy
ACME COG	ACME Cognitive Empathy
ACME RES	ACME Affective Resonance
ACME DIS	ACME Affective Dissonance
DERS	Difficulties in Emotion Regulation Scale
RPQ	Reactive and Proactive Aggression Questionnaire

CHAPTER I - INTRODUCTION

Psychopathic personality traits are linked to both empathy deficits (Hare & Neumann, 2008; Lykken, 1995) and increased aggression (Porter, Woodworth, & Black, 2016). Although empathy deficits have been considered in relation to psychopathic traits and to aggression (e.g., Blais, Solodukhin, & Forth, 2014; Vachon, Lynam, & Johnson, 2014), little is known about the potential differential roles that multiple facets of empathy (i.e., cognitive, affective) play in psychopathic traits' association to aggression functions (i.e., proactive and reactive). Although other affective correlates of psychopathy, such as emotion regulation, may be pertinent to aggressive behavior, empathy and emotion dysregulation have not been concurrently examined for unique contributions to aggressive behavior among individuals with varying levels of psychopathic traits. The present study seeks to conceptualize affective correlates of empathy and emotion regulation across psychopathic traits in a nonincarcerated population and subsequently assess their relative contributions to aggression functions.

Psychopathy and Aggression

Psychopathy is commonly conceptualized as a set of traits with affective (e.g., callousness, fearlessness), interpersonal (e.g., superficial charm, social influence), and behavioral (i.e., impulsivity, sensation-seeking, irresponsibility) features (Hare, 1991; Lykken, 1995). As originally described by Cleckley (1941/1976), individuals high in psychopathy have few deep emotional experiences and little empathy or remorse for others. Psychopathic features are conceptualized as being comprised of two subdimensions of interpersonal-affective traits and impulsive-antisocial traits and are

recognized as dimensionally distributed within the general population (Edens, Marcus, Lilienfeld, & Poythress, 2006; Marcus, John, & Edens, 2004).

The role of antisociality (e.g., criminal behavior, aggression) within psychopathy's nomological net remains a point of contention amongst researchers. Some regard antisociality as a key trait of the construct, and others as a correlate or logical consequence of the constellation of traits that make up the construct (see Skeem & Cooke, 2010; Hare & Neumann, 2010). Taking the latter approach, self-reported, personality-based measures that are prevalently used in nonincarcerated populations may capture the full range of psychopathic traits, while avoiding heavy focus on criminal or antisocial behavior (Hicks & Patrick, 2006; Lilienfeld & Andrews, 1996; Sellbom, 2011). One such measure is the Psychopathy Personality Inventory – Revised (PPI-R; Lilienfeld & Widows, 2005), with three higher-order factors of Fearless Dominance (FD; e.g., social boldness, stress resiliency, fearlessness), Self-Centered Impulsivity (SCI; e.g., manipulativeness, blame externalization, lack of planning), and Coldheartedness (CH; e.g., callousness, lack of guilt or remorse, low emotional expressiveness). Patrick, Fowles, and Krueger's (2009) triarchic model of psychopathy is an alternative conceptualization with three traits of Boldness (e.g., dominance, fearlessness, stress invulnerability), Meanness (e.g., callousness, lack of concern for others), and Disinhibition (e.g., behavioral unrestraint, emotion dysregulation).

Psychopathy or psychopathic traits have been uniquely linked to aggressive behavior (e.g., Blais, Solodukhin, & Forth, 2014; Porter et al., 2018), across incarcerated (e.g., Hare & McPherson, 1984; Serin, 1991) and community populations (Falkenback, Barese, Balash, Reinhard, & Hughs, 2015; Hall & Benning, 2006). Aggression can be

differentiated by the function or type of intrinsic motivation for the aggressive behavior, which is characterized as either proactive (i.e., instrumental, goal-oriented) and reactive (i.e., impulsive, responding to provocation) in nature (Porter et al., 2018). Psychopathic traits differentially relate to these functions of aggression. Blais and colleagues (2014) conducted a meta-analysis of 53 studies, finding that interpersonal deficits of psychopathy were associated with proactive aggression to a greater extent than affective or impulsive-antisocial traits, while impulsive-antisocial traits were more strongly associated with reactive aggression. Notably, the relationship between self-reported psychopathy and proactive aggression was stronger within non-incarcerated samples compared with incarcerated samples, lending credence to the assertion that self-reported psychopathy and varying levels of aggressive behaviors can be examined within nonincarcerated populations.

Although the relations of psychopathy to distinct aggression functions have been extensively studied across populations, the factors that statistically account for or facilitate these relations are still a focus of intensive research. A host of studies have sought to examine the indirect effects of psychopathy or psychopathic traits to aggression by way of affective features and correlates (e.g., Guerra & White, 2017; Kimonis, Frick, Fazekas, & Loney, 2006; Long, Felton, Lilienfeld, & Lejuez, 2014; Penny & Moretti, 2010; White, Gordon, & Guerra, 2015), but no studies have attempted to integrate or compare multiple theoretically- or empirically-suggested factors. The present study will examine two affective processes – empathy and emotion regulation - as facilitating potential indirect effects of psychopathic traits on aggression functions.

The Role of Empathy

Deficient empathy or callousness constitutes a hallmark characteristic of psychopathy (Cleckley, 1941; Hare & Neumann, 2008; Lykken, 1995). A recent network analysis concluded that the lack of empathy within psychopathy is the most central feature of the construct (Verschuere et al., 2017). Different models, operationalizations, and definitions of empathy have been considered by extant research, but the field has broadly recognized and studied two facets – cognitive and affective empathy (Davis, 1983; Jolliffe & Farrington, 2006; Vachon, Lynam, & Johnson, 2011). Cognitive empathy involves the ability to take another person's perspective, as well as to detect and understand the emotions of others. Affective empathy, alternatively, refers to the ability to experience the emotions or feelings of another.

Across multiple methodologies (e.g., self-report, functional neuroimaging), studies have indicated empathy broadly to be lower in individuals with high psychopathic traits samples (e.g., Brook & Kosson, 2013; Decety, Skelly, & Kiehl, 2013; Pfabigan et al., 2015; Miller & Lynam, 2012). Findings on the relation between psychopathy and differing facets of empathy in both incarcerated and nonincarcerated samples have been mixed (Brook & Kosson, 2013; Lishner et al., 2012; Lockwood, Bird, Drige, & Viding, 2013; Seara-Cardoso, Neumann, Roiser, McCrory, & Viding, 2011). Psychopathic traits generally tend to be associated with impairments in affective empathy rather than cognitive empathy within nonincarcerated populations (Almeida et al., 2015; Mullins-Nelson, Salekin, & Leistico, 2006; Sellbom, Wygant, & Drislane, 2015; Uzieblo, Verschuere, Van den Bussche, & Crombez, 2010).

