8-1-2019

Validating Empathy as Captured by the Meanness in Psychopathy-Self Report

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VALIDATING EMPATHY AS CAPTURED BY

THE MEANNESS IN PSYCHOPATHY- SELF REPORT

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2011

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2016

A dissertation submitted in partial fulfillment

of the requirements for the

Doctor of Philosophy - Psychology

Psychology Department
College of Liberal Arts
The Graduate College

University of Nevada, Las Vegas
August 2018

UNLV | GRADUATE COLLEGE

Dissertation Approval

The Graduate College
The University of Nevada, Las Vegas

May 15, 2018

This dissertation prepared by

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entitled

Validating Empathy as Captured by the Meanness in Psychopathy- Self Report

is approved in partial fulfillment of the requirements for the degree of

Doctor of Philosophy - Psychology
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Abstract

Psychopathy is a distinctive personality disorder with an array of interpersonal and affective deficits. In particular, deficits in affective and cognitive empathy skills are noted to be a central feature of psychopathy. Specifically, the construct of psychopathic meanness, which is conceptualized as a tendency to act aggressively without regard for others, is preferentially related to deficient empathy. To elucidate the relationship between psychopathic meanness and empathy, three studies were conducted utilizing the Meanness in Psychopathy-Self Report (MiP-SR). The MiP-SR is a new measure that parses apart the construct of psychopathic meanness into three factors: Malice, Coldness, and Imperviousness. MiP-SR also includes several empathy subscales that capture positive and negative emotional contagion, cognitive empathy, and emotional perception abilities; together they allow for a comprehensive examination of empathy.

The first study established the construct validity of the MiP-SR's empathy subscales in a large community sample. In Study 2, an undergraduate student sample underwent a laboratory stressor while in the presence of a friend. As captured by the postauricular and startle blink reflexes, psychopathic meanness was not implicated in deficits with emotional reactivity. In Study 3, undergraduate students underwent a behavioral laboratory task designed to elicit aggression while psychophysiological data was recorded. While there were no significant findings with the psychophysiological measures, Imperviousness was related to and predicted instrumental behavioral aggression. Furthermore, empathy was largely unrelated to behavioral aggression. Overall, this dissertation brings forth questions regarding the role of empathy within the construct of psychopathic meanness. Given that the MiP-SR's empathy subscales do indeed appear to be capturing empathy, the null finding from Study 2 raises questions regarding the distinction in one's ability to provide and benefit from receiving empathy. Study 3 elucidates the

role of maladaptive boldness (i.e., Imperviousness) in aggressive behaviors, but also suggests that empathy and aggression are unrelated. These findings have important implications for understanding of how empathy deficits within psychopathic meanness manifest.

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Chapter 1: Literature Review

Psychopathy is a distinctive personality disorder whose maladaptive traits often lead to an array of interpersonal deficits. Interpersonally, psychopathic individuals may lack empathy, be deceptive, or have ideas of grandiosity, which may impede their ability to maintain relationships with others. The deficits in empathy associated with psychopathy may be at the core of meanness traits which are distinctively associated with the disorder. In the literature, there are a number of different models and measures utilized to capture psychopathic personality traits, some of which capture aspects of meanness. However, meanness is currently only represented in short facets of measures that are unlikely to capture completely the panoply of empathic deficits in psychopathy. My dissertation will employ the Meanness in Psychopathy-Self Report (MiP-SR; Benning, Barchard, Westfall, Brouwers, & Molina, 2018a), which parses meanness across multiple constructs and includes a rich subset of scales that assess facets of empathy. Given the central role of empathy in psychopathy, it would be beneficial to utilize a measure such as the MiP-SR and interpersonal laboratory tasks to investigate the role of empathy within psychopathic meanness.

Psychopathy Models

One of the most commonly used psychopathy measures in both research and clinical settings is the Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003). The PCL-R conceptualizes psychopathy into two overarching and correlated factors, each consisting of two facets. Factor 1 encompasses the core interpersonal and affective features of the disorder including manipulativeness (Facet 1) and lack of empathy (Facet 2; Hare, 2003). On the other hand, Factor 2 captures the antisocial lifestyle associated with the disorder by focusing on impulsivity (Facet 3) and criminal/antisocial deviance (Facet 4; Hare, 2003). The PCL-R requires

a trained individual to rate the participant on each of the 20 items via a structured interview and collateral records review (Hare, 2003). As this measure was developed for use in forensic populations, scores are heavily influenced by criminality and externalizing features (Patrick, Hicks, Nichol, & Krueger, 2007). Given its limited utility, other measures (mainly self-report) are aimed at capturing core psychopathic personality traits as they relate to interpersonal functioning in a variety of settings (Skeem, Polaschek, Patrick, & Lilienfeld, 2011).

Following the PCL-R, the Self- Report Psychopathy Scale-III (SRP-III; Paulhus, Hemphill, & Hare, 2009) was developed to index the facets of the PCL-R in self-report form. Currently, the most updated version of the SRP is the SRP-4 (Paulhus, Neumann, & Hare, 2016); however, there are yet to be studies aimed at validating this version. Thus, the SRP-III is the most recent validated version. The SRP-III yields a total psychopathy score and four subscales: Interpersonal Manipulation, Callous Affect, Erratic Lifestyle, and Criminal Tendencies (Paulhus et al., 2009). Factor 1, Interpersonal Manipulation, is associated with characteristics such as low honesty, relational and physical aggression, fraud, and narcissism (Neal & Sellbom, 2012). The second factor, Callous Affect, is associated with low empathy, callousness, and unemotional traits as assessed via other psychopathy measures (Neal & Sellbom, 2012), including the Inventory of Callous-Unemotional Traits (Frick, 2004). Factor 3, Erratic Lifestyle, encompasses low planful control, boredom proneness, and excitement seeking (Neal & Sellbom, 2012). Lastly, the fourth factor is Criminal Tendencies which is found to be the best predictor of destructive aggression, and is further associated with externalizing and impulsive behaviors (Neal & Sellbom, 2012). While Mahmut, Menictas, Stevenson, and Homewood (2011) validated the SRP-III successfully in an undergraduate student sample, the reliability for the Callous Affect

factor was low (Cronbach's alpha = .65). Thus, the SRP-III may not be the best measure to capture empathy deficits in non-forensic samples.

The Levenson Self-Report Psychopathy Scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995) was created as another self-report adaption of the PCL-R. Distinct from the SRP-III, the LSRP focuses on primary and secondary psychopathy (Karpman, 1948). Karpman (1948) described primary psychopaths to be those individuals who were callous, manipulative, untruthful, and ultimately what he believed to be "true psychopathy." On the other hand, he described secondary psychopaths as having an underlying neuroticism or emotional disorder which drives them to engage in impulsive, antisocial behaviors (Karpman, 1948). The LSRP primary psychopathy scale captures interpersonal-affective features and has been found to be associated with affective empathy deficits (Reniers, Corcoran, Drake, Shryane, & Völlm, 2011). On the other hand, the secondary psychopathy scale of the LSRP assesses impulsive-antisocial deviance and has been found to be associated with trait anxiety (Levenson et al., 1995).

The Inventory of Callous-Unemotional Traits (ICU; Frick, 2004) assesses the callous and unemotional features associated with psychopathy in juveniles. The ICU has three facet scores: 1) Unemotional, 2) Callousness, and 3) Uncaring (Frick, 2004). The Unemotional facet captures an absence of emotional expression (Roose, Bijttebier, Decoene, Claes, & Frick, 2010). Furthermore, the Callousness facet encompasses a lack of empathy, guilt and remorse, and the Uncaring facet consists of a lack of caring regarding others' feelings and one's own performance (Roose et al., 2010). Validation studies have shown that Callousness is associated with aggression; whereas both the Unemotional and Uncaring facets are associated negatively with empathy (Kimonis et al., 2008), with the Uncaring facet's relationship being stronger (Roose et al., 2010).

Other measures have focused on including the adaptive aspects of psychopathy and steered away from using specific antisocial acts to assess the disorder. Specifically, the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) parses psychopathy into three scales: Fearless Dominance (FD), Impulsive Antisociality (IA; Benning, Patrick, Blonigen, Hicks, & Iacono, 2005), and Coldheartedness (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003). FD is associated with boldness, fearlessness, and thrill seeking; whereas IA encompasses negative emotion directed toward others, impulsivity, and low social closeness (Benning, Patrick, Blonigen, et al., 2005). FD is associated with adaptive psychological traits such as emotional stability, social efficacy, higher well-being, and assertiveness (Benning, Patrick, Blonigen, et al., 2005). IA is more closely linked to maladaptive functioning, including criminal tendencies (Witt, Donnellan, Blonigen, Krueger, & Conger, 2009). Coldheartedness consists of a lack of emotional reactivity, lack of sentimentality, and has been found to have negative associations with empathy (Dziobek et al., 2007; Lishner, Hong, Jiang, Vitacco, & Neumann, 2015; Oliver, Neufeld, Dziobek, & Mitchell, 2016; Sandoval, Hancock, Poythress, Edens, & Lilienfeld, 2000).

Triarchic Meanness

To reconcile the varying theoretical conceptions and integrate the findings across the literature, the Triarchic Model of Psychopathy (Patrick, Fowles, & Krueger, 2009) was developed (Drislane, Patrick, & Arsal, 2014). This model divides psychopathy into three factors: Disinhibition, Boldness, and Meanness, each of which is assessed via the Triarchic Psychopathy Measure (TriPM; Patrick, 2010). Disinhibition is defined as a general propensity towards difficulties with controlling one's impulses and is associated with impulsivity, irresponsibility, low planfulness, and alienation (Drislane et al., 2014; Patrick et al., 2009). Boldness has similar

correlates to FD and is thought to be an adaptive feature of psychopathy consisting of a combination of emotional stability, dominance, and fearlessness (Drislane et al., 2014). Lastly, Meanness is described as “aggressive resource seeking without regard for others" (Patrick et al., 2009, p. 913) is related to lack of empathic concern, manipulativeness, and cruelty (Drislane et al., 2014).

Of particular interest for this project is the construct of meanness as it is implicated in empathic deficits central to the aim of these studies (Patrick et al., 2009). Early conceptualizations of psychopathy by McCord and McCord (1964) and Quay (1965) described meanness to be at the core of criminal psychopathy. McCord and McCord (1964) described that a lack of emotional connection and feelings of guilt are at the core of psychopathy. Furthermore, Quay (1965) described that a lack of concern about others along with a lack of emotional attachment and aggressive behaviors were characteristic features of psychopathy. The PCL-R, a measure predominantly used to assess criminal psychopathy, captures these central components in its items (Patrick et al., 2009).

An issue with the PCL-R is that it is a measure that relies heavily on antisocial deviance (i.e., externalizing behaviors); thus, when assessing core personality traits, it is ideal that measures do not heavily rely on criminal acts. Krueger, Markon, Patrick, Benning, and Kramer (2007) demonstrated that within the spectrum of externalizing behaviors, there is a factor that independently contributes to instrumental aggressive behaviors (i.e., a callous aggression factor). This callous aggression factor captures low empathy, sensation seeking tendencies, callousness, dishonestly, and rebelliousness (Patrick et al., 2009). It overlaps with the Callous-Unemotional factor of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001). The ASPD is a 20-item rating scale completed by parents and teachers assessing impulsivity, conduct problems,

emotional insensitivity, and interpersonal callousness in children. In addition to overlapping with Krueger et al. (2007)'s callous aggression (i.e., "meanness") factor, the CU factor of the APSD has been found to be associated with proactive aggression and low dispositional fearlessness; thus, these factors may also be associated with meanness (Patrick et al., 2009).

In summary, meanness is a construct distinct from Boldness and Disinhibition and it is derived from a constellation of different terms (callousness, coldheartedness, antagonistic; Patrick et al., 2009) that are used to describe the defining interpersonal and affective temperament. In general, individuals who are viewed as mean are typically described as lacking empathy, uninterested in and lacking close relationships, and manipulative and exploitative of others. "Mean" further encompasses individuals who enjoy engaging in rule-breaking, excitement seeking, and cruel behaviors that typically harm others in some form (Patrick et al., 2009). Meanness is described to be an intermediate position between high dominance in social relationships, while maintaining low affiliation (Blackburn, 2006; Harpur, Hare, & Hakstain, 1989).

Patrick and colleagues (2009) hypothesized how meanness is captured via established psychopathy measures. They suggested that PCL-R Factor 1 theoretically encompasses the meanness component of psychopathy, given that it captures interpersonal and affective deficits through facets targeting manipulation and empathic deficits. Venables, Hall, and Patrick (2014) refined this hypothesis by demonstrating that meanness was associated with PCL-R affective features (i.e., callousness, unemotionality, lack of empathy) within Factor 1. Shifting to measures used with non-criminal samples, Patrick et al. (2009) conceptualized that the PPI Coldheartedness subscale captures elements of meanness as this scale assesses features not captured in FD or IA within the PPI. The Coldheartedness subscale is correlated to low

agreeableness (i.e., disagreeable), low neuroticism (i.e., higher emotional stability), and low extraversion (i.e., less out-going; Ross, Benning, Patrick, Thompson, & Thurston, 2009). These associations mirror the description for meanness above (Patrick et al., 2009). Several studies have supported this theory showing that the Coldheartedness subscale has a selective association with TriPM Meanness (Drislane et al., 2014; Sellbom & Phillips, 2013; Stanley, Wygant, & Sellbom, 2013).

The conceptualization of Triarchic Meanness has been further validated on other measures of psychopathy that capture the features of meanness. For example, the ICU, a measure designed specifically to capture callousness and unemotionality and has been linked to reduced empathy and aggression (features that are at the core of meanness), is selectively associated with TriPM Meanness (Drislane et al., 2014). Furthermore, consistent with the findings linking meanness to PCL-R Factor 1, the SRP-III's Interpersonal Manipulation and Callousness factors are most strongly associated with TriPM Meanness (Drislane et al., 2014). As noted above, these factors capture the aggressive interpersonal and lack of emotionality aspects central to meanness.

Empathy

Though the Triarchic Meanness scale devotes 10/21 of its items to assessing empathy, it only measures empathy as an umbrella construct without parsing its constituents cleanly. The term empathy stems from early social theories that noted human beings displayed an *instinctual* affective reaction to the emotional experience of another as well as an *intellectual* ability to recognize the emotional experience of another person without having to experience the situation themselves (Davis, 1980). This seemingly inherent and automatic human response was labeled as *empathy*, which is described as a basic component of human emotional functioning involving other-oriented emotional responses based on the perceived welfare of another person. Overall,

the ability to empathize with other people appears to be instrumental in the development of meaningful and positive interpersonal relationships.