Divergent relations emerge when considering different conceptualizations and subdimensions of psychopathy and self-reported empathy measures. Both interpersonal-affective traits (except for Boldness) and impulsive-antisocial traits appear negatively associated with cognitive empathy, whereas only the interpersonal-affective traits are consistently negatively related to affective empathy (Almeida et al., 2015; Mullins-Nelson, Salekin, & Leistico, 2006; Sellbom, Wygant, & Drislane, 2015). The two studies using the triarchic conceptualization found stronger associations between Boldness with affective empathy deficits and between Disinhibition and cognitive empathy deficits; Meanness appeared negatively related to both types of empathy (Almedia et al., 2015; Sellbom et al., 2015).

Given the conceptual overlap of Boldness with FD and Disinhibition with SCI, these findings might inform how empathy may be represented on the PPI-R (Drislane, Patrick, & Arsal, 2013; Hall et al., 2014; Patrick, 2010). Nevertheless, a meta-analytic investigation of the PPI-R's previous version found negative associations for both FD and SCI (Miller & Lynam, 2012). A PPI-R validation study using a community sample found a positive relationship between FD and cognitive empathy and a negligible one with SCI, whereas CH had negative relations to both facets (Uzieblo et al., 2010). Taken together, these mixed findings emphasize the importance of considering differential relations across subdimensions of psychopathic traits and empathy facets. Moreover, the antagonism or callousness central to psychopathy is uniquely tapped by the CH scale within the PPI-R (Miller & Lynam, 2012) and appears relevant to the discussion of empathy deficits within psychopathy.

Inherent in the definition of empathy and in the inhibition of aggression is a concern for the welfare of others. Overcoming the shortcomings of previous self-report empathy measures (see Vachon, Lynam, & Johnson, 2014, for a meta-analysis), Vachon and Lynam (2016) recently developed the Affective and Cognitive Measure of Empathy (ACME) with facets of cognitive empathy, affective resonance, and affective dissonance. The cognitive empathy scale assesses empathic accuracy, the detection of others' emotions, and intellectual understanding of emotionality in others. The ACME expands the construct of affective empathy to include affective resonance and dissonance with respect to others' emotions. Affective resonance addresses the extent to which individuals experience similar or resonant emotions to others (e.g., empathic concern, sympathy, pity), with lower scores characterized by a lack of emotional responsivity (e.g., callousness, indifference). Alternatively, affective dissonance assesses the extent to which individuals experience different or dissonant responses from others (e.g., pleasure at others' pain or misery, anger in response to happiness). Demonstrating good psychometric properties (Vachon & Lynam, 2016), the ACME has the potential to delineate more nuanced and meaningful relations with psychopathic traits and aggression.

A rich body of research has examined how empathy relates to aggressive behaviors. At the neurobiological level, reduced emotional reactivity in general is associated with proactive aggression, whereas increased emotional reactivity is associated with reactive aggression (Blair, 2007; Reidy, Shelley-Tremblay, & Lilienfeld, 2011). Unfortunately, findings using largely self-reported measures have been unclear due to varying conceptualizations of empathy and aggression, as well as population differences. Even a handful of meta-analytic studies have diverging findings, as the negative

relationship between empathy and aggression ranges from weak to strong (Jolliffe & Farrington, 2004; Lovett & Sheffield, 2007; Miller & Eisenberg, 1988; Vachon et al., 2014). After an unexpectedly weak association between empathy and aggression (Vachon et al., 2014), Vachon and Lynam (2016) examined relations of ACME empathy facets to psychopathy and aggression using an undergraduate sample. Broadly, the ACME evidenced stronger and more theoretically consistent relations with both psychopathy and aggression. Both affective empathy facets (i.e., RES, DIS) had moderately-sized negative relations to the total and all subdimensions of psychopathy, as well as proactive and reactive aggression. Callousness and antisociality features of psychopathy had a slight negative relation to cognitive empathy, which in turn was negatively related to proactive aggression and negligibly to reactive aggression.

In all, empathy facets demonstrate notable associations with psychopathic traits and aggression. Prior mixed findings on empathy and aggression may be attributable to shortcomings of prior self-report measures of empathy. In fact, empathy deficits may hold stronger implications for proactive aggression, given its characteristic instrumentality or cold-bloodedness, than reactive aggression. The role of empathy facets is conceptualized as features of psychopathic traits that facilitate increased or decreased aggression. As features, affective characteristics (e.g., callousness, social detachment) purportedly share the same underlying neurobiological basis as affective correlates examined in relation to psychopathy (e.g, Blair, 2007; Reidy et al., 2011). Affective correlates are expected to statistically account for a significant portion of variance in psychopathic traits' relations to aggression outcomes.

The Role of Emotion Regulation

As noted above, the association of empathy and aggressive behavior was unexpectedly weak, even when considering multiple empathy facets (Vachon et al., 2014). This suggests that empathy alone may not sufficiently account for the implications of psychopathic traits (even of affective features) for aggression. Alternative affective processes, such as emotion regulation, may also contribute to the relationship. In fact, seminal research in psychopathy postulated that aggression of individuals with elevated impulsive-antisocial traits stems from emotional reactivity, arising in the context of anger or emotion dysregulation (Karpman, 1941; Lykken, 1995).

Emotion regulation is a multi-faceted construct involving the extent to which individuals (1) are aware of and understand their emotions, (2) accept their emotions, (3) control impulses and maintain goal-oriented behaviors while experiencing negative emotions, (4) and use emotion regulation strategies to module their emotional response as appropriate within their situation or context to meet the demands of the situation or their individual goals (Gratz & Roemer, 2004). Lacking any or all of such abilities is a state of emotion dysregulation (Gratz & Roemer, 2004), leading to maladaptive ways of experiencing and responding to emotional states (Werner & Gross, 2010).

From a developmental perspective, Frick and Viding (2009) indicated that a lack of emotional regulation, in addition to empathy deficits, influences the development of antisocial behavior. Impulsive-antisocial traits appear to be particularly linked to emotion dysregulation (e.g., Miller et al., 2010; Vidal, Skeem, & Camp, 2010). Examining effects of emotional regulation on the relationship of the PPI-R-assessed psychopathic traits to different aggression functions in a clinical sample, Long, Felton, Lilienfeld, and Lejuez

(2014) found positive associations of FD (only proactive aggression) and SCI (both functions), whereas CH was not significantly related. After accounting for shared variance, their study found that emotion regulation plays a differential role in the relations of psychopathic traits to aggression. While emotion dysregulation statistically accounted for the positive relationship between SCI and reactive aggression, FD had a negative indirect effect on reactive aggression by way of emotion dysregulation. Notably, FD traits are largely associated with lower levels of emotion dysregulation (Donahue, McClure, & Moon, 2014; Long et al., 2013).

Taken together, these findings suggest that both FD and SCI have indirect (albiet differential) effects on reactive aggression through emotion dysregulation. As such, statistically accounting for emotional regulation will decrease their association to reactive aggression. In all, prior research supports the premise that emotion dysregulation plays a role in the relation of psychopathic traits to aggression functions, above and beyond empathy facets, with potentially differing affective mechanisms.

The Current Study

Empathy facets and emotion dysregulation appear to have differential associations with psychopathic traits and potential indirect effects on relations to aggression. Despite the extant research on psychopathy, no studies have tested indirect effects of psychopathy on aggression functions via empathy deficits (in isolation or concurrent with emotional regulation). To address these gaps, this study first examines the relations of psychopathic traits to empathy facets and test indirect effects of psychopathic traits on aggression through empathy facets. Second, analyses test the extent to which psychopathic traits

exert indirect effects by way of emotion dysregulation. Finally, the incremental validity of both sets of affective correlates is tested in the same model.

Hypotheses

1. All psychopathic traits will negatively relate to cognitive and affective empathy; however, interpersonal-affective traits will have stronger relations to affective empathy and impulsive-antisocial traits to cognitive empathy.
2. Interpersonal-affective traits will more strongly relate to proactive, whereas impulsive-antisocial traits will more strongly relate to reactive aggression.
3. Interpersonal-affective traits will have indirect effects on proactive aggression through affective empathy, while impulsive-antisocial traits will have indirect effects on reactive aggression through cognitive empathy.
4. Impulsive-antisocial traits will be positively related to emotion dysregulation, whereas interpersonal-affective traits will have a negligible or negative relation.
5. All psychopathic traits will have indirect effects via emotion dysregulation on reactive aggression; however, impulsive-antisocial traits will have indirect effects through higher emotion dysregulation and interpersonal-affective traits through lower emotion dysregulation.
6. Psychopathic traits will differ in the extent to which they have indirect effects on aggression functions through affective correlates. The interpersonal-affective traits will exert indirect effects on aggression through affective empathy and emotion dysregulation, while impulsive-antisocial traits through cognitive empathy and emotion dysregulation. Due to lack of extant research, this

hypothesis is exploratory, and the model assessing the incremental validity of indirect effects will only be tested if prior hypotheses are supported.

CHAPTER II - METHOD

Participants

Participants in this study were 465 undergraduate students from the University of Southern Mississippi (USM), recruited from an ongoing data collection on USM's SONA site. Multiple indicators of inconsistent responding were used to determine invalid responses. Participants were excluded based on the following criteria: incorrect responses on three or more of quality assurance items (e.g., "Select False for this item") embedded in survey (n = 71), three or more endorsed infrequency items on the Chapman Infrequency Scale (n = 45; Chapman & Chapman, 1983), or exceeding 45 on the 40-item Inconsistent Responding Scale of the PPI-R (n = 17; see Lilienfeld & Widows, 2005).[1] Note that counts are not mutually exclusive. The final sample size (n = 368) is considered sufficient to detect small- to medium-sized effects at .80 power with an alpha at .05 (Cohen, 1991) based on effect sizes in prior research (Vachon & Lynam, 2016) and a power analysis conducted with Gpower v.2 (Faul, Erdfelder, Lang, & Buchner, 2007).

The final sample included 289 females (78.5%), 78 males (21.2%), and one individual (0.3%) identifying as nonbinary/fluid/queer/gender queer. The average age was 21.49 (SD = 5.48). Over half of participants (n = 238; 64.7%) identified their race/ethnicity as White, 106 (28.8%) African-American, 10 (2.7%) Multiracial, six(1.6%) Latinx/Hispanic (non-White), five (1.4%) Asian, one (0.3%) Native American/American Indian/Indigenous, one (0.3%) Pacific Islander/Native Hawaiian, and one (0.3%) selected

[1] Participants excluded based on invalid responding did not significantly differ from included participants based on age ($t(439)=0.31$, $p=.756$) and sexual orientation ($\chi^2(6, n=464)=12.29$, $p=.056$). Those excluded had a larger proportion of males ($\chi^2(1, n=465)=5.91$, $p=.015$) and African-Americans ($\chi^2(7, n=465)=29.67$, $p<.001$).

a response option to indicate their racial identification was not listed. The majority of the sample (81.3%) identified their sexual orientation as heterosexual, with 24 (6.5%) identifying as bisexual, 20 (6.5%) gay or lesbian, 15 (4.1%) asexual, five (1.4%) pansexual, one (0.3%) queer, and three (0.8%) did not list a sexual orientation. One individual had missing data on sexual orientation. Regarding religious affiliation, the majority (n = 201; 81.8%) identified as Christian.

Measures

Descriptive statistics and Cronbach's alphas for all variables are reported in Table 1.

Psychopathic Personality Inventory-Revised

The Psychopathic Personality Inventory-Revised (PPI-R; Lilienfeld & Widows, 2005) assessed psychopathic personality traits. The PPI-R yields three higher-order factors of Fearless Dominance (FD; e.g., social boldness, stress resiliency, fearlessness), Self-Centered Impulsivity (SCI; e.g., manipulativeness, blame externalization, lack of planning), and Coldheartedness (CH; e.g., callousness, lack of guilt or remorse, low emotional expressiveness). The 154 items of the PPI-R are rated on a 4-point Likert scale of *False, Mostly False, Mostly True,* and *True*. This measure is widely used in nonincarcerated populations, including undergraduate students (see Sellbom, Lilienfeld, Fowler & McCrary, 2018), and contains validity scales to screen out participants with invalid responses that would otherwise distort findings (Anderson, Sellbom, Wygant, & Edens, 2012).

Affective and Cognitive Measure of Empathy

The Affective and Cognitive Measure of Empathy (ACME; Vachon & Lynam, 2016) is a self-report, 36-item multidimensional empathy measure with items on a 5-point, Likert scale from 0 (*Disagree Strong*) to 5 (*Agree Strongly*). The ACME features three, 12-item facets of cognitive empathy (COG; e.g., "I have a hard time reading people's emotions.), affective resonance (RES; e.g., "I feel awful when I hurt someone's feelings."), affective dissonance (DIS; e.g., "People who are cheery disgust me."). ACME DIS is reversed scored such that higher levels are indicative of less dissonant emotional reactions.

Reactive and Proactive Aggression Questionnaire

The Reactive and Proactive Aggression Questionnaire (RPQ; Raine et al., 2006) is a 23-item questionnaire that assesses the extent to which one has engaged in aggression types. Participants respond on the 3-point Likert scale from 0 (*Never*) to 3 (*Often*). The RPQ has subscales of reactive (11 items; e.g., "Got angry or mad or hit others when teased") and proactive aggression (12 items; e.g., "Hurt others to win a game").

Difficulties in Emotional Regulation Scale

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item, self-report measure that captures six different aspects of emotional regulation. In the present study, total DERS scores will be examined as an indicator of emotional regulation (e.g., "When I'm upset, I have difficulty controlling my behaviors"). Respondents respond on a 5-point Likert scale from 1 (*Never or very rarely true*) to 5 (*Almost always or always true*).