In the early literature, there was much debate regarding the construct of empathy and its factor structure (Davis, 1980). Given that within its earliest descriptions, empathy has included both an affective and intellectual (or cognitive) component, it is typically described in the literature currently as a multi-dimensional construct. Cognitive empathy refers to the process of making cognitive attributions about what another person is thinking in a given situation (Hynes, Baird, & Grafton, 2006). The most commonly studied aspect of cognitive empathy is perspective-taking, a process that requires one to use their knowledge about the mental state of another person based on the information given to them about the individual (Hynes et al., 2006). Conversely, affective empathy refers to the ability to "feel" what another individual is feeling in a given situation (Feshbach, 1989).

The Interpersonal Reactivity Index (IRI; Davis, 1980) is a self-report measure designed to capture the multi-dimensional nature of empathy. It is the most widely used measure in research to date. The IRI captures cognitive and affective empathy via four distinct dimensions: fantasy, perspective-taking, empathic concern, and personal distress. The fantasy scale captures an individual's tendency to imaginatively put themselves in the position of characters in fictional situations (such as book, movies, and daydreams). The perspective taking scale assesses an individual's tendency to take on the point of view of others. These two scales capture components of cognitive empathy.

The empathic concern and personal distress scales capture affective empathy (Davis, 1980). The empathic concern scale captures the extent to which the individual is likely to experience feelings of warmth, compassion, and concern for another individual in an unfortunate

situation. On the other hand, the personal distress scale measures the extent to which the individual experiences feelings of fear, discomfort and apprehension in response to observing a negative emotional experience. Notably, the personal distress scale assesses for general negative emotional distress, but does not assess the emotional contagion that is suggested by the definitions of affective empathy. That is, given that empathy refers to an individual being able to experience the emotions of another, it would be important to assess responsive distress rather than general personal distress. The MiP-SR, which is discussed in further detail later in this literature review, features a scale geared at assessing this aspect of affective empathy.

Other empathy measures vary in their coverage of cognitive and emotional empathy. For instance, the Empathy Quotient (EQ; Baron-Cohen & Wheelwright, 2004) is a self-report empathy scale originally developed to assess empathy deficits in individuals with Autism Spectrum Disorder. The EQ captures empathy via three different factors: cognitive empathy, affective reactivity, and social skills (Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004). The Toronto Empathy Questionnaire (TEQ; Spreng, McKinnon, Mar, & Levine, 2009) is a self-report measure of solely affective empathy and captures information specific to the IRI empathic concern scale. Thus, it focuses on an individual feeling concern, warmth, and/or compassion for another individual.

Affective empathy measures focus almost exclusively on assessing the contagion of negative affect. That is, items assess if individuals feel empathy in response to another's negative emotional state. Few affective empathy measures capture the contagion of *positive affect* (for example, responsive joy; see the Quick Scale of Empathy; Caruso & Mayer, 1999). It is unclear why the literature has heavily focused on negative affect when assessing empathy as early definitions of empathy conceptualize the construct as an instinctual response to feel and/or

intellectualize another individual's emotions in a given situation. There is no mention regarding negative emotional states. Therefore, given that the ability to feel another person's positive affect, such as joy, should be measured as valuable component of affective empathy. In general, it would be expected that those with empathic deficits would have difficulties perceiving general emotional responses (i.e., both positive and negative affect).

Empathy Deficits in Psychopathy

Psychopathic individuals have been described to affectively lack the ability to empathize with others (Cleckley, 1976), but still possess the ability to take others' perspectives (Blair et al., 1996). Thus, cognitive empathy and affective empathy each have been shown to have unique relationships with psychopathy. Dadds et al. (2009) found that male and female psychopathic children both display cognitive empathy deficits, but only male children display affective empathy deficits. In the adolescent psychopathic male group, the deficits in cognitive empathy were significantly reduced in comparison to the younger male groups, while the affective empathy deficits were not. The authors suggested that boys either improve their cognitive empathy skills or learn to hide their deficiencies as they get older. Similarly, Brouns et al. (2013) found that psychopathic adolescents (both genders) display deficits in both affective and cognitive empathy, though they exhibited more pronounced deficits on affective empathy tasks. Similarly, Mullins-Nelson, Salekin, and Leistico (2006) replicated these findings in an undergraduate sample as they found IA to be associated with both cognitive and affective empathy deficits. Further research has shown that while psychopathic individuals may not perceive cognitive empathy tasks as difficult, they still display empathy and emotional recognition deficits of stimuli with negative valence (e.g., fear and sadness; Brook & Kosson, 2013).

Despite evidence pointing to some deficits in cognitive empathy amongst psychopathic individuals, the abundance of the research has found impairments with affective empathy (Holmqvist, 2008; Jones, Happé, Gilbert, Burnett, & Viding, 2010; Lishner et al., 2015; Oliver et al., 2016; Sandoval et al., 2000; Seara-Cardoso, Dolberg, Neumann, Roiser, & Viding, 2013; Sörman et al., 2016; Wai & Tiliopoulos, 2012; Zágon & Jackson, 1994). A study examining empathy dysfunction amongst boys with psychopathic tendencies, conduct disorder, and autism spectrum disorders found a specific deficit in psychopathic boys' abilities to experience others' distress (Jones et al., 2010). In Holmqvist (2008) found that offender adolescents higher in psychopathic traits showed reduced affective empathy. Zágon and Jackson (1994) found a negative association between psychopathy and empathy in an undergraduate sample as measured by the IRI. Specifically, participants who had higher Factor 1 and 2 SRP-II (Hare, 1985) scores were less likely to demonstrate empathic discomfort in response to others' emotions as measured via the personal distress subscale. Wai and Tiliopoulos (2012) also demonstrated that LSRP psychopathy was preferentially associated with low affective empathy and unrelated to cognitive empathy.

Research has linked the affective-interpersonal aspects of psychopathy with affective empathy deficits. For example, higher affective-interpersonal psychopathic traits were associated with deficits in empathy and moral processing as participants demonstrated a combination of low affective empathy and a lack of empathic emotional responses to sad and fearful faces, and sad short stories (Seara-Cardoso et al., 2013). In particular, researchers have suggested that the callous and unemotional aspects of psychopathy may be driving empathy impairments in the disorder. The Coldheartedness scale of the PPI was negatively associated with affective empathy (Sandoval et al., 2000). Similarly, Coldheartedness was strongly negatively associated with

Empathic Concern from the IRI (Sörman et al., 2016). Oliver et al. (2016) also showed that PPI Coldheartedness was preferentially associated with reduced affective, but not cognitive, empathy. Specifically, they found Coldheartedness to be associated with lower empathic concern and affective sharing when viewing emotional pictures as measured via the Multifaceted Empathy Test (MET; Dziobek et al., 2007; Oliver et al., 2016). Furthermore, Lishner et al. (2015) demonstrated that Callous Affect was associated with lower emotional contagion of sadness to sad faces; lower emotional contagion of sadness, anger, and fear to those in need; and lower empathic concern to those in need. Thus, authors proposed that it may be that emotional callousness is driving the association between psychopathy and affective empathy deficits (Lishner et al., 2015).

Empathy, Psychopathic Meanness, and Psychophysiology

Research has suggested that meanness may be underlying the empathy deficits seen in psychopathy (Almeida et al., 2015; Sellbom & Phillips, 2013; Sellbom, Wygant, & Drislane, 2015). Sellbom and Phillips (2013) found that TriPM Meanness specifically (i.e., not Boldness or Disinhibition) was negatively associated with affective empathy as captured via the Emotional Empathy Scale (EES; Mehrabian & Epstein, 1972). Similarly, the construct of Triarchic Meanness as derived from the Psychopathic Personality Inventory (Lilienfeld & Andrews, 1996) was also found to be conversely related to empathy (Sellbom et al., 2015). Specifically, Meanness, but not Boldness or Disinhibition, was inversely associated with both cognitive empathy (as captured via the IRI Perspective Taking scale) and affective empathy (as captured via the IRI Empathic Concern Scale; Sellbom et al., 2015). Almeida and colleagues (2015) also found that TriPM Meanness was negatively associated with both cognitive and affective empathy on the IRI. These findings are interesting as meanness appears to be associated with deficits in

almost all aspects of empathy (except personal distress), which is contrary to the research indicating a lack of Theory of Mind deficits (Blair et al., 1996). Almeida et al. (2015) suggests that individuals higher in meanness traits are less likely to take into account another individual's perspective (i.e., cognitive empathy). Taken together, these findings suggest that the construct of meanness within psychopathy is preferentially related to empathy deficits and may be driving unique impairments.

Minimal research has investigated how psychophysiological mechanisms are related to meanness (Patrick & Drislane, 2015). Functional neuroimaging has shown associations between childhood callous unemotional traits and increased proactive aggression, increased venturesomeness, reduced affective reactivity to stressors, and reduced amygdala response to fearful face stimuli (Frick & White, 2008; Marsh et al., 2008). Though childhood callous unemotional traits are linked to meanness, further research examining meanness's psychophysiological correlates in adults is needed in order to gain a deeper understanding of the underlying neurobiology of these personality traits (Patrick & Drislane, 2015). Nevertheless, findings in the literature linking callous unemotional traits to a lack of affective reactivity to stressors and fearful faces is in line with the conceptualization of meanness being linked to empathic deficits.

Psychophysiological research on empathy has found that heightened skin conductance response (SCR) is an indicator of empathy for another's pain (Hein, Lamm, Brodbeck, & Singer, 2011). Specifically, high SCR in response to another individual in pain is suggestive of higher empathic concern and vice versa (Hein et al., 2011; Pfabigan et al., 2015). Psychopathic individuals have shown reduced SCR when viewing distress cues in comparison to non-psychopathic controls (Blair, Jones, Clark, & Smith, 1997). Further evidence has shown that

specifically PPI Coldheartedness predicts low empathic responses for pain on behavioral measures (Sörman et al., 2016). In this study, individuals alternated receiving shocks with a confederate seated next them and rated how unpleasant it was while psychophysiological data was recorded (SCR, heart rate variability, and the supercillary corrugator muscle). Results indicated that Coldheartedness predicted low responses in empathy for pain in unpleasantness ratings and SCRs (Sörman et al., 2016). Neurologically, psychopathic adolescents displayed reduced activity in regions associated with processing empathic pain (e.g., amygdala) when they imagined others being injured versus themselves (Marsh et al., 2013).

Further research using additional psychophysiological measures to capture empathy is needed. For example, although not directly implicated with empathy deficits, the startle blink reflex may be a valuable measure to employ. The startle blink reflex is a defensive-protective mechanism against aversive or threatening stimuli (Lang, Bradley, & Cuthbert, 1998). In the psychopathy literature, deficient startle blink potentiation has been associated with Factor 1 of the PCL-R (Patrick, 1994; Patrick, Bradley, & Lang, 1993), FD (Anderson, Stanford, Wan, & Young, 2011; Benning, Patrick, & Iacono, 2005; Justus & Finn, 2007), and boldness (Esteller, Poy, & Moltó, 2016). As noted above, Factor 1 of the PCL-R has been found to be associated with meanness and empathy deficits (Venables et al., 2014). Therefore, this measure may be valuable to assess when elucidating the relationship between empathy and psychopathic meanness.

However, just as the empathy literature has neglected assessing positive emotion, so too has the psychophysiology of psychopathy been remiss in assessing positive emotional reactivity. The postauricular reflex captures approach motivation (i.e., the opposite of the startle blink reflex) and potentiates in response to pleasant stimuli (Benning, Patrick, & Lang, 2004).

Specifically, people display larger postauricular reflexive magnitudes when viewing pleasant pictures (relative to neutral pictures; Benning et al., 2004; Gable & Harmon-Jones, 2009; Hess, Sabourin, & Kleck, 2007), and listening to pleasant sounds (Benning, 2011). The postauricular reflex tends to potentiate when viewing appetitive scenes, in particular (Quevedo, Benning, Gunnar, & Dahl, 2009; Sandt, Sloan, & Johnson, 2009). Given that the postauricular reflex captures positive emotional reactivity, an area of research lacking in the fields of empathy and psychopathy, it would be beneficial to assess it in addition to the startle blink reflex. Capturing both the startle blink and postauricular reflexes can serve to further elucidate the relationship between empathy and psychopathy in regards to positive and negative emotionality.

The Meanness in Psychopathy- Self Report

To gain a deeper understanding of the relationship between psychopathic meanness and empathy, it would be beneficial to utilize a measure designed to specifically capture meanness. While there are a number of psychopathy measures that capture some aspects of meanness, there is only one measure that is currently being developed that parses apart the construct of psychopathic meanness – the MiP-SR (Benning et al., 2018a). The MiP-SR divides the construct of meanness into Coldness, Malice, and Imperviousness.

Coldness assesses a lack of emotionality, empathy and relationships. This factor consists of a number of subscales including four of the five empathy scales in the IPM: Perspective Taking, Empathic Concern, Responsive Joy, and Empathic Perception. Perspective Taking assess traditional cognitive empathy, whereas Empathic Concern captures traditional affective empathy. To further deconstruct affective empathy, the Responsive Joy scale captures feeling similar positive emotions as someone else. Emotion Perception encompasses how well a person believes they can understand another person's emotions and serves as a bridge between cognitive and

affective empathy. Coldness also encompasses traits such as unemotional, uncaring, unconnected, unattached, emotionally imperturbable (i.e., a lack of emotional reactivity in emotionally-charged situations), and a lack of sentimentality. Taken all together, it would be expected that within psychopathy, Coldness will be related to the lack of empathy and emotionality. Preliminary research on the MiP-SR has found that Coldness was positively associated with all psychopathy factors on the SRP-III, LSRP, and ICU (Molina, Barchard, Brouwers, Westfall, & Benning, 2015). Coldness was also negatively associated with Boldness on the TriPM and positively associated with Meanness and Disinhibition (Molina et al., 2015).

The second factor, Malice, captures the misuse of others, haughtiness, violations of social mores, and excessive approach processing. The subscales that comprise Malice include: vengefulness, ruthlessness, superiority, instrumentality, backstabbing, and manipulativeness. Furthermore, this factor also encompasses traits related to Schadenfreude (i.e., taking pleasure in the misfortunes of others) and self-righteousness (i.e., believing one's own opinions and actions are better than others). Malice also consists of beliefs that society's rules to do not apply to oneself, a lack of shame and guilt, and a tendency to engage in risky social behaviors. Within the context of psychopathy, Malice is expected to be associated with behavioral reactive and instrumental aggression. Malice was found to be positively related to all dimensions of psychopathy on the SRP-III, LSRP, ICU, and all the TriPM factors (Molina et al., 2015).

Lastly, Imperviousness captures a dearth of sentimentality and negative social emotions. This factor captures the fifth empathy subscale of the MiP-SR: Responsive Distress, which assesses one's tendency to experience similar negative emotions as someone else. Imperviousness also captures a resistance to inferiority (i.e., degree to which one does not feel inferior to others) and a sensitivity to rejection. Thus, Imperviousness is expected to capture the

boldness aspects of psychopathy, which is consistent with preliminary findings that demonstrated Imperviousness is most strongly related to boldness and negatively associated with antisociality and disinhibition (Molina et al., 2015). In summary, Malice appears to capture the core of psychopathy, while Coldness assesses the unemotional features and Imperviousness encompasses potentially maladaptive aspects of boldness.