Procedure

The study was approved by the Institutional Review Board at the University of Southern Mississippi and advertised via SONA, where undergraduate students complete studies in exchange for class credit. This study was completed on participants' personal electronic devices via Qualtrics survey software. After providing informed consent, participants completed demographic questions and then completed the study measures in random order.

Data Analytic Procedure

Empirically-supported covariates were considered for entry into multivariate models if correlated significantly with outcome variables. Neither age (proactive aggression: $r = 0.03$, $p = .616$; reactive aggression: $r = -0.06$, $p = .290$) nor gender (proactive aggression: $r = -0.06$, $p = .241$; reactive aggression: $r = -0.03$, $p = .556$) were indicated as significantly related and, therefore, were not included as covariates.

Zero-order correlations were calculated to examine strength and directionality of relationships. According to commonly accepted interpretive benchmarks (Cohen, 1988), correlation coefficients (r) of 0.10 represent a small effect, 0.30 a medium effect, and 0.50 a large effect. Tests of dependent correlations assessed significant differences between the magnitudes of correlations. Indirect effects were tested using structural equation modeling (SEM) in Mplus. Missing data was handled using full-information maximum likelihood estimation. SEM models used bootstrapping with 5,000 resamples. Significant indirect effects were interpreted from bias-corrected confidence intervals (BCCIs; MacKinnon et al. 2007) that did not include zero. The following indices were used to determine model fit: chi-squared goodness-of-fit statistic (X^2), Comparative Fit

Index (CFI; >= 0.90), Tucker Lewis Index (TLI; >= 0.90), Root Mean Square Error of Approximation (RMSEA; <= 0.08), and Standardized Root Mean Square Residual (SRMR: <= 0.08). Relative model fit indices included the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and the Sample-Size Adjusted BIC (SABIC), with lower values indicating better fit (Kenny, 2012).

CHAPTER III - RESULTS

Correlations

See Table 1 for intercorrelations between all study variables.

Largely consistent with Hypothesis 1, all psychopathic traits were negatively associated with cognitive and affective empathy, all *p*s < .05. There were two exceptions as FD evinced a moderate positive relation to cognitive empathy (r=0.30, p<.001) and SCI was negligibly related to cognitive empathy (r=-0.12, p=.057). Consistent with Hypothesis 4, FD (r=-0.21, p<.001) and CH (r=-0.30, p<.001) were negatively associated with DERS total score, whereas SCI was positively associated (r=0.36, p<.001).

Tests of dependent correlations showed that SCI and CH's negative relations with cognitive empathy were not significantly different in magnitude, z=-1.59, p=.112, contrary to Hypothesis 2. Due to an unexpected directionality (FD-cognitive empathy), the associations of FD and SCI were not compared. CH's negative relation to affective resonance was larger than SCI's (z=-2.90, p=.004); however, SCI's tie to affective resonance was larger than that of FD (z=4.11, p<.001). Unexpectedly, the relations of SCI and CH to affective resonance were not significantly different (z=-1.11, p=.268), but SCI's tie to affective resonance was larger than that of FD, z=-4.81, p<.001.

All psychopathic traits were positively associated with proactive aggression (FD: r=0.14, p=.012; SCI: r=0.46, p<.001; r=0.17, p=.002), but only SCI was related to reactive aggression, r=0.43, p<.001. Consistent with Hypothesis 2, SCI evinced a stronger tie to reactive aggression than either FD (z=5.77, p<.001) or CH (z=5.89, p< .001). Unexpectedly, SCI had a stronger positive tie with proactive aggression than either FD (z=4.22, p<.001) or CH (z=3.95, p<.001).

Table 1 *Descriptive Statistics and Zero-Order Relations for Study Variables*

	Zero-Order Correlations										α
	1	2	3	4	5	6	7	8	9	10	
1. PPI-R FD	-										.90
2. PPI-R SCI	**0.23**	-									.92
3. PPI-R CH	**0.32**	**0.26**	-								.86
4. ACME Total Score	0.04	**-0.43**	**-0.52**	-							.92
5. ACME COG	**0.29**	-0.12	**-0.24**	**0.71**	-						.90
6. ACME RES	*-0.16*	**-0.47**	**-0.63**	**0.86**	**0.38**	-					.86
7. ACME DIS	*-0.12*	**-0.48**	**-0.41**	**0.76**	**0.21**	**0.69**	-				.90
8. DERS Total Score	**-0.21**	**0.36**	**-0.29**	-0.01	0.06	0.03	-0.09	-			.95
9. RPQ Proactive	*0.14*	**0.46**	*0.17*	**-0.32**	*-0.14*	**-0.33**	**-0.33**	*0.16*	-		.85
10. RPQ Reactive	-0.03	**0.43**	-0.03	**-0.19**	0.02	*-0.17*	**-0.26**	**0.34**	**0.54**	-	.84
Mean	105.81	137.97	30.81	150.86	44.36	51.40	54.32	104.45	2.09	8.17	-
Standard Deviation	19.51	24.51	8.26	17.69	8.64	7.71	6.88	20.31	2.99	4.16	-
Minimum	55.00	81.00	16.00	95.00	16.00	26.00	25.00	36.00	0.00	0.00	-
Maximum	157.00	220.00	61.00	180.00	60.00	60.00	60.00	156.00	23.00	22.00	-

Notes. Significant zero-order effects are *italicized* at $p < .05$ and **bolded** at $p < .001$. PPI-R = Psychopathic Personality Inventory-Revised. ACME COG = Affective Cognitive Measure of Empathy. COG = Cognitive Empathy. RES = Affective Resonance. DIS = Affective Dissonance. DERS = Difficulties in Emotion Regulation. RPQ = Reactive Proactive Aggression Questionnaire.

Path Models Testing Indirect Effects

When accounting for shared variance, FD and SCI positively predicted proactive aggression, SCI positive predicted reactive aggression, and CH was a negligible predictor of both in every model, which was partly consistent with expectations. The only exceptions were a negligible relation of FD to proactive aggression in the DERS total score model ($\beta = 0.04$, $p = 0.356$) and a negative effect of CH on reactive aggression in the ACME total score model ($\beta = -0.09$, $p = 0.020$). Together, the models explained between 20.1% and 24.5% of the variance in proactive and between 21.7% and 22.9% of the variance in reactive aggression.

Indirect Effects via ACME Facet Scores Model

Hypothesis 3 proposed a test of indirect effects from PPI-R traits through ACME facet scores on aggression. Overall, model fit was indicated to be inadequate by most indicators except for X^2 and SRMR (see Table 4). Results did not support Hypothesis 3. No indirect effects by FD, SCI, or CH were observed on proactive or reactive aggression via ACME facets.

Indirect Effects via ACME Total Score Model

As none of the expected indirect effects via ACME facet scores were observed, the model was revised and re-tested to assess the indirect effects through the ACME total score. In doing so, the number of variables in the model was reduced from eight to six. Absolute model fit indices cannot be interpreted due to the saturated model (Ullman & Bentler, 2012; see Table 4). Results partially supported Hypothesis 3. FD had a negative indirect effect, whereas SCI and CH both had positive indirect effects on proactive aggression. No indirect effects were observed by FD, SCI, or CH on reactive aggression.

Indirect Effects via DERS Total Score Model

Hypothesis 5 proposed a test of indirect effects from PPI-R traits through DERS total score on aggression. Results largely supported Hypothesis 5. Overall, absolute model fit indices cannot be interpreted due to the saturated model (Ullman & Bentler, 2012; see Table 3). No indirect effects were observed by FD, SCI, or CH on proactive aggression. However, SCI had a positive indirect effect and CH had a negative indirect effect on reactive aggression.

Indirect Effects via ACME and DERS Total Scores Model

Hypothesis 6 proposed a test of incremental validity of indirect effects from PPI-R traits through ACME facet scores and DERS total score on aggression. Given the change to the empathy model above, the hypothesis regarding differences across ACME facets was dropped. It was expected that that indirect effects of PPI-R facets would be found through ACME total in predicting proactive aggression and through DERS total in predicting reactive aggression. This *post-hoc* hypothesis was made after testing the prior three models but before testing ACME and DERS total scores concurrently.

Overall, the ACME and DERS total scores model was indicated to have adequate fit by all indicators (see Table 4). Hypothesis 6 was largely confirmed. In this model, all indirect effects of FD, SCI, and CH – positive or negative - were maintained from prior models after accounting for shared variance between ACME and DERS total scores. One exception was a negative indirect effect from FD via DERS total score on reactive aggression; this indirect effect had been marginally significant in the DERS total score model, but reached significance after accounting for shared variance with ACME total score. See Figure 1 for path model depiction.

Table 2 *Direct and Indirect Effect Estimates in the ACME Empathy Models*

	Proactive Aggression			Reactive Aggression		
ACME Facet Scores	*β*	*p*	*95% BCCI*	*β*	*p*	*95% BCCI*
FD						
Total Effect	0.06	.115		0.07	.189	
Direct Effect	**0.12**	.032		0.10	.084	
Via ACME COG	-0.04		-0.09, 0.01	0.04		-0.01, 0.09
Via ACME RES	-0.01		-0.04, 0.03	0.00		-0.03, 0.02
Via ACME DIS	-0.01		-0.04, 0.02	-0.01		-0.03, 0.01
SCI						
Total Effect	**0.44**	<.001		**0.48**	<.001	
Direct Effect	**0.35**	<.001		**0.44**	<.001	
Via ACME COG	0.01		-0.01, 0.03	-0.01		-0.04, 0.01
Via ACME RES	0.03		-0.09, 0.14	0.00		-0.08, 0.08
Via ACME DIS	0.06		-0.06, 0.17	0.05		-0.03, 0.14
CH						
Total Effect	0.02	.740		**-0.13**	.046	
Direct Effect	-0.08	.319		-0.13	.074	
Via ACME COG	0.03		-0.01, 0.07	-0.03		-0.08, 0.01
Via ACME RES	0.04		-0.13, 0.20	0.00		-0.11, 0.19
Via ACME DIS	0.04		-0.04, 0.12	0.04		-0.02, 0.09
ACME Total Score	*β*	*p*	*95% BCCI*	*β*	*p*	*95% BCCI*
FD						
Total Effect	0.06	.206		-0.08	0.148	
Direct Effect	**0.12**	.023		-0.05	0.345	
Via ACME Total	**-0.07**		-0.12, -0.01	0.03		-0.07, 0.02
SCI						
Total Effect	**0.44**	<.001		**0.48**	<.001	
Direct Effect	**0.35**	<.001		**0.45**	<.001	
Via ACME Total	**0.09**		0.02, 0.16	0.03		-0.02, 0.09
CH						
Total Effect	0.02	.781		-0.12	.062	-0.25, 0.01
Direct Effect	-0.11	.169		**-0.17**	.021	
Via ACME Total	**0.12**		0.03, 0.22	0.05		-0.03, 0.12

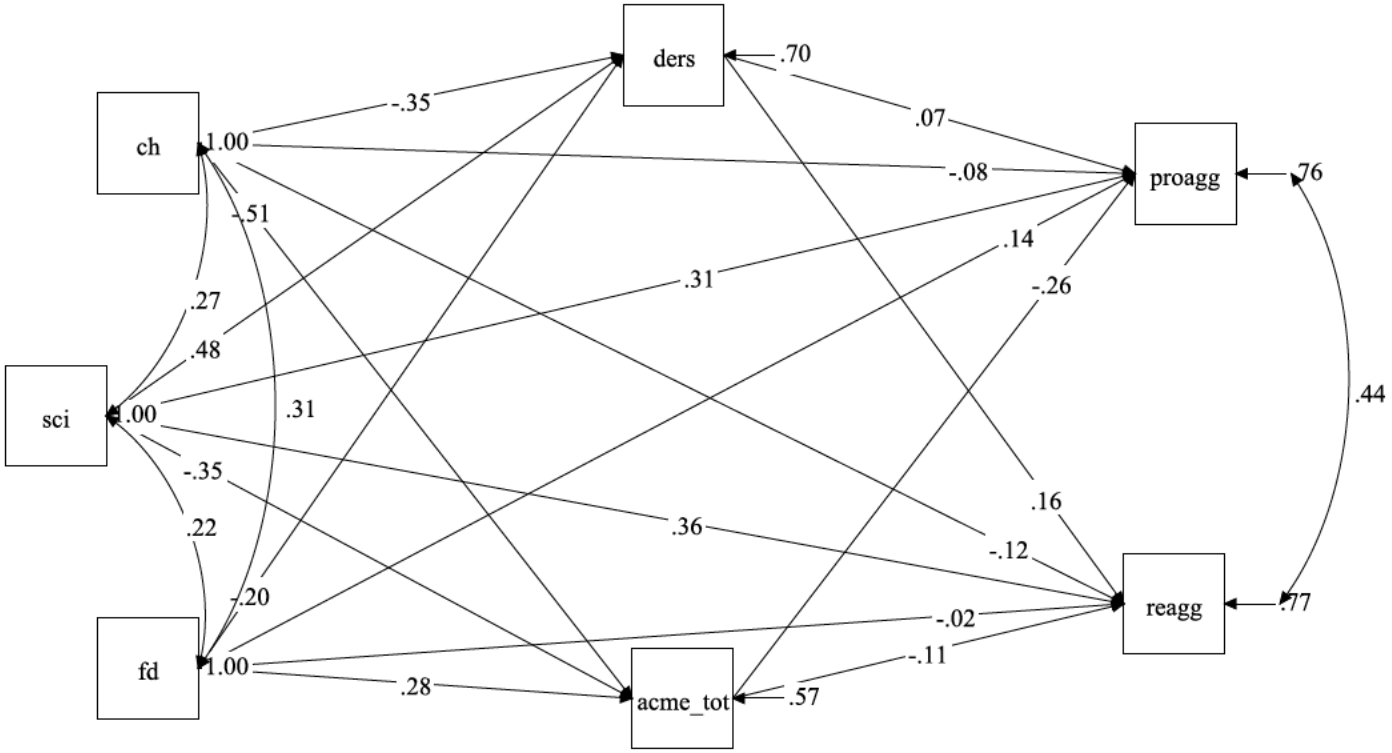
Notes: ACME = Affective and Cognitive Measure of Empathy. FD = Fearless Dominance. SCI = Self-Centered Impulsivity. CH = Coldheartedness. Cog = Affective and Cognitive Measure of Empathy – Cognitive Empathy Facet. Res = Affective and Cognitive Measure of Empathy – Affective Resonance Facet. Dis = Affective and Cognitive Measure of Empathy – Affective Dissonance Facet. DERS = Difficulties in Emotion Regulation Scale. Significant estimates ($p < .05$, 95% BCCI does not include 0) are bolded. Reported direct effects are estimated after accounting for indirect effects.