Chapter 2: Current Studies

In this dissertation, I sought to investigate if empathy deficits are at the core of psychopathic meanness (as captured by the MiP-SR) by utilizing data from three separate studies. The first study served as a measure of convergent validity for the MiP-SR empathy subscales and utilized solely self-report measures. The second and third studies incorporated behavioral and psychophysiological measures and provided discriminant validity for the MiP-SR factors and empathy subscales. Gaining an understanding of the psychological and behavioral associations with empathy can help to further elucidate its role within psychopathic meanness. Further details regarding each of the studies and their hypotheses are outlined below.

Study 1

The first study sought to further the development of the MiP-SR by examining how the MiP-SR captures empathy deficits in psychopathic meanness. Vachon, Lynam, and Johnson (2014) suggested that measuring empathy using current measures may not yield the most informational findings when examining relationships with clinical disorders. They suggested that to accurately capture correlates of empathy in maladaptive clinical disorders, such as psychopathy, it would be essential to assess the lower ends empathy. However, it may be that we have yet to fully understand the manifestation of empathy deficits within psychopathy. That is, while it is largely agreed that affective empathy deficits are at the core of psychopathy, the role of cognitive empathy deficits differ. Some studies demonstrate that cognitive empathy deficits are present in psychopathy (Almeida et al., 2015; Brouns et al., 2013; Dadds et al., 2009; Mullins-Nelson et al., 2006), whereas others do not (Holmqvist, 2008; Jones et al., 2010; Oliver et al., 2016; Wai & Tiliopoulos, 2012; Zágon & Jackson, 1994). Thus, the MiP-SR's empathy subscales were designed to provide a comprehensive coverage of the construct within

psychopathy. Specifically, as described above, the MiP-SR deconstructs empathy into five domains: Perspective Taking, Empathic Concern, Responsive Joy, Responsive Distress, and Emotion Perception.

Hypotheses. This study examined which subscales of the MiP-SR predicted various forms of empathy. Because the MiP-SR Coldness factor includes four of our five empathy scales, it should be most strongly negatively related to established empathy measures. Responsive Distress's inclusion in Imperviousness was expected to cause it to be negatively related to empathy scales, especially those related to affective empathy. However, Malice (especially its unique variance) was not predicted to be negatively associated with the established empathy measures (i.e., the IRI, EQ, and TEQ). It was predicted that the MiP-SR empathy subscales would positively correlate with their respective counterparts (i.e., affective or cognitive empathy) on the established empathy measures. Coldness was expected to predict the established empathy measures above and beyond Malice and Imperviousness. The MiP-SR empathy subscales were expected to predict established empathy measures above and beyond the non-empathy Coldness subscales.

As described earlier, the majority of the literature suggests that the coldness aspect of psychopathic meanness encompasses empathy deficits. It was predicted that Psychopathy would predict each of the MiP-SR empathy subscales, above and beyond Machiavellianism and Narcissism. Although these two constructs share similarities with psychopathy, they are distinct in important ways. The construct of Machiavellianism consists of the following traits: manipulativeness, callous affect, and a strategic-calculating orientation (Jones & Paulhus, 2014). While there are many similarities between Machiavellianism and psychopathy, a key distinction between the two is that individuals high in Machiavellianism traits plan ahead in an effort to

maintain their reputation and social connections; whereas those high in psychopathy have a tendency to act impulsively without regard for how others view them (Jones & Paulhus, 2011). Narcissistic traits encompass grandiose beliefs regarding themselves and their abilities, which are sensitive to ego threats (Jones & Paulhus, 2014). Distinct from the instrumental motivation leading to maladaptive behaviors seen in Machiavellianism and psychopathy, individuals high in narcissistic traits engage in these behaviors in an effort to reinforce their ego (Jones & Paulhus, 2014). Thus, both Machiavellianism and narcissism consist of an emotional attachment component that is absent in psychopathic meanness.

Study 2

Negative interpersonal interactions (e.g., aggressive humor style, non-cooperativeness) have been associated with psychopathy (Gervais, Kline, Ludmer, George, & Manson, 2013; Masui, Fujiwara, & Ura, 2013; Rilling et al., 2007); however, the research on this topic is limited. As research has associated greater empathy with social embeddedness that entails reciprocal and mutually beneficial relationships (Wölfer, Cortina, & Baumert, 2012), deficits in empathy may be associated with negative interpersonal styles. Taken together with research indicating that empathy deficits in psychopathy may be associated with callous and unemotional traits (Lishner et al., 2015; Oliver et al., 2016; Sandoval et al., 2000; Sörman et al., 2016), it would be beneficial to investigate this in an interpersonal experimental laboratory task.

Thus, this study used psychophysiological measures to capture empathy deficits. Participants underwent an adapted letter block task used to assess how psychopathic traits moderated individuals' reactions to a threat (i.e., a shock; Dvorak-Bertsch, Curtin, Rubinstein, & Newman, 2009). In the original letter block task, researchers showed that attentional focus moderated the relationship between FD and fear potentiated startle, such that their relationship

was negative only when attention was directed away from the threat (Dvorak-Bertsch et al., 2009). Thus, individuals high in FD seem to only have difficulties processing threats when their attention is directed elsewhere. Given that I was interested in assessing meanness in psychopathy, this paradigm was adapted to include an aspect of social support. Research has shown that when a participant holds the hand of someone they know well, they show reduced brain activity while processing a threat in comparison to holding no hand (Coan, Schaefer, & Davidson, 2006). Due to the psychophysiological equipment set up used in this study, the friend was unable to hold the participant's hand. Therefore, the task used in this study had a friend of the participant put their hand on the participant's shoulder as a form of social support. This modified task allowed me to examine if social support aids in reducing stress associated with receiving electric shocks within the context of psychopathic meanness, particularly Coldness.

Hypotheses. I predicted that the Coldness factor of the MiP-SR as well as the MiP-SR empathy subscales would be associated with a lack of benefit from social support. Of interest is the startle blink reflex and how its modulation differs when receiving social support (i.e., a friend's hand on the participant's shoulder) relative to not receiving social support (i.e., the friend's absence from the experimental room). I predicted that a lack of difference in startle blink activity between conditions would be positively related to the Coldness factor and negatively associated with the MiP-SR empathy subscales. That is, because individuals high in Coldness, particularly those low in empathy, will lack emotional connectivity to others, they will not benefit from having a friend present to provide support during a stressful situation.

In regards to the postauricular reflex, I predicted that a similar pattern of results would ensue given the lack of emotionality seen in the Coldness factor. That is, Coldness would be positively associated with a lack of difference in postauricular reflex magnitude between

conditions, whereas the empathy subscales would be negatively associated with postauricular reflexive activity between conditions. The Coldness factor would preferentially predict a lack of reflexive activity on both measures when accounting for the Malice and Imperviousness factors. I further predicted that the empathy subscales would predict a lack of reflexive activity on both measures when accounting for the remaining subscales that load onto the Coldness factor.

Study 3

The third study sought to further validate the MiP-SR empathy subscales via behavioral and psychophysiological measures. This study served as an examination of discriminant validity of empathy in meanness by using an adapted laboratory task of aggression (i.e., Response-Choice Aggression Paradigm; Zeichner et al., 1999). The original version of this task examines behavioral aggression by allowing participants the option of delivering electric shocks to an "opponent" as form of "negative communication" and to hinder their performance. Zeichner et al. (1999) demonstrated that behavioral responses on this task (the mean number of elapsed trials prior to delivering the first shock, the intensity and duration of the shock, and the proportion and frequency of the shocks) were significantly associated with self-reported aggression scores. LSRP primary psychopathy was found to be associated with aggression in hostile and instrumental conditions of this paradigm, whereas LSRP secondary psychopathy was only associated with aggression in the hostile condition (Reidy, Zeichner, Miller, & Martinez, 2007). In the instrumental condition participants were told they would win $1.00 for each trial they won and lose $1.00 for each trial they lost; there was no monetary incentive in the hostile condition (Reidy et al., 2007).

I decided to adapt this task, as I was interested in examining instrumental and reactive aggression within subjects. This adaptation is further described in the Study 3 method section.

Despite the abundance of literature finding associations between empathy and aggression, a meta-analysis by Vachon et al. (2014) found that in fact there is not a strong association between the two constructs. Thus, given the distinction between these two constructs, it may be that aggression and empathy are orthogonal to one another. Instead, it seems more plausible that Malice (which is assessed using scales measuring instrumental and reactive aggressive attitudes) would be correlated with aggressive behavior in this task.

Hypotheses. I predicted that the Malice factor of the MiP-SF would be positively associated with all the behavioral aggression measures. I expected that enhanced postauricular reflex potentiation would correlate with Malice directly prior to and following acts of aggression across both conditions (i.e., designating shocks to the confederate). This pattern would suggest that individuals high in Malice enjoy inflicting pain upon others. In regards to the startle blink reflex, I predicted that a lack of reactivity will be associated with high Malice scores indicating an indifference to inflicting aggression upon others. The empathy subscales would be negatively correlated with behavioral measures of aggression. There would be no significant relationships between the empathy subscales and both the postauricular and startle blink reflexes (following aggressive acts).

Malice would preferentially predict enhanced postauricular reflex magnitude across the experiment above and beyond Coldness and Imperviousness. Similarly, Malice would preferentially predict enhanced postauricular reflex magnitude above and beyond empathy. Conversely, Malice would also preferentially predict a lack of startle blink response across the experiment when accounting for Coldness and Imperviousness. Malice would further preferentially predict a lack of startle blink response when accounting for empathy. Finally,

Malice was expected to predict behavioral aggression when accounting for Coldness and Imperviousness, as well as empathy.

Chapter 3: Study 1 Method

Participants

Participants were MTurk workers who were recruited from Amazon as part of the initial validation studies of the MiP-SR. All participants completed an online survey via Qualtrics consisting of the psychopathy and empathy questionnaires listed below. Participants were awarded $3.00 upon completion of the study.

The first round of data collection (i.e., the Short Dark Triad analyses) consisted of 297 participants (51% female) with a mean age of 33.72 (*SD* = 9.19). Approximately 69% of the sample identified as Caucasian, 8% as Hispanic, 6% as African-American, 5% as Asian, and 12% as Biracial and/or some other race. The second round of data collection (i.e., the empathy measure analyses) consisted of 286 participants (64% female) with a mean age of 36.74 (*SD* = 12.3). Approximately 77% of the sample identified as Caucasian, 7% as African-American, 6% as Hispanic, 5% as Biracial, 4% as Asian, and 1% as some other race. According to G*Power (Faul, Erdfelder, Lang, & Buchner, 2007), the sample sizes of rounds one and two have 80% and 78% power to detect population correlations of .21 given an α level of .005, respectively.

Questionnaires

Demographics. The demographic questionnaire included 10 questions that inquired about the individual's age, gender, race/ethnicity, first language, English language acquisition, country of residence, and arrest/conviction history.

Meanness in Psychopathy-Self Report (MiP-SR; Benning et al., 2018a). The MiP-SR is a new self-report measure aiming to specifically capture psychopathic meanness. The data that was used in this study was from rounds one and two of the validation studies. The MiP-SR consisted of 24 construct subscales and four validity scales during round one, and 27 construct

subscales and four validity scales during round two. Each scale had approximately 15 items with a goal of selecting 10 items after analyses. The individual was asked to rate each item on a 4-point Likert scale ranging from "Disagree" to "Agree." Factor analyses from both of these rounds of data collection demonstrate a three factor structure: Coldness, Malice, and Imperviousness. For further details regarding the validation of the MiP-SR and its subscales see Benning et al. (2018a).

As the five MiP-SR empathy scales are of interest in this study, they will also be described here. Perspective Taking, Empathic Concern, Responsive Joy, and Emotion Perception load onto the Coldness factor; Responsive Distress loads onto the Imperviousness factor (Benning et al., 2018a). Perspective Taking and Empathic Concern assess traditional cognitive and affective empathy, respectively. Within the domain of affective empathy, Responsive Joy and Responsive Distress seek to capture the contagion of positive and negative emotion, respectively. Finally, Emotion Perception is a bridge between cognitive and affective empathy. The items in this scale assess the person's accuracy at understanding other people's emotions.

The Cronbach's alphas for both rounds of the MiP-SR data collection are reported below. The first round of MiP-SR data collection (i.e., the Short Dark Triad analyses) included analyses with only the empathy subscales, as such only these alphas are subsequently reported. All the empathy scales demonstrated good internal consistency with the following alphas: .93 for Empathic Concern, .92 for Responsive Joy, .91 for the Responsive Distress, Perspective Taking, and Emotion Perception subscales. The second round of MiP-SR data collection (i.e., empathy analyses) included the empathy subscales as well as the non-empathy Coldness factor subscales. The alphas for each of those subscales used in our analyses are subsequently described. The empathy subscales continued to show good internal consistency: Empathic Concern ($\alpha = .93$),

Responsive Joy (α = .92), Responsive Distress (α = .91), Perspective Taking (α = .91), and Emotion Perception (α = .91). The non-empathy Coldness subscales displayed good to acceptable internal consistencies with the following alphas: .93 for Unemotional and Unattached, .92 for Uncaring, Sentimentality, and Connection, .90 for Superiority, .88 for Emotional Imperturbability, and .78 for Resistance to Inferiority.

Interpersonal Reactivity Index (IRI; Davis, 1980). The IRI is a 28-item self-report measure of the affective and cognitive features of empathy. The IRI is composed of four dimensions: personal distress, empathetic concern, fantasy, and perspective-taking. Items are rated on a 5-point Likert scale ranging from *not at all like me* to *very much like me*. Research has demonstrated that the IRI has high test-retest reliability (r = .71; Davis & Franzoi, 1991). IRI also has good internal reliability with the alphas for IRI- Empathic Concern and IRI-Perspective Taking equaling .77 and .78, respectively (Mullins-Nelson et al., 2006). In our sample, the IRI dimensions had good internal consistency with the following Cronbach's alphas: .87 (Fantasy), .89 (Empathic Concern and Personal Distress), and .90 (Perspective Taking).