Table 3 *Direct and Indirect Effect Estimates in the DERS Total Score Model and the ACME and DERS Total Scores Model*

	Proactive Aggression			Reactive Aggression		
DERS Total Score	*β*	*p*	*95% BCCI*	*β*	*p*	*95% BCCI*
FD						
Total Effect	-0.03	.468		-0.10	.077	
Direct Effect	0.04	.360		-0.06	.240	
Via DERS Total	-0.01		-0.04, 0.02	-0.03		-0.06, 0.00
SCI						
Total Effect	**0.43**	<.001		**0.47**	<.001	
Direct Effect	**0.41**	<.001		**0.40**	<.001	
Via DERS Total	0.03		-0.05, 0.09	**0.08**		0.01, 0.14
CH						
Total Effect	-0.04	.503		-0.10	.123	
Direct Effect	0.06	.406		-0.05	.485	
Via DERS Total	-0.02		-0.07, 0.03	**-0.05**		-0.10, -0.01
ACME and DERS Total Scores						
FD						
Total Effect	0.05	.235		-0.08	.129	
Direct Effect	**0.14**	.014		-0.02	.726	
Via ACME Total	**-0.07**		-0.13, -0.02	-0.02		-0.07, 0.01
Via DERS Total	-0.01		-0.04, 0.02	**-0.03**		-0.06, -0.00
SCI						
Total Effect	**0.43**	<.001		**0.47**	<.001	
Direct Effect	**0.31**	<.001		**0.36**	<.001	
Via ACME Total	**0.09**		0.02, 0.16	0.03		-0.02, 0.09
Via DERS Total	0.03		-0.04, 0.10	**0.08**		0.01, 0.14
CH						
Total Effect	0.02	.706		**-0.12**	.073	
Direct Effect	-0.09	.306		-0.12	.123	
Via ACME Total	**0.13**		0.04, 0.23	0.06		-0.02, 0.13
Via DERS Total	-0.02		-0.07, 0.03	**-0.06**		-0.10, -0.01

Notes: ACME = Affective and Cognitive Measure of Empathy. FD = Fearless Dominance. SCI = Self-Centered Impulsivity. CH = Coldheartedness. Cog = Affective and Cognitive Measure of Empathy – Cognitive Empathy Facet. Res = Affective and Cognitive Measure of Empathy – Affective Resonance Facet. Dis = Affective and Cognitive Measure of Empathy – Affective Dissonance Facet. DERS = Difficulties in Emotion Regulation Scale. Significant estimates ($p < .05$, 95% BCCI does not include 0) are bolded. Reported direct effects are estimated after accounting for indirect effects.

Figure 1 Path model depicting standardized beta weights of PPI-R traits to RPQ Aggression Via ACME and DERS Total Scores



Note: PPI-R = Psychopathic Personality Inventory-Revised. RPQ = Reactive and Proactive Aggression Questionnaire. ACME = Affective and Cognitive Measure of Empathy. DERS = Difficulties in Emotion Regulation Scale. FD = Fearless Dominance. SCI = Self-Centered Impulsivity. CH = Coldheartedness. ACME Tot = ACME total score. Proagg = Reactive and Proactive Aggression Questionnaire - Proactive Aggression scale. Reagg = Reactive and Proactive Aggression Questionnaire - Reactive Aggression scale.

Table 4 *Fit Indices for Models 1-4*

Model	X^2 (*df*)	**AIC**	**BIC**	**SABIC**	**CFI**	**TLI**	**RMSEA (90% CI)**	**SRMR**
1: ACME Facets	824.53* (25)	18,297.07	18,457.30	18,457.30	0.83	-0.42	0.35 (0.30, 0.40)	0.06
2: ACME Total	395.03* (12)	14,058.44	14,163.96	14,078.29	1.00	1.00	0.00 (0.00, 0.00)	0.00
3: DERS	332.90* (12)	14,479.21	14,584.73	14,499.07	1.00	1.00	0.00 (0.00, 0.00)	0.00
4: ACME and DERS Total	518.61* (18)	17,192.62	17,325.49	17,217.62	1.00	0.97	0.05 (0.00, 0.16)	0.01

Notes. x^2 = Maximum-Likelihood chi square goodness of fit statistic; *df* = degrees of freedom; AIC = Akaike Information Criteria; BIC = Bayesian Information Criteria; SABIC = Sample-Size Adjusted Bayesian Information Criteria; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root-Mean-Square Error of Approximation; SRMR = Standardized Root Mean Square Residual. * Indicates x^2 are statistically significant ($p < .001$).

Model Comparisons

Fit indices are presented in Table 4. Models 2 and 3 are saturated with as many estimated parameters as known factors; as such, some fit indices such as CFI, TLI, and RMSEA are not interpretable as the model parameters perfectly reproduce the covariance matrix (Ullman & Bentler, 2012). Although some fit indices are only interpretable for Model 1 and 4, others (AIC, BIC, SABIC) are interpretable across all models, allowing for saturated models to be compared to other models (Kenny, 2012). As such, Model 2 with ACME total was indicated to be best fitting to the data and better fitting than Model 3 with DERS total. The relative worse fit of Model 4 with ACME and DERS total in comparison to the more parsimonious Model 2 and Model 3 may be partly attributable to how AIC, BIC, and SABIC penalize based on model complexity, increasing the indices for every additional parameter estimated (Kenny, 2012).

CHAPTER IV – DISCUSSION

The present study examined the extent to which affective factors facilitate psychopathic traits' associations to aggression (i.e., indirect effects). This study is based on a foundation of past research linking psychopathy subdimensions to empathy or its facets, emotion dysregulation, or aggression functions. The findings address the question of which affective correlates are relevant to how individuals with varying levels of psychopathic traits perpetrate proactive or reactive aggression. Such understanding may provide knowledge about how psychopathy and its affective correlates manifest in nonincarcerated populations and inform intervention efforts for aggressive behaviors within individuals with varying configurations of psychopathic traits.

The Roles of Empathy and Emotion Dysregulation

Broadly, this study hypothesized that affective correlates of empathy and emotion dysregulation serve as facilitators of psychopathy's associations to aggression types. These pathways through affective correlates were expected to vary, depending upon the subdimension of psychopathy and the type of aggression (proactive, reactive). The first affective correlate considered was multifaceted empathy. Using an empathy measure that conceptualizes the construct with three facets (Vachon & Lynam, 2016), this study first examined relations of psychopathic traits to the facets of empathy (cognitive empathy, affective resonance, affective dissonance).

The findings indicated that only callousness or limited emotional expressivity features (CH) are associated with impairments in detecting and understanding others' emotions. Although callous and interpersonal features of psychopathy evinced largely equal relationships to affective resonance in past research (Vachon & Lynam, 2016),

present findings found greater deficits in both affective resonance and dissonance within CH traits compared with FD traits. Consistently, the CH subdimension is postulated to be more maladaptive compared with FD (Miller & Lynam, 2012). CH was tied to a greater extent with deficits in experiencing similar emotions to others (i.e., affective resonance) that was SCI. However, the extent to which both CH and SCI feature experiences of different emotion responses (i.e., affective dissonance) such as sadism or contempt was statistically equal. All psychopathic traits, including FD traits to a lesser extent, were characteristic of deficits in experiencing emotional reactivity to others' emotions, which is partly consistent with prior research (Uzieblo et al., 2010; Vachon & Lynam, 2016). Taken together, psychopathic traits were largely negatively related to all ACME facets, consistent with expectations.

Findings from the structural equation models provided partial support for the hypothesis that psychopathic traits evince indirect effects on aggression facilitated by empathy components and emotion dysregulation. Psychopathic traits did not have indirect effects on aggression via different ACME facets, and the model was re-tested using the total ACME score due to concern about adequate power. As such, it is not conclusive whether or not differential indirect effects of psychopathic traits may manifest across facets of empathy, as suggested in prior research (e.g., White et al., 2015). In the context of mixed findings on the association of empathy to aggression (Jolliffe & Farrington, 2004, Vachon et al., 2014), empathy scores did appear to statistically account for a notable portion of the variance in the associations of psychopathic trait subdimensions to proactive aggression. Differential implications for interpersonal-affective traits were indicated, such that empathy levels facilitated the negative

association of FD and the positive association of CH with proactive aggression. The findings also indicated that emotion regulation difficulties (e.g., managing emotions, impulsivity based on emotions; Gratz & Roemer, 2006) within SCI traits had implications for increased reactive aggression. On the other hand, the manifestation of emotion regulation abilities within interpersonal-affective traits (e.g., emotional stability, low stress reactivity, emotional detachment) played a role in decreased reactive aggression, consistent with prior findings on FD (Long et al., 2015).

Whereas empathy deficits are purportedly a central feature of psychopathy overall (Vershuere et al., 2017), emotion dysregulation is considered to be characteristic of only impulsive-antisocial traits (Donahue et al., 2014; Miller et al., 2010). This view is supported by the present findings, as only SCI evinced a positive (and moderate-sized) association. Both interpersonal-affective traits were associated with decreased emotion dysregulation, similar to past research (Donahue, 2014; Long et al., 2015). Differing features within the traits may contribute to these relationships. CH traits are characteristic of blunted emotional experience, emotional detachment, or limited expressivity (Berg et al., 2015), whereas FD traits capture emotional stability or resilience (Lilienfeld, Watts, Smith, Berg, & Latzman, 2015). SCI and emotion dysregulation share features of impulse-control difficulties, emotional reactivity, and experience of negative affectivity, such as anger or anxiety (Gratz & Roemer, 2004; Miller & Lynam, 2012). Taken together, emotion dysregulation is supported as a relevant affective feature of psychopathic traits with relatively greater implications for impulsive-antisocial traits and potential externalizing behaviors (Miller et al., 2010; Vidal et al., 2009).

Empathy and emotion dysregulation appear to function independently within the pathways of psychopathy to aggression with differing implications for proactive and reactive aggression. All indirect effects were maintained in the final model that accounted for shared variance, indicating that each indirect effect of empathy and emotion dysregulation cannot be better accounted for by variance in the other. However, the negative effects of some psychopathic traits on aggression (FD-proactive and reactive aggression, CH-reactive aggression) warrant further consideration. Despite the well-established relationship of psychopathy to aggression (Porter, Woodworth, & Black, 2018), Reidy, Shelley-Tremblay, and Lilienfeld's (2011) review of psychopathy's role in reactive aggression yielded mixed findings, with some studies indicating that psychopathy can be protective against reactive aggression. As both interpersonal-affective traits exerted negative indirect effects on reactive aggression, present findings provide some support for this conclusion by postulating that the lower levels of emotion dysregulation that characterize FD and CH traits facilitate lesser engagement or greater restraint from reacting aggressively due to provocation.

Clarifying Findings on Empathy Facets and Indirect Effects

Several unexpected results were found in the present study, warranting additional consideration. Given the limited empirical work on the three-factor ACME model of empathy (i.e., Murphy et al., 2018; Vachon & Lynam, 2016), no *a priori* hypotheses were made regarding convergent or differential relations with the two ACME affective empathy facets. Nevertheless, association of psychopathic traits to cognitive empathy has received extensive attention in past studies. The positive association of FD traits (e.g., fearlessness, social influence, and stress immunity) to cognitive empathy in this study is

similar to prior research on the PPI-R model (Uzieblo et al., 2010). Other conceptualizations of psychopathy have found negligible relations between cognitive empathy with boldness traits (Almeida et al., 2015; Sellbom et al., 2015) or the interpersonal facet of psychopathy (Vachon & Lynam, 2016). The findings suggest that the increased cognitive empathy tied to FD may contribute to how the subdimension uniquely taps into increased social efficacy or poise (Lilienfeld et al., 2015), despite sharing a common core of dispositional fearlessness with boldness (Patrick et al., 2009).

Unexpectedly and inconsistent with most research (Almeida et al., 2015; Mullins-Nelson et al., 2014; Sellbom et al., 2015; Vachon & Lynam, 2016) except for Uzieblo and colleagues' study (2010), impulsive-antisocial traits (SCI) were not associated negatively with cognitive empathy. Possible explanations for discrepant findings include that prior studies used different measures of empathy or conceptualized impulsive-antisocial traits using a different measure of psychopathy (Almeida et al., 2015; Mullins-Nelson et al., 2014; Sellbom et al., 2015). The SCI subdimension de-emphasizes overt antisociality features of psychopathy, enhancing its applicability in non-forensic populations (Marcus, Fulton, & Edens, 2013). Vachon and Lynam (2016) found that within impulsive-antisocial traits, it was the antisociality, rather than behavioral features such as an erratic or dysregulated lifestyle, that was associated with lessened cognitive empathy. Nevertheless, this explanation does not account for negative relations of Disinhibition traits to cognitive empathy (Almeida et al., 2015; Sellbom et al., 2015). Additional research may delineate the extent to which impulsive-antisocial traits across differing conceptualizations of psychopathy are associated with self-reported empathy.