Empathy Quotient (EQ; Baron-Cohen & Wheelwright, 2004). The EQ is a 60-item self-report questionnaire designed to capture empathy in adults of average intelligence. The EQ consists of 40 items examining an individual's tendency towards empathizing with others and 20 filler items. Items are rated on a 4-point Likert scale ranging from *Strongly agree* to *Strongly disagree*. The EQ has three factors: Cognitive Empathy, Affective Reactivity, and Social Skills. In general, the EQ demonstrates good test-retest reliability (r = .84) and concurrent validity with the IRI (Lawrence et al., 2004). The Affective Reactivity factor of the EQ was moderately correlated with IRI-Empathic Concern (r = .58) and IRI-Perspective Taking (r = .44). The Cognitive Empathy and Social Skills factors were not significantly correlated with any of the IRI

subscales. In our sample, the EQ demonstrated good internal consistency for the Cognitive Empathy (α = .92) and Affective Reactivity (i.e., Affective Empathy; α = .83) factors. The internal consistency for the Social Skills (α = .69) factor was acceptable.

The Toronto Empathy Questionnaire (TEQ; Spreng et al., 2009). The TEQ is a 16-item self-report measure capturing affective empathy similar to (but more broadly than) the IRI-Empathic Concern scale. Relative to the IRI-Empathic Concern scale, the TEQ better captures how an individual will perform on tasks related to empathic accuracy (Spreng et al., 2009). Items are rated on a 5-point Likert scale ranging from *never* to *always* and yields a total score. This measure has good internal consistency (α =.85), high test-retest reliability (*r* =.87), and strong convergent validity with the IRI-Empathic Concern (*r* =.74) and EQ-total (*r* =.80; Spreng et al., 2009). The TEQ displayed good internal consistency (α = .93) in our sample.

Short Dark Triad (SD3; Jones & Paulhus, 2014). The SD3 is a 27-item self-report measure designed to assess narcissism, Machiavellianism, and subclinical psychopathy. Items are rated on a 5-point Likert scale ranging from *disagree strongly* to *agree strongly*. This measure has good reliability for Machiavellianism (α =.76), Psychopathy (α =.73), and Narcissism (α =.78), and construct validity with informant reports of Machiavellianism (.34), Psychopathy (.57), and Narcissism (.42; Jones & Paulhus, 2014). In our sample, the Machiavellianism (α = .84) and Psychopathy (α = .83) factors had good internal consistency, whereas the Narcissism (α = .75) factor had acceptable internal consistency.

Chapter 4: Study 1 Data Analyses

Bivarate correlational analyses were conducted between each of the five scales targeting the construct of empathy on the MiP-SR (i.e., Perspective Taking, Empathic Concern, Responsive Joy, Responsive Distress, and Emotion Perception) and established empathy measures. Specifically, the MiP-SR empathy scales were correlated with the IRI four dimensions (personal distress, empathic concern, fantasy, and perspective-taking), the three EQ dimensions (cognitive empathy, affective empathy, and social empathy), and the TEQ total score. Furthermore, correlational analyses were conducted between the MiP-SR factors and the established empathy measures (i.e., the IRI, EQ, and TEQ).

Hierarchical regression analyses were conducted to assess the predictive utility of the MiP-SR. In the first set of regressions, the MiP-SR factors were entered in as predictors for the established empathy measures (IRI, EQ, and TEQ). First, Imperviousness and Malice were entered in at step one and Coldness was entered at step two. Second, Coldness was entered in at step one and Imperviousness and Malice were entered in at step two. In the second set of regressions, the MiP-SR empathy subscales and the remaining non-empathy Coldness subscales were entered in as predictors for the established empathy measures. First, the non-empathy Coldness subscales were entered in at step one, and the MiP-SR empathy subscales were entered in at step two. Second, the MiP-SR empathy subscales were entered in at step one, and the non-empathy Coldness subscales were entered in at step two. The change in R^2 was calculated as a measure of the degree to which Coldness and the MiP-SR empathy subscales predict empathy on the IRI, EQ, and TEQ.

Further analyses were conducted in order to assess the discriminant validity of the MiP-SR empathy scales. First, bivariate correlational analyses were conducted between the MiP-SR

factors and the SD3 factors. A second set of correlations were conducted between the MiP-SR empathy subscales and the SD3 factors. Hierarchical regressions were conducted with the SD3 factors as predictors for the MiP-SR empathy subscales. SD3 Machiavellianism and Narcissism were entered in at step one and SD3 Psychopathy at step two. In a second regression, SD3 Psychopathy was entered in at step one and SD3 Machiavellianism and Narcissism were entered in at step two. The changes in R^2 were calculated as a measure of the degree to which Psychopathy predicted empathy deficits above and beyond Machiavellianism and Narcissism. A critical alpha level of .005 was used in this study.

Chapter 5: Study 1 Results

Correlations with Empathy Measures

Zero-order correlations were conducted between the MiP-SR factors and the IRI dimensions, the EQ dimensions, and the TEQ total score (see Table 1). Coldness (rs < -.40, ps < .001) was significantly negatively correlated with all empathy measures, except for IRI-Personal Distress (r = -.09, p = .392). Similarly, Malice was significantly negatively associated with the majority of the empathy measures (rs < -.29, ps < .001), except for IRI- Fantasy (r = -.20, p = .005), EQ Cognitive Empathy (r = -.17, p = .024), and IRI-Personal Distress (r = -.09, p = .392). Imperviousness was significantly negatively correlated with IRI-Empathic Concern, IRI-Personal Distress, IRI-Fantasy, EQ Affective Empathy, and TEQ Total score (rs < -.24, ps < .001). It was uncorrelated with IRI-Perspective Taking, EQ Cognitive Empathy, and EQ Social Empathy (rs > -.08, ps > .08).

Table 2 gives the zero-order correlations between the MiP-SR empathy subscales and the IRI dimensions, the EQ dimensions, and the TEQ total score. The MiP-SR's Perspective Taking, Emotion Perception, Responsive Joy, and Empathic Concern subscales were significantly positively correlated with all measures of empathy (rs > .30, ps < .001), except for IRI-Personal Distress. The IRI-Personal Distress dimension was significantly negatively related with the MiP-SR's Emotion Perception and Perspective Taking subscales, rs = -.21, ps < .005. There were no significant relationships found between IRI-Personal Distress and the MiP-SR's Responsive Joy and Empathic Concern subscales, $|r|$s < .13, ps > .15. The MiP-SR's Responsive Distress subscale was significantly positively associated with all empathy measures, rs > .23, ps < .005, except the EQ Cognitive Empathy and EQ Social Empathy dimensions, $|r|$s < .11, ps > .25.

Regressions with Empathy Measures

Two-step hierarchical regressions were conducted to assess the predictive utility of the MiP-SR factors for the established empathy measures (see Tables 3 and 4). In the first set of regressions, Malice and Imperviousness were entered in as predictors at step 1 and Coldness was entered in at step 2. Coldness accounted for a significant amount of additional variance (ΔR^2) when predicting all IRI dimensions, all EQ dimensions, and the TEQ total score. Specifically, Coldness accounted for 11% more of the variance when predicting IRI-Fantasy ($F(1,282) = 37.3$, $p < .001$), 25% of the variance when predicting IRI-Empathic Concern ($F(1,282) = 195$, $p < .001$), 18% more of the variance when predicting IRI-Perspective Taking ($F(1,282) = 88.6$, $p < .001$), and 7% more of the variance when predicting IRI-Personal Distress ($F(1,282) = 31.2$, $p < .001$). In regards to the EQ dimensions, Coldness accounted for 29% more of the variance when predicting EQ Cognitive Empathy ($F(1,281) = 122$, $p < .001$), 19% more of the variance when predicting EQ Affective Empathy ($F(1,281) = 129$, $p < .001$), and 26% more of the variance when predicting EQ Social Empathy ($F(1,281) = 117$, $p < .001$). Lastly, Coldness accounted for 32% more of the variance when predicting TEQ Total Score ($F(1,282) = 330$, $p < .001$).

In the second set of regressions, Coldness was entered in at step 1 as a predictor, and Malice and Imperviousness were entered in at step 2. Malice and Imperviousness accounted for a significant amount of additional variance when predicting IRI-Perspective Taking ($\Delta R^2 = .02$; $F(2,282) = 5.85$, $p = .003$), IRI-Personal Distress ($\Delta R^2 = .40$; $F(2,282) = 96.8$, $p < .001$), EQ Cognitive Empathy ($\Delta R^2 = .09$; $F(2,281) = 18.9$, $p < .001$), and EQ Social Empathy ($\Delta R^2 = .15$; $F(2,281) = 33.9$, $p < .001$). On the other hand, Malice and Imperviousness did not account for a significant amount of additional variance when predicting IRI-Fantasy ($\Delta R^2 = .02$; $F(2,282) = 2.98$, $p = .053$), IRI-Empathic Concern ($\Delta R^2 = .00$; $F(2,282) = 0.16$, $p = .85$), EQ Affective

Empathy (ΔR^2=.01; F(2,281) = 2.66, p =.072), and TEQ Total Score (ΔR^2=.00; F(2,282) = 2.02, p =.13).

Additional two-step hierarchical regressions were conducted to assess the predictive utility of the empathy subscales of the MiP-SR (see Tables 5 and 6). In the first set of regressions, the non-empathy Coldness subscales (Unemotional, Emotional Imperturbability, Uncaring, Superiority, Resistance to Inferiority, Sentimentality, Connection, and Unattached) were entered in as predictors at step 1 and the MiP-SR empathy subscales were entered in at step 2. The empathy subscales accounted for a significant amount of additional variance when predicting all IRI dimensions, all EQ dimensions, and the TEQ total score. The empathy subscales accounted for 4% more of the variance when predicting IRI-Fantasy (F(5,272) = 3.45, p <.005), 9% more of the variance when predicting IRI-Empathic Concern (F(5,272) = 19.7, p <.001), 21% more of the variance when predicting IRI-Perspective Taking (F(5,272) = 35.6, p <.001), and 16% more of the variance when predicting IRI-Personal Distress (F(5,272) = 20.6, p <.001). In regards to the EQ dimensions, the empathy subscales accounted for 26% more of the variance when predicting EQ Cognitive Empathy (F(5,271) = 40.9, p <.001), 5% more of the variance when predicting EQ Affective Empathy (F(5,271) = 6.81, p <.001), and 6% more of the variance when predicting EQ Social Empathy (F(5,271) = 6.44, p <.001). Lastly, the empathy subscales accounted for 8% of the variance when predicting TEQ Total Score (F(5,272) = 23.9, p <.001).

In the second set of regressions, the empathy subscales were entered in at step 1 as predictors and the non-empathy Coldness subscales were entered in at step 2. The non-empathy Coldness subscales accounted for a significant amount of additional variance when predicting all IRI dimensions (except Perspective Taking), all EQ dimensions, and the TEQ total score.

Specifically, the non-empathy Coldness subscales accounted for 13% more of the variance when predicting IRI-Fantasy ($F(8,272) = 6.66$, $p < .001$), 5% more of the variance when predicting IRI-Empathic Concern ($F(8,272) = 6.33$, $p < .001$), and 10% more of the variance when predicting IRI-Personal Distress ($F(8,272) = 7.77$, $p < .001$). In regards to the EQ dimensions, the non-empathy subscales accounted for 3% more of the variance when predicting EQ Cognitive Empathy ($F(8,271) = 2.85$, $p < .005$), 9% more of the variance when predicting EQ Affective Empathy ($F(8,271) = 8.29$, $p < .001$), and 14% more of the variance when predicting EQ Social Empathy ($F(8,271) = 9.53$, $p < .001$). Lastly, the non-empathy subscales accounted for 3% more of the variance when predicting TEQ Total Score ($F(8,272) = 6.05$, $p < .001$). The non-empathy Coldness subscales only accounted for a non-significant amount of variance when predicting IRI-Perspective Taking ($\Delta R^2 = .02$; $F(8,272) = 2.22$, $p = .026$).

Correlations with the SD3

Table 7 shows the zero-order correlations conducted between the MiP-SR factors and the SD3 factors. Malice was significantly positively associated with Machiavellianism, Narcissism, and Psychopathy, rs > .50, ps < .001. Coldness was significantly positively associated with Machiavellianism and Psychopathy, rs > .35, ps < .001. There were no relationships found between Coldness and Narcissism or Imperviousness and any of the SD3 factors, $|r|$s < .10, ps > .45. Further correlations were conducted between the MiP-SR empathy subscales and the SD3 factors (see Table 8). Analyses show significant negative relationships between all empathy subscales and Psychopathy, rs < -.27, ps < .001, except Responsive Distress ($r = -.18$, $p = .010$). All empathy subscales, except Responsive Distress ($r = -.14$, $p = .057$), were significantly negatively associated with Machiavellianism, rs < -.20, ps < .005. Only Responsive Distress and Empathic Concern were significantly negatively correlated with Narcissism, rs < -.20, ps < .005.

Regressions with the SD3

Two-step hierarchical regressions were conducted to assess the discriminant validity of the MiP-SR empathy subscales (see Table 9). In the first set of regressions, Machiavellianism and Narcissism from the SD3 were entered in as predictors at step 1 and Psychopathy from the SD3 was entered in at step 2. Psychopathy accounted for a significant amount of additional variance when predicting all of the MiP-SR empathy subscales, except Responsive Distress (ΔR^2=.00; $F(1,293) = 1.80$, p =.18). Specifically, Psychopathy accounted for 7% more of the variance when predicting Responsive Joy ($F(1,293) = 23.20$, p <.001), 9% more of the variance when predicting Perspective Taking ($F(1,293) = 32.40$, p <.001), 9% more of the variance when predicting Empathic Concern ($F(1,293) = 33.20$, p <.001), and 6% more of the variance when predicting Emotion Perception ($F(1,293) = 19.10$, p <.001).

In the second set of regressions, Psychopathy was entered in at step 1 as a predictor, and Machiavellianism and Narcissism were entered in at step 2. Machiavellianism and Narcissism did not account for a significant amount of additional variance when predicting Responsive Joy (ΔR^2 =.02; $F(2,293) = 4.14$, p =.017), Responsive Distress (ΔR^2 =.02; $F(2,293) = 3.14$ p = .045), Perspective Taking (ΔR^2=.01; $F(2,293) = 2.31$, p =.10), Empathic Concern (ΔR^2=.01; $F(2,293)$ = 1.03, p =.36), and Emotion Perception (ΔR^2 =.03; $F(2,293) = 4.99$ p =.007).

Chapter 6: Study 1 Discussion

In an effort to elucidate the utility of the MiP-SR in capturing empathy deficits in psychopathy, this study examined the convergent and discriminant validity of the measure's empathy subscales. Correlational and regression analyses were conducted to examine the relationships between the MiP-SR, validated and commonly used empathy self-report measures, and a self-report measure that teases apart dark personality domains. Results indicated that MiP-SR empathy subscales were not only strongly related to varying domains of empathy across three validated self-report measures, but also predicted these same empathy scores. Furthermore, analyses provided support that the empathy domains captured by the MiP-SR, except Responsive Distress, were distinct in predicting psychopathy relative to Machiavellianism and narcissism.