Contrary to expectations, emotion dysregulation statistically accounted for a negative association between CH and reactive aggression. Although mixed, prior findings have delineated a negative relationship between CH or callous traits and reactive aggression, particularly among undergraduates (Hecht et al., 2016; White et al., 2015). As seen in present and past findings (Long et al., 2015), emotion dysregulation is generally indicated as more relevant to reactive aggression due to the impulsivity and provocation associated with that aggression type (Long et al., 2015; Marsee & Frick, 2007).

Broad Considerations for Psychopathy

Consistent with prior research (Blais et al., 2014; Fanti, Frick, & Georgiou, 2009; Long et al., 2015), interpersonal-affective traits (FD, CH) were positively related to proactive aggression and negligibly to reactive aggression, whereas only impulsive-antisocial traits (SCI) were positively linked to reactive aggression. In fact, impulsive-antisocial traits had stronger positive ties to both aggression types. When considering only self-reported psychopathy, Blais and colleagues had found that both psychopathy factors evince relations of equal magnitude to instrumental aggression. In this study, only FD maintained a positive association to proactive aggression after accounting for shared variance, whereas the CH-proactive aggression relationship became negligible. The extent to which callousness traits (i.e., CH) predict instrumental aggression above and beyond other psychopathic traits has been debated (e.g., Declercq, Willemsen, Audenaert, & Verhaeghe, 2012, Frick & White, 2008, Hodges & Heilbrun, 2009). While the affective facet is positively associated with proactive aggression, the relative contribution of the interpersonal facet was found to be greater (Blais et al., 2014). Similarly, FD traits consistently exert positive effects on proactive aggression, but effects of CH traits have

been mixed (Hecht et al., 2016; Long et al., 2015). Taken together, the differential effects of psychopathic traits on aggression are largely consistent with the prior literature.

Despite the prevalence of the PPI-R measure, concerns have been raised surrounding the role of FD within the broader psychopathy construct (Miller & Lynam, 2012). FD has received scrutiny as being adaptive and associated with decreased psychopathology (e.g., Miller & Lynam, 2012; Marcus, Fulton, & Edens, 2013). Others contend that FD features of sensation-seeking, narcissism, and fearlessness distinguish psychopathy from other externalizing psychopathologies (Patrick, Venables, & Drislane, 2013) or that its adaptivity is congruent with the paradoxical manifestation of primary psychopathy (Lilienfeld et al., 2012). Present findings provide some support for its adaptivity in protecting against reactive aggression (albeit indirectly), although FD was still associated with increased proactive aggression. As such, aggregate aggression scores could be masking or suppressing divergent relations across aggression type for some psychopathy subdimensions, similar to suppression effects found in investigations of psychopathy and negative emotionality (e.g., Hicks & Patrick, 2006). Finally, FD's negative association with emotion dysregulation and relatively lower empathy deficits (compared to the other traits) is consistent with its theoretical conceptualization (Lilienfeld et al., 2012; Miller & Lynam, 2012).

CH captures core features of psychopathy (e.g., callousness, remorselessness, social detachment; Vershuere et al., 2017). This subdimension has failed to load onto either of the two broad PPI-R subdimensions in factor analyses (FD, SCI; Benning et al., 2002, Neumann, Malterer, & Newman, 2008) and is generally poorly understood (Berg, Hecht, Latzman, & Lilienfeld, 2015). In the present study, CH's sizable negative

associations with empathy are congruent with features of low emotional expressiveness towards others and social withdrawal (Berg et al., 2015). Its negative association to emotion dysregulation, alternatively, may reflect lessened internalizing psychopathology (Berg et al., 2015; Ross, Benning, Patrick, Thompson, & Thurston, 2009). CH traits do appear to play a role in aggression, with decreased empathy levels facilitating greater proactive aggression and decreased emotion dysregulation accounting for lessened reactive aggression. As noted above, CH has been found to contribute to aggression in undergraduate samples (Hecht et al., 2016; Preston, Watts, Anestis, & Lilienfeld, 2018), although this effect was not replicated in an incarcerated male sample (Edens, Poythress, Lilienfeld, Patrick, & Test, 2008).

Limitations

The present study is not without limitations. Reliance on self-report measures may have potentially inflated the magnitude of associations due to method covariance. The cross-sectional nature of the design precludes any conclusions regarding temporal precedence, much less causality. As such, replication using alternative methods (e.g., clinician-rated psychopathy, behavioral aggression paradigms) and longitudinal data would provide more conclusive findings. The content assessed by different subscales across measures may be similar (e.g., PPI-R CH, affective resonance), contributing to increased magnitudes of associations. Although content overlap of self-report measures is a challenge to construct validity (Nicholls, Licht, & Pearl, 1982), this approach still reflects the similarity of features and content across constructs. This limitation may be partly addressed by using alternative measures of empathy (e.g., physiological reactivity, informant report of warmth) or clinician-rated psychopathy.

Although psychopathy's relations to aggression have been established in nonincarcerated samples (Porter et al., 2018), these findings may have limited generalizability beyond young adults or college samples. The sample included a higher proportion of females (78.5%) compared with males. Differential associations of psychopathy and aggression types have been established in females (e.g., Lehmann & Ittel, 2012; Marsee & Frick, 2007). Further, gender appears to moderate the relationship between self-reported psychopathy and reactive aggression such that larger effects are found for males (Blais et al., 2014). As such, the female-majority sample used in this study may underestimate the magnitude of that relationship. Examining these relationships in alternative samples (e.g., incarcerated males) will provide additional support for pathways of psychopathic traits to aggression through affective correlates.

Conclusion

Even in undergraduate populations with ostensibly subclinical levels, psychopathic traits have implications for aggression. Affective correlates of multifaceted empathy and emotion dysregulation play differing roles in how psychopathic traits facilitate proactive and reactive forms of aggression. Although impulsive-antisocial traits consistently relate to aggression types, some interpersonal-affective traits may have adaptive effects (e.g., decreased reactive aggression). These findings also provide support for the three-factor ACME conceptualization of empathy, suggesting that the three empathy abilities are impaired to differing extents across psychopathic traits. In all, this study takes some steps to address the role of psychopathic traits in aggression or conceptualize adaptive functioning or "successful psychopathy" in nonincarcerated populations (e.g., Benning, Venables, & Hall, 2018).

APPENDIX A IRB Approval Letter

THE UNIVERSITY OF SOUTHERN MISSISSIPPI.

INSTITUTIONAL REVIEW BOARD
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NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 17120703
PROJECT TITLE: Pathways of Psychopathic Traits to Aggression Throug Affective Correlates in a Nonincarcerated Population
PROJECT TYPE: New Project
RESEARCHER(S): Olivia Preston
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 02/06/2018 to 02/05/2019
Lawrence A. Hosman, Ph.D.
Institutional Review Board

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