Convergent Validity Findings

The literature suggests that empathic deficits within psychopathy may be driven by meanness traits (Almeida et al., 2015; Sellbom & Phillips, 2013; Sellbom et al., 2015), particularly the aspect of meanness that manifests in callous and unemotional traits (Lishner et al., 2015; Oliver et al., 2016; Sandoval et al., 2000; Sörman et al., 2016). Consistent with this notion, four of the five empathy subscales loaded onto the MiP-SR Coldness factor (Responsive Distress loaded onto the Imperviousness factor; Benning et al., 2018a). As such, I hypothesized that Coldness would not only be associated with empathy measures, but also predict scores on these measures. Analyses confirmed negative correlations between Coldness and empathy across measures, except for the IRI Personal Distress domain. This finding is consistent with research suggesting that meanness is associated with all aspects of empathy deficits, except personal distress (Almeida et al., 2015). Conceptually, the construct of personal distress is described as being distinct from empathy as it captures an individual's own emotional discomfort rather than

sharing in another's emotional experience (Batson, O'Quin, Fultz, Vanderplas, & Isen, 1983). Malice's correlations with empathy measures mimicked those of Coldness. The effect sizes, while still significant or trending significance, were smaller than those found with Coldness. While this pattern suggests overlap between the factors, it indicates that Coldness is more strongly implicated in empathy deficits. Lastly, given that Imperviousness has less theoretical and empirical overlap with Malice and Coldness, it is unsurprising that its associations with empathy measures are distinct. Imperviousness showed relatively selective negative relationships with affective empathy. Specifically, it was negatively associated with the TEQ total score, the EQ affective empathy domain, and the IRI Empathic Concern, Personal Distress, and Fantasy domains.

Regression analyses demonstrated that Coldness preferentially predicted all measures of empathy. On the other hand, when accounting for Coldness, Malice and Imperviousness displayed limited incremental validity for select cognitive empathy scales (IRI- Perspective Taking and EQ-Cognitive), IRI-Personal Distress, and EQ-Social domains. Contrary to the findings with Coldness, the unique variance accounted for by Malice and Imperviousness was positively associated with the cognitive empathy and social empathy scales and negatively associated with IRI-Personal Distress. This distinction between the factors suggests that empathy deficits within psychopathic meanness seem to be unique to Coldness, and not present in Malice and Imperviousness. Overall the findings with the MiP-SR factors provide: 1) further support that empathy deficits are associated with psychopathic meanness, with particularly strong associations with Coldness traits, and 2) support of the predictive utility of the MiP-SR in detecting self-reported empathy deficits.

My analyses further established convergent validity of the MiP-SR empathy subscales. Together, the MiP-SR's empathy subscales predicted all empathy domains above and beyond the Coldness non-empathy subscales. In addition, theoretically consistent patterns of correlations were found across subscales. These results not only highlight the construct validity and utility of the empathy subscales on the MiP-SR, but theoretically add to the empathy literature. In particular, the MiP-SR's empathy subscales capture a broad range of empathy in a variegated manner. While the Perspective Taking and Empathic Concern subscales broadly capture traditional cognitive and affective empathy, respectively, the other subscales provide more fine grained information about the construct. Specifically, the combination of the Responsive Joy and the Responsive Distress subscales assess affective empathy involving positive and negative emotions, respectively. As previously noted, this is something that is lacking in the empathy literature as only few measures assess the contagion of positive emotions (Caruso & Mayer, 1999). Lastly, Emotion Perception spans cognitive, affective, and social features of empathy, which adds another layer to the empathy construct and highlights the necessity of assessing individuals' abilities to accurately perceive emotions when practicing empathy.

Divergent Validity Findings

Psychopathy is conceptualized in the literature as a "dark" personality and often discussed as part of the dark triad of personality model (Paulhus & Williams, 2002), which also includes Machiavellianism and narcissism. Although these constructs overlap in certain traits, including low empathy, they are each theoretically distinct from one another (Paulhus & Williams, 2002). Most importantly, psychopathy encompasses a lack of emotional attachment (i.e., coldness traits), whereas no such deficits are prevalent in Machiavellianism and narcissism. Given that empathy deficits may drive the lack of emotional attachment seen in psychopathy,

utilizing this model to establish divergent validity of the MiP-SR empathy subscales proves useful.

At the factor level, the measure I used to assess the Dark Triad (SD3) showed distinct relationships with the MiP-SR factors. Psychopathy on the SD3 was associated with Coldness and Malice, but not Imperviousness. This indicates that SD3's psychopathy does not assess for the maladaptive aspects of boldness and dearth of negative social emotions that are captured in Imperviousness. Machiavellianism was also associated with only Coldness and Malice, albeit with relatively smaller effect sizes than seen with the psychopathy correlations. Machiavellianism shares traits with Malice and Coldness, including manipulativeness and callous affect, respectively (Paulhus & Williams, 2002; Wai & Tiliopoulos, 2012). Narcissism was solely associated with Malice, but not Coldness or Imperviousness. This finding is theoretically consistent given the traits shared between the constructs of narcissism and Malice, such as superiority (Jones & Paulhus, 2014).

Analyses with the empathy subscales were conducted and revealed further support for discriminant validity. The empathy subscales that loaded onto Coldness (Responsive Joy, Empathic Concern, Perspective Taking, and Emotion Perception) were uniquely predicted by psychopathy. Responsive Distress, the empathy subscale that does not load onto Coldness, was not significantly predicted by psychopathy. Although it was originally hypothesized that Responsive Distress would also be predicted by SD3's psychopathy, SD3's psychopathy was not related to Imperviousness nor to Responsive Distress in the correlations. Overall, these findings are also consistent with the theoretical conceptualization that the traits associated with coldness are unique to psychopathy within the Dark Triad.

Limitations and Future Directions

While these findings provide strong support for the convergent and discriminant validity of the MiP-SR empathy subscales, there are limitations to be considered. First, these data are from the first two rounds of validation studies of the MiP-SR. As such, the subscales examined are not necessarily the finalized versions. In future studies, it would be helpful to examine the convergent and discriminant validity of the finalized empathy subscales of the MiP-SR. Along these lines, it would be beneficial to specifically examine the validity of the short form of the MiP-SR, given the practical utility of this version in studies.

This study utilizes a self-report approach; however, it will be beneficial for future studies to incorporate a multi-model method of investigation. Examining the relationships between self-reported psychopathic meanness (particularly empathy) and behavioral and psychophysiological measures would provide useful. Not only would this approach expand the utility of the MiP-SR, but it would also increase our understanding of the constructs of interest. Behavioral and psychophysiological measures reduce the mono-method biases associated with studies entirely employing self-report measures, which may lead to more generalizable findings.

Chapter 7: Study 2 Method

Participants

Participants were 102 undergraduate students (67% female) with a mean age of 20.07 years (*SD* = 3.80) recruited from the University of Nevada, Las Vegas via the Sona system. Approximately 30% of the sample identified as Caucasian, 14% as African-American, 20% as Hispanic, 29% as Asian, 3% as some other race, and 4% chose not to disclose. Participants were excluded due to incomplete MiP-SF data (*N* = 19) and noisy/non-responsive psychophysiological data (postauricular: *N* = 16; startle blink: *N* = 22). According to G*Power 3.1 ((Faul, Erdfelder, Lang, & Buchner, 2007), the sample sizes of the postauricular (*N* =67) and the startle blink (*N* = 61) reflexes have 84% and 80% power to detect population correlations of .35, given α levels of .05. Upon completion of the study, participants were awarded three credits towards their psychology class.

Questionnaires

Demographics. The demographic questionnaire included 61 questions that inquire about the individual's age, gender, race/ethnicity, marital status, family history, educational history, medical/psychological history, substance use, and criminal activity.

Meanness in Psychopathy-Short Form (MiP-SF; Benning, Barchard, Westfall, Brouwers, & Molina, 2018b). The MiP-SF is a short version of the MiP-SR (as described in Study 1). It consists of the 3 items from each of the 31 subscales (i.e., 93 total items). Similar to the MiP-SR, the MiP-SF is rated on a 4-point Likert scale ranging from *Disagree* to *Agree*. The second version of the MiP-SF was utilized in this study. Only the empathy subscales and the non-empathy Coldness subscales were used in analyses; as such, only the Cronbach's alphas for these subscales are reported. The internal consistency for the empathy subscales were in the

questionable to poor ranges with the following alphas: .68 for Perspective Taking and Empathic Concern, .63 for Responsive Distress, .61 for Emotion Perception, and .59 for Responsive Joy. Similarly, the non-empathy Coldness subscales displayed acceptable to poor internal consistency with the following alphas: .71 for Unattached, .70 for Uncaring and Connection, .69 for Sentimentality, .64 for Unemotional, and .52 for Emotional Imperturbability.

Letter-Shock Task

Participants underwent a version of a letter block task previously used to assess how psychopathic traits moderate individuals' reactions to a threat (Dvorak-Bertsch et al., 2009). The task was presented via PsychoPy (Peirce, 2007). The letter block task consists of 4 blocks of 50 trials. In each block, 25 of the letters were red and 25 were yellow; in addition, 25 were uppercase and 25 lowercase letters. Participants were instructed that they may be shocked during one of two colors, which were counterbalanced across participants. Each letter was presented for 500 ms with a 3 to 4 second randomly jittered inter-letter interval.

Shocks only occurred 1750 ms after the onset of 20% of the letters whose color is paired with the shock. These shocks were automatically delivered to the fingertips on participants' non-dominant hand by an aversive finger stimulator (Coulbourn; Allentown, PA). Prior to the start of the task, participants underwent a shock sensitization procedure with the research assistant to determine the level of shock that was uncomfortable, but not hurtful, for them as follows. Participants received one shock at a time from the research assistant beginning at the lowest shock level available. The research assistant recorded the highest shock level participants said they could sustain. The shock level for the experiment was set to one level below the maximum level they indicated was uncomfortable. In addition, during each block, 10 red and 10 yellow

letters (5 uppercase and 5 lowercase in each) had startle probes delivered 500 ms after the letter's offset to assess defensive startle blink and appetitive postauricular reflex reactivity.

The trial blocks were divided into two sets, with instructions varying across two conditions: threat focus (TF) and alternative focus (AF). During the TF condition, participants were instructed to attend to the color of the letter cue, while during the AF condition, they were instructed to attend to the case of the letter cue. In both conditions, they were instructed to press one of two buttons to indicate either color or case with their dominant hand. During one of the TF/AF block sets, the participant was in the room with only the experimenters (who were situated out of sight), while in the other set the friend placed their hand on the participant's shoulder for social support. The order of the sets and blocks within each set were counterbalanced across participants.

Psychophysiological Recordings

Physiological channels were all recorded using Ag/AgCl electrodes. Channels were sampled at 2000 Hz with a Neuroscan SynAmps bioamplifier at DC with a 500 Hz lowpass filter to avoid aliasing of the physiological signals. Postauricular reflex electrodes were positioned according to locations PAM 5 and PINNA 2 described in (O'Beirne & Patuzzi, 1999). Recording of the electromyographic (EMG) activity in the postauricular reflex muscles were obtained from each ear. Startle blink magnitude was recorded from the orbicularis oculi muscle beneath the right eye.

Offline, startle blink and postauricular EMGs were epoched from 100 ms preprobe onset to 250 ms postprobe onset. Postauricular EMGs were not filtered further, and startle blink EMGs were band-pass filtered from 28-250 Hz (Blumenthal et al., 2005). Startle blink and postauricular EMGs were then rectified; startle blink data were additionally smoothed with a single-pole

recursive infinite impulse low-pass 5th order Butterworth filter with a 10-ms time constant. All filters were applied at 24dB/ octave, including 50 ms of data at both ends of each epoch permitted filter artifacts to be discarded before data of interest were analyzed.

Because the postauricular reflex is a microreflex, postauricular muscle activity was assessed using aggregate rectified waveforms. Postauricular EMG activity to noise probes was averaged across all letters within each combination of presence of friend/focus/CS type, yielding average waveforms comprising 5 trials. In each aggregation, postauricular reflex magnitudes were assessed as the peak EMG activity occurring 8-35 ms after noise probe onset minus the mean 50 ms pre-probe EMG baseline activity (Sloan & Sandt, 2010). Valid data from at least 3 out of 5 trials per aggregate waveform were required for a participant to be included in further analyses. Prior to signal averaging, trials were excluded if baseline activity exceeded 100 μV. Startle blink reflexes were scored on a trial by trial basis as the maximum smoothed activity 30-120 ms after noise probe onset minus the mean 50 ms pre-probe EMG baseline activity (Blumenthal et al., 2005). Trials whose baseline activity exceeded 100 μV were excluded. Both reflex magnitudes were analyzed using within-subject *z* scores to remove substantial between-participant variability that unduly biases results toward the results of participants who have larger reflexes.

Chapter 8: Study 2 Data Analyses

Paired sample *t* tests were used to determine whether there was a significant modulation across conditions (friend vs. alone) for the startle blink and postauricular reflexes. Then, the difference scores (i.e., reflex modulation differences between the friend and alone conditions) were correlated to the MiP-SF factors and empathy subscales. Of interest was the relationship between Coldness and both startle and postauricular difference scores. Relationships between the other two factors of the MiP-SF (i.e., Malice and Imperviousness) were also be examined for discriminant validity.

In addition, hierarchical regressions examining the incremental validity of Coldness were conducted. In the first regression set, Malice and Imperviousness were entered into the regression at step one as predictors for the startle blink and postauricular reflexes. Coldness was entered into the regression at step two. Second, Coldness was entered into the regression at step one and Malice and Imperviousness were entered in at step two as predictors for the startle blink and postauricular reflexes. The changes in R^2 were calculated as a measure of the degree to which Coldness improves the prediction of emotional reactivity above and beyond Malice and Imperviousness.

A second set of hierarchical regressions was conducted to determine the utility of the MiP-SF empathy subscales in predicting the startle blink and postauricular reflexes. First, the non-empathy Coldness subscales were entered into the regression at step one and the MiP-SF empathy subscales at step two. Second, the MiP-SF empathy subscales were entered in at step one and the non-empathy Coldness subscales were entered in at step two. The changes in R^2 were calculated as a measure of the degree to which the empathy subscales improve the prediction of emotional reactivity above and beyond the remaining Coldness subscales.

Chapter 9: Study 2 Results

T-Tests

Paired sample *t*-tests were conducted between the conditions (friend versus alone) for both the postauricular and startle blink reflexes. Postauricular reflexes were larger during the friend (M = 0.22; SD = 0.44) than the alone (M = -0.19; SD = 0.41) condition ($t(82) = 4.42$; $p <$ .001, d = 0.49). Similarly, startle blink reflexes were smaller during the friend *(*M = -0.12; SD = 0.30) than the alone (M = 0.09; SD = 0.31) condition ($t(76) = -3.07$, p =.003, d = -0.35).

Correlations

Zero-order correlations were conducted between the postauricular and startle blink reflexes difference scores (i.e., friend minus alone conditions) and the MiP-SF factors and empathy subscales (see Table 10). There were no significant relationships found for either the startle blink and postauricular reflexes, $|r|$s < .16, ps > .22.

Regressions

Two-step hierarchical regressions were conducted to assess the incremental validity of the MiP-SF factors (primarily Coldness) for predicting difference scores (friend minus alone conditions) for the postauricular and startle blink reflexes (see Table 11). In the first set of regressions, Malice and Imperviousness were entered in as predictors at step 1 and Coldness was entered in at step 2. Coldness did not account for a significant amount of variance when predicting postauricular (ΔR^2=.00; $F(1,65) = 0.35$, p =.559) and startle blink (ΔR^2=.00; $F(1,60) = 0.14$, p =.706) reflex modulations. In the second set of regressions, Coldness was entered in at step 1 as a predictor, and Malice and Imperviousness were entered in at step 2. Malice and Imperviousness did not account for a significant amount of variance when predicting

postauricular (ΔR^2=.02; $F(2,64) = 0.77$, p =.470) and startle blink (ΔR^2=.01; $F(2,58) = 0.44$, p =.644) reflex modulations.

Further two-step hierarchical regressions were conducted to assess the incremental validity of the empathy subscales of the MiP-SF (see Table 12). In the first set of regressions, the non-empathy Coldness subscales were entered in as predictors at step 1 and the MiP-SF empathy subscales were entered in at step 2. The empathy subscales did not account for a significant amount of variance when predicting postauricular (R^2=.04; $F(5,61) = 0.55$, p =.739) and startle blink (ΔR^2=.04; $F(5,55) = 0.52$, p =.761) reflex modulations. In the second set of regressions, the empathy subscales were entered in at step 1 as predictors and the non-empathy Coldness subscales were entered in at step 2. The non-empathy Coldness subscales did not account for a significant amount of variance when predicting postauricular (ΔR^2=.08; $F(6,60) = 0.91$, p =.493) and startle blink (ΔR^2=.08; $F(6,54) = 0.86$, p =.528) reflex modulations.

Chapter 10: Study 2 Discussion

This study aimed to provide both convergent and discriminant validity for the MiP-SF factors and empathy subscales. Participants underwent an experimental task that was theorized to be interpersonal in nature, specifically capturing if receiving social support from a friend while threatened with electric shocks would alleviate stress. Emotional reactivity (as captured by the postauricular and startle blink reflexes) was analyzed within the context of the MiP-SF. Analyses confirmed that there was a significant difference in reflexive activity between the alone and friend conditions. This suggests that the presence of a friend enhances positive emotion and alleviates negative emotion. However, there were no significant findings within the context of psychopathic meanness.

Task Design

The null findings related to psychopathic meanness may be explained by further examining the task design. Specifically, this task was a combination of two other tasks. One task was utilized by Dvorak-Bertsch et al. (2009), which demonstrated that the letter block task showed individuals high in FD exhibit threat processing deficits. This same design was maintained, but a social support component was added that was modeled off of the work by Coan et al. (2006) that showed reduced brain activity when processing a threat when holding the hand of someone they knew. The adaption of a friend putting their hand on the participants shoulder to Dvorak-Bertsch and colleagues (2009)'s task was to allow for an examination of how social support can alleviate the threat of receiving a shock.

Given that only one person from the individual's social network was utilized, this task may specifically capture how solely one individual impacts the participant's emotional reactivity. That is, this task may have been capturing how familiarity and receiving physical touch from a

friend alleviates stressors, which does not assess the general interpersonal style of psychopathic meanness. To accurately capture participants' broad interpersonal styles, it may be necessary to have participants undergo this task multiple times with different friends and examine the consistency of their performance (Funder, 2006). Epstein (1979) suggests that while personality remains stable, it cannot necessarily be accurately assessed in one situation. Research has shown that there are confounds that can occur (e.g., familiarity of the situation), which may impact the situation and are independent of the personal traits being assessed (Funder & Colvin, 1991). Therefore, to have the most accurate understanding of performance, one must assess it over a variety of situations (Epstein, 1979; Funder, 2006; Funder & Colvin, 1991).

Limitations and Future Directions

There are limitations regarding the measurement of both emotional reactivity and personality traits. First, it may be that, while the startle blink and postauricular reflexes elicited the basic effects of this study, they were not ideal for assessing psychopathic meanness. Second, the lack of internal consistency of the empathy subscales raises concerns on the interpretability of these constructs in this study. Study 1, which utilized the full form of the MiP-SR, found good internal consistencies for these subscales. It may more challenging to capture empathy via the short form. Specifically, there are significantly fewer items on the short form per subscale (three items) relative to the full form (10 items). Given that theory indicates that internal consistency is relatively lower when there are fewer items per scale and tends to increase when more items are added, this may explain the low alphas in this sample (Churchill & Peter, 1984; Cortina, 1993).

The aim of this study was to provide evidence of both convergent and divergent validity for the MiP-SR factors and empathy subscales. While the findings of this study were not in line with the hypotheses set forth, they do provide useful information to help inform future validation

studies for the MiP-SR. That is, the null findings highlight the importance of utilizing tasks that are designed to capture an individual's broad interpersonal style when attempting to measure psychopathic meanness, particularly Coldness. As noted above, it may be necessary to conduct a longitudinal study where participants undergo the task multiple times and with different friends in their social network to accurately capture psychopathic meanness. Furthermore, it may be beneficial to employ a task designed to induce emotional connectivity to others or an aspect of empathy when conducting future validation studies. These types of tasks may help to reduce the influence of confounding factors, such as situational differences and attentional focus, that can cloud the interpretation of findings in tasks without such features.

Chapter 11: Study 3 Method

Participants

Participants were 98 undergraduate students (66% female) with a mean age of 20.74 years (*SD* = 4.57) recruited from the University of Nevada, Las Vegas via the Sona system. The ethnic/racial make-up of this sample is as follows: 26% Hispanic, 36% Caucasian, 8% African-American, and 30% Asian/Pacific Islander. Participants were excluded due to incomplete behavioral data resulting from invalid MiP-SF profiles (*n* = 3). Additional participants were excluded from psychophysiological analyses based on noisy (*n* = 6 for startle blink reflex, 11 for postauricular reflex) or non-responsive waveforms (*n* = 18 for startle blink reflex, 12 for postauricular reflex). According to G*Power 3.1 (Faul et al., 2007), the sample size of the behavioral data (*N* = 95) has a power of 85% to detect population correlations of .30 given α level of .05. The sample sizes for the postauricular reflex instrumental condition (*n* = 72) and reactive condition (*n* = 71) have 75% and 74% power to detect population correlations of .30 given α levels of .05. Lastly, the sample sizes of the startle blink reflex instrumental condition (*n* = 63) and reactive condition (*n* = 56) have 69% and 64% power to detect population correlations of .30 given α levels of .05. Upon completion of the study, participants were awarded three credits towards their psychology class and a $5.00 Amazon gift card.

Questionnaires

Demographics. See the description provided in Study 2 methods for more information about the demographic questionnaire utilized in Study 3.

Meanness in Psychopathy-Short Form (MiP-SF; Benning et al., 2018b). The final version of the MiP-SF was utilized in this study. This form contains 3 items from each of the 30 subscales, totaling 90 items. The final version of the MiP-SF was rated on a 4-point Likert scale

ranging from *Disagree* to *Agree*. Only the empathy subscales were used in analyses, as such only the Cronbach's alphas for these subscales are reported. The internal consistencies for the empathy subscales ranged from good to poor with the following alphas: .78 for Emotion Perception, .67 for Empathic Concern, .66 for Perspective Taking, .63 for Responsive Distress, and .59 for Responsive Joy.

Response-Choice Aggression Paradigm

To assess for instrumental and reactive aggression, the participant underwent an adapted version of the Response-Choice Aggression Paradigm. The task was presented via PsychoPy (Peirce, 2007). Participants were told that they are playing a series of reaction time trials against the "other participant" (i.e., the confederate) in the next room. Participants were informed that they would be given the opportunity to shock the other partcipant after each trial and that the confederate would be given the same opportunity. At the onset of each trial, participants were presented with a yellow square on the screen to signal them that they should "get ready" to press the button. While displaying the yellow square, participants also rated how likely they believed they would win the trial (i.e., anticipation) on a scale ranging from 0 "not at all likely" to 6 "very likely". The yellow square was presented for a randomly assigned interval of 3 to 5 seconds to reduce the predictability of the impending imperative stimulus.

Following the presentation of the yellow square and ratings, a white square appeared on the screen signaling participants to "press the button as quickly as possible." The white square was presented for a randomly assigned interval of 3 to 5 seconds. The purpose of the random assignment of stimulus presentation was to provide participants with the illusion that they were indeed playing the game against another participant and therefore the computer would require varying lengths of time to determine who "won" the trial. Following the presentation of the white

square, participants were provided with feedback about their performance. If a red square replaces the white square on the screen, then the participant "lost" the trial; if a green square appears on the screen, then the participant "won" the trial. Following the feedback, participants were given 10 seconds to decide if they would like to shock the confederate. Participants were asked to select a shock level by pressing a number between 0 (no shock) and 9 (the maximum shock level) and select the length of time the shock would last (ranging from 1 to 5 seconds). Participants also received shocks that they were led to believe was from the "other participant" following the schedule outlined below.

The shocks were automatically administered via the program and delivered to the fingertips of the participant's non-dominant hand by an aversive finger stimulator (Coulbourn; Allentown, PA). Prior to the start of the task, participants underwent a shock sensitization procedure described in Study 2. The maximum shock level they received was this pre-determined level, which served as level 9. After determining the shock level, participants were informed that the level they had chosen is level 9.

Participants were initially presented with six practice trials. There were 40 experimental trials total, divided into two blocks. The first block was designed to capture instrumental aggression, and the second block reactive aggression. In order to appropriately elicit instrumental aggression, participants were told that they would be awarded a $5.00 Amazon gift card if they won the overall task. During the instrumental aggression block, participants won 55% of the trials (i.e., 11/20 trials) and received no shocks. Thus, if they decided to shock the confederate, it was for purely instrumental reasons, as they were not provoked. The second block served as the reactive aggression block. During this block, participants won 55% of the trials and received shocks from the confederate on 60% of the trials (i.e., 12/20 trials). Thus, shocks the participant

delivered during this block likely represented an aggravated reaction to their frustrated goal-directed behavior.

The wins, losses, and shock schedule were predetermined and the same for every participant. The schedules below depict wins with the letter "W", losses with the letter "L," and shocks with the letter "S."

Instrumental aggression block:

Trial	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Outcome	W	W	W	L	W	L	W	L	L	W	W	L	L	L	W	W	W	L	W	L

Reactive aggression block:

Trial	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Outcome	W S	L S	W	L	W S	L S	W	L S	L	W S	L S	W S	W	W S	W	L S	L S	L	W S	W

Startle probes were used to elicit the startle blink and postauricular reflexes. The startle probes (105 dB white noise probes with nearly instantaneous rise time) were presented at three points: 1) during the anticipation of the trials (i.e., when participants were rating how likely it was they would win the trial), 2) when participants were awaiting feedback on their performance, and 3) after participants made their decision regarding whether or not they wanted to assign shocks to the other participant. Participants did not receive probes during every single trial; instead, shocks were distributed throughout the task. In each block, there were three probes at the anticipation phase, three probes while awaiting feedback, and three probes after participants made their decision regarding shocks. Participants received probes during the practice block as it

is theoretically "neutral" and served as a baseline for deriving difference scores. Three probes were likewise distributed across the three phases of the trials.

Six behavioral measures can be derived from this paradigm. The first three measures assess shock intensity (i.e., the mean of shock intensities selected throughout the experiment across available trials), shock duration (i.e., the mean duration of selected shocks across available trials), and shock frequency (i.e., the sum of trials, out of the maximum of 20, during which shocks were selected by the participant). The proportion of highest shock measure captures the number of times highest available shock was selected relative to number of all other selected shocks (i.e., the number of times the participant selected a shock level of 9 is divided by the number of times they elected to administer a shock of any value). The participants who did not administer the highest available shock did not have a value calculated for this variable. This was in line with previous research that has described this variable as representing extreme aggression. (Reidy, Zeichner, Foster, & Martinez, 2008; Zeichner et al., 1999; Zeichner, Parrott, & Frey, 2003). As such, they have argued that it would not be meaningful for them to have a value of zero as they may have still administered high shock levels. However, it could also be argued that choosing to shock someone at the second highest level repeatedly may represent more extreme levels of aggression relative to shocking someone once at the highest level. Yet, with the conceptualization in the literature thus far, shocking someone once at the highest level would represent higher levels of aggression. As such, it may be that the literature is not conceptualizing this variable well. Lastly, two measures specific to the first shock were examined: flashpoint intensity (i.e., the intensity of the first shock selected by the participant) and flashpoint duration (i.e., the duration of the first shock selected by the participant).

Psychophysiological Recordings

See the description provided in Study 2 methods for more information about the psychophysiological recordings method in this study. The only substantive difference is that postauricular reflexes were aggregated over 3 trials, representing each of the three trial phases at which probes were presented when participants won or lost, with at least 2 trials needed for each aggregate waveform to be scored.

Chapter 12: Study 3 Data Analyses

Analyses examining the basic effects of the task were conducted to examine its performance. A within-subjects MANOVA was conducted to determine the basic effects of the behavioral measures across conditions. Within-subjects ANOVAs with two sets of Helmert contrasts were utilized to determine the basic effects of the postauricular and startle blink reflexes across conditions and phases. The first of these compared reflex modulations during practice versus instrumental and reactive blocks along with modulations during instrumental versus reactive blocks. The second set compared reflex modulations during anticipation versus feedback and shock selection blocks along with modulations during feedback versus shock selection.

Correlational analyses were conducted examining the relationships between the MiP-SF factors or empathy subscales and behavioral forms of aggression (i.e., shock intensity, shock duration, shock frequency, proportion of highest shock, flashpoint intensity, and flashpoint duration [see descriptions in the method section above]). Behavioral measures were further parsed apart into instrumental aggression (i.e., block one) and reactive aggression (i.e., block two). Correlational analyses were conducted examining the relationships between the behavioral measures in the instrumental aggression condition and the MiP-SF factors and empathy subscales. Similarly, behavioral measures in the reactive aggression condition were correlated with the MiP-SF factors and empathy subscales.

Instrumental aggression scores for the startle and postauricular reflexes were calculated by subtracting the average reflex magnitude in the practice ("neutral") trials from the average reflex magnitude across the first block trials. The same was done for reactive aggression difference scores, except in this case the average reflex magnitude across the practice trials was

substracted from the average reflex magnitude across the second block. Note that the potentiation scores were derived from the probes where participants are asked to allocate shocks onto the other participant. These difference scores were correlated with MiP-SF factors and empathy subscales.

Two sets of hierarchical regressions were conducted. In the first set, Coldness and Imperviousness were entered into the regression at step one (prior to Malice) as predictors for the startle blink reflex, the postauricular reflex, and the behavioral aggression measures. Malice was entered into the regression at step two. Then, Malice was entered in at step one and Coldness and Imperviousness were entered in at step two. The changes in R^2 were calculated as a measure of the degree to which Malice improved the prediction of emotional reactivity and behavioral aggression above and beyond Coldness and Imperviousness.

In the second set of hierarchical regressions, the MiP-SF empathy subscales were entered into the regression at step one, prior to Malice, as predictors of the startle blink reflex, the postauricular reflex, and the behavioral aggression measures. In a separate hierarchical regression, Malice was entered in at step one and the MIP-SF empathy subscales at step two. The changes in R^2 were calculated as a measure of the degree to which Malice improves the prediction of emotional reactivity and behavioral aggression above and beyond the empathy subscales.

Based on the patterns of results that emerged, additional exploratory hierarchical regression analyses were conducted utilizing the MiP-SF factors. In this set, Coldness and Malice were entered into the regression at step one as predictors for the behavioral aggression measures. Imperviousness was entered into the regression at step two. Next, Imperviousness was entered in at step one and Coldness and Malice were entered in at step two. The changes in R^2

were calculated as a measure of the degree to which Imperviousness improves the prediction of behavioral aggression above and beyond Coldness and Malice.

Chapter 13: Study 3 Results

Basic Effects

The means and standard deviations of the behavioral measures are displayed in Table 13. A within-subjects MANOVA was conducted to compare the behavioral measures across conditions. Due to the calculation method employed for the proportion of highest shock variables, the sample size is significantly decreased when this measure is incorporated in the MANOVA (i.e., $n = 50$ relative to $n = 94$). As a result, this behavioral measure was not included in the MANOVA analyses, though the patterns of means for this measure were identical to the others. Across the remaining behavioral measures, except for shock frequency, there was an increase in aggression during the reactive block relative to the instrumental block, $F(5,89) = 7.66$, $p < .001$, $\eta^2_p = .30$. The following are the relevant statistics for the significant measures: shock intensity ($F(1,93) = 11.12$, $p = .001$, $\eta^2_p = .11$), shock duration ($F(1,93) = 10.94$, $p = .001$, $\eta^2_p = .11$), flashpoint intensity ($F(1,93) = 24.44$, $p < .001$, $\eta^2_p = .21$), and flashpoint duration ($F(1,93) = 25.59$, $p < .001$, $\eta^2_p = .22$). The pattern was similar for shock frequency, though it was not statistically significant ($F(1,93) = 1.84$, $p = .178$, $\eta^2_p = .02$).

The means for the psychophysiological measures by phase and condition are depicted in Figure 1. Overall, there was a significant within-subjects effect of condition for the postauricular ($F(1.91,122.38) = 51.78$, $p < .001$, $\eta^2_p = .45$) and the startle blink ($F(1.58,86.67) = 8.23$, $p = .001$, $\eta^2_p = .13$) reflexes. Similarly, the within-subjects effect of phase was also significant for both the postauricular ($F(1.82,116.66) = 11.59$, $p < .001$, $\eta^2_p = .15$) and the startle blink ($F(1.82,100) = 49.28$, $p < .001$, $\eta^2_p = .47$) reflexes. On the other hand, there were no significant interactions of phase by condition for either reflex (Fs < 0.84, $p < .498$, $\eta^2_p < .02$).

Postauricular reflex magnitude was larger during the practice block than during the experimental blocks ($F(1,64) = 82.80$, $p < .001$, $\eta^2_p = .56$); however, the differences between the instrumental and reactive conditions were non-significant ($F(1,64) = 0.15$, $p = .696$, $\eta^2_p = .00$). Startle blink reflex magnitude was also larger during the practice block than during the experimental blocks ($F(1,55) = 5.23$, $p = .026$, $\eta^2_p = .09$); it was also larger during the reactive block than during the instrumental block ($F(1,55) = 13.02$, $p < .001$, $\eta^2_p = .19$).

Furthermore, postauricular reflexes were smaller during the anticipation phase than during the feedback and shock selection phases ($F(1,64) = 21.79$, $p < .001$, $\eta^2_p = .25$), but there was no difference in postauricular reflex magnitude during feedback and shock selection phases ($F(1,64) = 0.36$, $p = .552$, $\eta^2_p = .01$). Similarly, startle blink reflex magnitude was smaller during the anticipation phase relative to the combined feedback and shock selection phases ($F(1,55) = 80.78$, $p < .001$, $\eta^2_p = .60$), but there was no difference in startle blink magnitude during the feedback and shock selection phases ($F(1,55) = 0.08$, $p = .777$, $\eta^2_p = .00$).

Correlations

Table 14 displays the zero-order correlations that were conducted between behavioral measures of aggression and the MiP-SF factors and empathy subscales. At the factor level, only Imperviousness showed significant correlations with behavioral aggression. Across conditions, Imperviousness was significantly positively associated with all forms of behavioral aggression, rs > .20, ps < .05, except the proportion of highest shock measure, $r = .14$, $p = .241$. In the instrumental condition, Imperviousness was significantly positively correlated with all behavioral aggression measures, rs > .20, ps < .05. In the reactive condition, Imperviousness was only significantly correlated with shock intensity, $r(92) = .24$, $p = .020$, and shock frequency, $r(92) = .21$, $p = .046$ (all other rs < .20, ps > .07). The relationships between the empathy

subscales and behavioral aggression were largely non-significant, *r*s < .22, *p*s > .08. Of note, Empathic Concern was significantly negatively correlated with shock frequency overall, $r(93) = -.28$, $p = .007$, and within the instrumental, $r(93) = -.30$, $p = .003$, and reactive conditions $r(92) = -.22$, $p = .030$, specifically. Responsive Joy was significantly positively related to flashpoint duration during the reactive block, $r(92) = .21$, $p = .039$.

Zero-order correlations were calculated between the postauricular and startle blink reflexes difference scores for the shock selection phase and the MiP-SF factors and empathy subscales (see Table 14). There were no significant relationships found for either the startle blink or postauricular reflexes, *r*s < .22, *p*s > .10.

Regressions with Behavioral Measures

Proposed MiP-SF Factor Regressions. Two-step hierarchical regressions were conducted to assess the predictive utility of the MiP-SF factors for predicting behavioral aggression measures across conditions. Although correlational data suggested that Malice would likely not yield significant predictive utility, regressions examining the predictive utility of Malice were conducted and described below as outlined in the proposed analyses section. In the first set of regressions, Coldness and Imperviousness were entered in as predictors at step 1 and Malice was entered in at step 2. In the instrumental condition (see Table 15), Malice did not account for a significant amount of additional variance when predicting shock intensity ($\Delta R^2 = .00$; $F(1,93) = 0.12$, $p = .726$), shock duration ($\Delta R^2 = .00$; $F(1,93) = 0.00$, $p = .967$), shock frequency ($\Delta R^2 = .00$; $F(1,93) = 0.56$, $p = .458$), proportion of highest shock ($\Delta R^2 = .04$; $F(1,52) = 1.23$, $p = .273$), flashpoint intensity ($\Delta R^2 = .00$; $F(1,93) = 0.03$, $p = .873$), and flashpoint duration ($\Delta R^2 = .01$; $F(1,93) = 1.51$, $p = .223$). Similarly, in the reactive condition (see Table 16), Malice did not account for a significant amount of additional variance when predicting shock intensity

(ΔR^2=.01; F(1,92) = 0.05, p =.819), shock duration (ΔR^2=.01; F(1,92) = 0.05, p =.833), shock frequency (ΔR^2=.01; F(1,92) = 0.48, p =.492), proportion of highest shock (ΔR^2=.01; F(1,62) = 0.28, p =.282), flashpoint intensity (ΔR^2=.01; F(1,93) = 0.17, p =.680), and flashpoint duration (ΔR^2=.00; F(1,93) = 1.95, p =.166).

In the second set of regressions, Malice was entered in as a predictor at step 1 and Coldness and Imperviousness were entered in at step 2. In the instrumental condition (see Table 15), Coldness and Imperviousness accounted for a significant amount of additional variance when predicting shock intensity (ΔR^2=.08; F(2,92) = 3.82, p =.025), shock frequency (ΔR^2=.06; F(2,92) = 3.16, p =.047), flashpoint intensity (ΔR^2=.08; F(2,92) = 4.00, p =.022), and flashpoint duration (ΔR^2=.10, F(2,92) = 5.45, p =.006). They did not account for a significant amount of variance when predicting shock duration (ΔR^2=.04; F(2,92) = 2.12, p =.126) and proportion of highest shock (ΔR^2=.12; F(2,51) = 2.81, p =.069). In the reactive condition (see Table 16), Coldness and Imperviousness accounted for a significant amount of additional variance only when predicting flashpoint duration (ΔR^2=.05; F(2,79) = 4.27, p =.017). Coldness and Imperviousness did not account for a significant amount of variance when predicting the remaining reactive aggression variables: shock intensity (ΔR^2=.07; F(2,91) = 2.94, p =.058), shock duration (ΔR^2=.06; F(2,91) = 2.28, p =.107), shock frequency (ΔR^2=.05; F(2,91) = 2.02, p =.139), proportion of highest shock (ΔR^2=.02; F(2,61) = 0.22, p =.807), and flashpoint intensity (ΔR^2=.04; F(2,92) = 1.73, p =.182).

Exploratory MiP-SF Factor Regressions. Based on the patterns I observed in the correlations, I conducted additional exploratory regression analyses to elucidate the predictive utility of Imperviousness. In the first set, Malice and Coldness were entered in as predictors at step 1 and Imperviousness was entered in at step 2. In the instrumental condition (see Table 17),

Imperviousness accounted for a significant amount of additional variance when predicting shock intensity (ΔR^2=.08; F(1,93) = 7.60, p =.007), shock duration (ΔR^2=.04; F(1,93) = 4.29, p =.041), shock frequency (ΔR^2=.05; F(1,93) = 5.31 p =.023), proportion of highest shock (ΔR^2=.11; F(1,52) = 5.73, p =.020), flashpoint intensity (ΔR^2=.08; F(1,93) = 8.08, p =.006), and flashpoint duration (ΔR^2=.10; F(1,93) = 10.11, p =.002). In the reactive condition (see Table 18), Imperviousness accounted for a significant amount of additional variance only when predicting shock intensity (ΔR^2=.06; F(1,92) = 5.63, p =.020) and shock frequency (ΔR^2=.04; F(1,92) = 4.09, p =.046). Imperviousness did not account for a significant amount of additional variance when predicting shock duration (ΔR^2=.04; F(1,92) = 3.50, p =.065), proportion of highest shock (ΔR^2=.01; F(1,62) = 0.41, p =.522), flashpoint intensity (ΔR^2=.02; F(1,93) =1.82, p =.180), and flashpoint duration (ΔR^2=.03; F(1,93) = 2.43, p =.123).

In the second set of regressions, Imperviousness was entered in as a predictor at step 1 and Malice and Coldness were entered in at step 2. Malice and Coldness did not significantly account for additional variance when predicting instrumental aggression variables (see Table 17): shock intensity (ΔR^2=.00; F(2,92) = 0.12, p =.891), shock duration (ΔR^2=.00; F(2,92) = 0.00, p =.997), shock frequency (ΔR^2=.01; F(2,92) = 0.61, p =.546), proportion of highest shock (ΔR^2=.04; F(2,51) = 0.73, p =.486), flashpoint intensity (ΔR^2=.00; F(2,92) = 0.09, p =.918), and flashpoint duration (ΔR^2=.02; F(2,92) = 0.75, p =.474). In the reactive condition (see Table 18), Malice and Coldness did not account for a significant amount of additional variance when predicting shock intensity (ΔR^2=.01; F(2,91) = 0.26, p =.772), shock duration (ΔR^2=.03; F(2,91) = 0.93, p =.398), shock frequency (ΔR^2=.01; F(2,91) = 0.32, p =.726), proportion of highest shock (ΔR^2=.01; F(2,61) = 0.26, p =.769), flashpoint intensity (ΔR^2=.02; F(2,92) = 0.79, p =.455), and flashpoint duration (ΔR^2=.04; F(2,92) = 1.88, p =.158).

Proposed MiP-SF Empathy Subscales Regressions. Two-step hierarchical regressions were conducted to assess the predictive utility of the MiP-SF empathy subscales for predicting behavioral aggression measures across conditions. In the first set of regressions, the empathy subscales were entered in as predictors at step 1 and Malice was entered in at step 2 (see Tables 19a, 19b, 20a, and 20b). Malice did not account for a significant amount of additional variance when predicting across conditions. Specifically, in the instrumental condition, Malice did not account for a significant amount of additional variance when predicting shock intensity (ΔR^2=.00; F(1,93) = 0.12, p =.726), shock duration (ΔR^2=.00; F(1,93) = 0.00, p =.967), shock frequency (ΔR^2=.00; F(1,93) = .56, p =.458), proportion of highest shock (ΔR^2=.04; F(1,52) = 1.23, p =.273), flashpoint intensity (ΔR^2=.00; F(1,93) = 0.03, p =.873), and flashpoint duration (ΔR^2=.01; F(1,93) = 1.51, p =.223). In the reactive condition, Malice did not account for a significant amount of additional variance when predicting shock intensity (ΔR^2=.00; F(1,92) = .05, p =.819), shock duration (ΔR^2=.00; F(1,92) = 0.05, p =.833), shock frequency (ΔR^2=.00; F(1,92) = 0.48, p =.492), proportion of highest shock (ΔR^2=.02; F(1,62) = 0.28, p =.598), flashpoint intensity (ΔR^2=.00; F(1,93) = 0.17, p =.680), and flashpoint duration (ΔR^2=.00; F(1,93) = 1.95, p =.166).

In the second set of regression, Malice was entered in as predictors at step 1 and the empathy subscales were entered in at step 2 (19a, 19b, 20a, and 20b). The empathy subscales did not account for a significant amount of additional variance when predicting instrumental aggression variables: shock intensity (ΔR^2=.05; F(5,89) = 0.94, p =.461), shock duration (ΔR^2=.05; F(5,89) = 0.86, p =.515), shock frequency (ΔR^2=.10; F(5,89) = 2.31, p =.051), proportion of highest shock (ΔR^2=.07; F(5,48) = 0.57, p =.723), flashpoint intensity (ΔR^2=.01; F(5,89) =0.08, p =.995), and flashpoint duration (ΔR^2=.01; F(5,89) = .24, p =.944). Furthermore,

the empathy subscales did not significantly account for additional variance in any reactive aggression variables: shock intensity (ΔR^2=.04; $F(5,88) = 0.76$, p =.584), shock duration (ΔR^2=.08; $F(5,88) = 1.47$, p =.209), shock frequency (ΔR^2=.09; $F(5,88) = 1.77$, p =.128), proportion of highest shock (ΔR^2=.07; $F(5,58) = 0.67$, p =.650), flashpoint intensity (ΔR^2=.05; $F(5,89)$ =1.01, p =.419), and flashpoint duration (ΔR^2=.06; $F(5,89) = 1.50$, p =.198).

Exploratory Behavioral Correlations

Supplemental correlational analyses were conducted with the behavioral measures and both the MiP-SF factors and empathy subscales to further explore the patterns of correlations I observed between Imperviousness and behavioral aggression. Specifically, I examined if the significant correlations between Imperviousness and behavioral aggression were driven by instrumental aggression measures. To address this question, I conducted regressions that predicted behavior in the instrumental block from behavior in the reactive block (and vice versa) and saved the residuals to create scores representing the unique behavioral variance in each condition. Afterward, I conducted correlations between the MiP-SF and residualized instrumental and reactive behavioral aggression measures (see Table 21).

Analyses revealed that when accounting for reactive aggression, Imperviousness was significantly positively correlated with flashpoint intensity, $r(93) = .25$, $p = .015$, and duration, $r(93) = .28$, $p = .007$, during the instrumental aggression block. At the subscale level, Perspective Taking and Empathic Concern displayed unique significant negative relationships with instrumental aggression measures, rs < -.21, ps < .048. Perspective Taking was negatively associated with shock intensity and shock duration, whereas Empathic Concern was negatively correlated with shock frequency.

Analyses revealed that when accounting for instrumental aggression, there were no longer any significant relationships with Imperviousness and reactive aggression measures, $|r|$s < .11, *ps* > .477. At the subscale level, Responsive Joy, Responsive Distress, and Perspective Taking showed unique significant positive associations with reactive aggression measures, *r*s > .20, *p*s < .044. Responsive Joy was associated with shock duration. Responsive Distress was correlated with flashpoint duration. Lastly, Perspective Taking was associated with shock intensity, shock duration, and flashpoint intensity.

Regressions with Psychophysiological Measures

Proposed MiP-SF Factor Regressions. As proposed, two-step hierarchical regressions were conducted to assess the predictive utility of the MiP-SF factors (primarily Malice) for predicting postauricular and startle blink reactivity while designating shocks to confederates across both conditions (see Table 22). Given the results from the correlational analyses, it was unexpected that these analyses would reach significance. In the first set of regressions, Coldness and Imperviousness were entered in as predictors at step 1 and Malice was entered in at step 2. Malice did not account for a significant amount of additional variance when predicting postauricular reflex modulation during the instrumental (ΔR^2=.00; $F(1,70) = 0.03$, $p = .872$) and reactive (ΔR^2=.00; $F(1,69) = 0.04$, p =.838) conditions. Similarly, Malice did not explain a significant amount of additional variance when predicting the startle blink reflex modulation during the instrumental (ΔR^2=.02; $F(1,61) = 2.93$, p =.092) and reactive (ΔR^2=.01; $F(1,54)$ = 1.04, $p = .312$) conditions.

In the second set of regressions, Malice was entered in at step 1 as a predictor, and Coldness and Imperviousness were entered in at step 2. Coldness and Imperviousness did not account for a significant amount of additional variance when predicting postauricular reflex

modulation during the instrumental (ΔR^2=.03; F(2,69) = 1.05, p =.357) and reactive (ΔR^2=.01; F(2,68) = 0.09, p =.911) conditions. Furthermore, Coldness and Imperviousness also did not account for significant additional variance when predicting the startle blink reflexive reactivity across instrumental (ΔR^2=.01; F(2,60) = 1.26, p =.292) and reactive (ΔR^2=.01; F(2,53) = 0.43, p =.653) conditions.

Proposed MiP-SF Empathy Subscales Regressions. Additional two-step hierarchical regressions were conducted to assess the predictive utility of the MiP-SF empathy subscales, above and beyond the Malice factor, for predicting reflexive reactivity during shock allocation across both conditions (see Table 23). The first set of regressions entered in the empathy subscales at step 1 and Malice at step 2. Malice did not account for a significant amount of additional variance when predicting postauricular reflex modulation during the instrumental (ΔR^2=.00; F(1,69) = 0.07, p =.825) and reactive (ΔR^2=.00; F(1,69) = 0.04, p =.838) conditions. Malice also did not predict additional variance in startle blink reactivity across instrumental (ΔR^2=.06; F(1,60) = 3.07, p =.085) and reactive (ΔR^2=.06; F(1,54) =1.04, p =.312) conditions.

In the second set of regressions, Malice was entered in at step 1 and the empathy subscales at step 2. The empathy subscales did not account for a significant amount of additional variance when predicting postauricular reflex modulation during the instrumental (ΔR^2=.04; F(5,65) = 0.58, p =.714) and reactive (ΔR^2=.01; F(5,65) = 0.19, p =.966) conditions. Furthermore, the empathy subscales also did not significantly account for additional variance in startle blink reactivity across instrumental (ΔR^2=.06; F(5,56) = 0.48, p =.791) and reactive (ΔR^2=.07; F(5,50) = 0.33, p =.895) conditions.

Chapter 14: Study 3 Discussion

This final study further examined the discriminant validity of the MiP-SR empathy subscales by utilizing a behavioral laboratory task designed to elicit aggression. Correlational and regression analyses were conducted to elucidate the role of psychopathic meanness within the context of this aggression paradigm. Contrary to my hypotheses, Malice was unrelated to aggression across conditions. However, Imperviousness was significantly positively correlated with behavioral aggression, namely instrumental aggression. In addition, only Imperviousness predicted behavioral aggression. The empathy subscales were largely unrelated to behavioral aggression, with only Empathic Concern showing a significant negative relationship with the frequency of shocking and Responsive Joy being positively related to flashpoint duration. No significant relationships with the psychophysiological measures of interest (startle blink and postauricular reflexes) were found.

Basic Task Effects

The task utilized in this study was an adapted version of the Response-Choice Aggression paradigm (Zeichner et al., 1999), which has been previously employed to assess the relationship between psychopathy and aggression (Miller, Wilson, Hyatt, & Zeichner, 2015; Reidy et al., 2007). I utilized the basic paradigm, but adapted it with the goal of inducing instrumental and reactive aggression in a within-subjects design. Instrumental aggression was measured via the first 20 trials, during which time the participant did not receive any shocks. Thus, if the participant decided to shock the opponent during this block, the motivation would be purely to win the monetary reward. During the second 20 trials, the participant was repeatedly shocked. Consequently, any increase in shocking behaviors would be a form of retaliation.

To ensure that the core manipulation in this task worked as expected, I conducted analyses examining the basic effects across conditions of the behavioral measures. Participants displayed an increase in the intensity and duration of the shocks they delivered during the reactive condition relative to the instrumental condition, both in the first shock in each block and across the entire block. In contrast, the increase in shock frequency between conditions was not significant. This suggests that while participants may shock slightly more when retaliating, their aggression is more strongly expressed in the intensity and duration of the shocks they deliver. Overall, these findings provide support that the task indeed induced aggression as expected and can be examined relative to psychopathic meanness.

I further assessed the basic effects of the psychophysiological measures by examining the modulation of the postauricular and startle blink reflexes across conditions. The heighted magnitude during the practice block for the startle blink reflex (relative to the experimental blocks) was expected as initial blinks are often inflated with a quick habituation response (Blumenthal et al., 2005). Furthermore, the significant increase in activity during the reactive condition relative to the instrumental condition suggests an enhanced defensive response that can be explained by the shocks they receive. On the other hand, the postauricular reflex traditionally demonstrates a resistance to habituation (Hackley, 2015). Thus, the stark decrease in reflex magnitude between the practice and experimental blocks was surprising. The non-significant modulation between the reactive and instrumental conditions suggests there was no change in approach motivation. Given that anger/aggression is often associated with approach motivation (Carver & Harmon-Jones, 2009), this conflicts with the behavioral data that does indeed show an increase in aggressive behavior. Prior studies have shown that when individuals engage in behavioral expressions of anger they also display angry physiological and cognitive responses

(Coan, Allen, & Harmon-Jones, 2001; Keltner, Ellsworth, & Edwards, 1993). Taken together, this pattern suggests the postauricular reflex assesses positive emotion instead of approach processing, making it a poor measure of angry approach during an aggression task.

Behavioral Findings

The findings between psychopathic meanness and behavioral aggression were unexpected. Given that Malice encompasses subscales that capture callousness and manipulativeness, psychopathic traits that previous research has connected to increased aggression (Drislane et al., 2014; Miller et al., 2015; Patrick et al., 2009; Reidy et al., 2007), it was expected to be associated with the behavioral performance on this task. In particular, previous versions of this paradigm found significant associations with the callousness traits of psychopathy and aggressive behaviors (Miller et al., 2015; Reidy et al., 2007). However, there are key differences between the task designs that may have contributed to the conflicting findings.

Both Miller et al. (2015) and Reidy et al. (2007) instructed participants that they could shock their opponent to "punish" them. In the adaption of this paradigm, participants were simply told that they and their opponent would have an opportunity to shock each other at the end of each trial. Shocking was purposefully not referred to as a form of punishment because it clouds the motivation for the aggressive behavior. The literature discusses instrumental aggression as being controlled and purposeful with an external goal in mind (e.g., money) that does not involve hurting others (Glenn & Raine, 2009). Thus, referring to shocks as being a "punishment" rather than a strategy for winning may lead to questions regarding what form of aggression is being measured in Miller et al. (2015) and Reidy et al. (2007)'s paradigms relative

to the one in this study. It may be that in order to capture the Malice and aggression association, describing shocking other in a negative manner (e.g., "punishment") is needed.

While this aggression paradigm is inherently interpersonal, there is no interaction between the participant and their opponent during the experiment. Miller et al. (2015) told their participants that they would be able to hear their opponent during initial pain tolerance assessment when the levels of maximum shock were being determined. As such, they presented participants with a pre-recorded simulation. This element of their design may have enhanced the interpersonal nature of the task, consequently eliciting the callous, cold, and manipulative interpersonal style they label as Antagonism. Given that the construct of Malice captures a misuse of other people, ruthlessness, and taking pleasure in others' misfortunes, enhancing the current paradigm to include a pre-recorded "opponent" may increase the tendency for these individuals to behave aggressively. That is, if individuals high in Malice are aware that they are causing discomfort to their opponent, that may encourage them to behave aggressively.

It appears that this paradigm was more suitable for capturing how Imperviousness can manifest in aggressive behaviors rather than Malice. The significant findings of Imperviousness with behavioral aggression, specifically instrumental aggression, provide support for the maladaptive bold nature of the construct. At the core of Imperviousness is a dearth of negative social emotions and a bold interpersonal style, which may lead to a lack of concern of how aggressive behavior is perceived. As a result, those high in Imperviousness are more likely to exhibit whatever behavior is necessary to reach their goal (i.e., winning the monetary prize). This explanation is in line with implications made by Glenn and Raine (2009) regarding how a propensity to engage in instrumentally aggressive behaviors may be uniquely related to psychopathy. In particular, they highlighted that instrumental aggression tends to be most

strongly related with the Interpersonal/Affective factor of the PCL-R and less so with the Lifestyle/Antisocial factor. Imperviousness is unrelated to antisociality and disinhibition, which are constructs captured by the PCL-R Lifestyle/Antisocial factor (Hare, 2003). Therefore, the bold aspect of psychopathic meanness may be what distinguishes those individuals who engage in instrumentally aggressive behaviors.

Lastly, the associations found between the empathy subscales and aggression measures are questionable. The results showed that Empathic Concern was negatively associated with shock frequency measures and Responsive Joy was positively associated with flashpoint duration. The veracity of these findings is questionable given the probability of a type I error as well as the poor reliability of these empathy subscales. It is much more probable that the lack of relationship between empathy and behavioral aggression is in line with conclusions posed by Vachon et al. (2014). Specifically, this meta-analysis provided support for the notion that empathy and aggression may be unrelated as they found a weak relationship (r = -.11) between these constructs upon examination of 106 studies (Vachon et al., 2014). Thus, given that participants are demonstrating aggression as captured by our behavioral measures, it is more likely that empathy may be orthogonal to aggression.

Psychophysiological Findings

As predicted, the empathy subscales were unrelated to postauricular and startle blink activity during the shock selection phases. Contrary to my expectations, modulation of the postauricular and startle blink reflexes during the shock selection phases was unrelated to Malice. Given the non-significant relationship of Malice with the behavioral measures, this lack of findings was not surprising. An increase in postauricular reflex during the allocation of shocks would have suggested an enjoyment of inflicting pain upon others. The enjoyment of others'

pain is not captured by Imperviousness, which likely explains the absence of findings between this factor and postauricular modulation, despite its significant associations with behavioral measures. A lack of startle blink reactivity during this phase suggests an indifference to inflicting aggression upon others. The null findings with Imperviousness suggest that while behaviorally individuals high on this trait exhibit a tendency to exhibit aggression, they are not emotionally indifferent to its impact on others.

Limitations and Future Directions

There are several limitations that should be considered in interpreting the current study findings. In particular, there are measurement issues that require further explanation. Similar to Study 2, the internal consistencies of four of the five the empathy subscales were poor. The literature notes that the internal consistency of a scale increases with the number of items (Churchill & Peter, 1984; Cortina, 1993). As such, the lack of reliability of these subscales can again be explained by using the short form version of the MiP-SR in this study, which only contains three items per subscale. To better elucidate the role of empathy within the context of this behavioral aggression paradigm, it may be beneficial to utilize the full form of the MiP-SR empathy subscales in future studies. In addition, it may prove beneficial to analyze other psychophysiological measures that have been previously used in both empathy and psychopathy research. One such measure is SCR, which measures autonomic emotional arousal (instead of specific appetitive or defensive processing systems) and thus may be more linked to reactivity to a broad range of emotional states that appear deficient in psychopathy (Blair et al., 1997; Hein et al., 2011; Pfabigan et al., 2015; Sörman et al., 2016).

Furthermore, as noted above, it may be that this particular paradigm was not ideal for capturing the construct of Malice. Incorporating an interpersonal component similar to that

utilized by Miller et al. (2015), like a recording that is supposed to be their opponent, may better capture the construct. Given that the task used in this study is novel, it requires further validation studies to ensure it is indeed capturing the constructs intended. Future studies should utilize this paradigm, with and without the suggested interpersonal component, to determine if the basic behavioral task effects remain consistent across samples.

Chapter 15: General Discussion

The purpose of this dissertation was to elucidate the role of empathy deficits within the context of psychopathic meanness through three studies. The first study provided evidence of convergent validity of the MiP-SR's empathy subscales with established self-report empathy measures. In addition, the empathy subscales of the MiP-SR distinctly predicted psychopathy relative to other dark personality styles. The second and third studies examined the relationships between the short form of the MiP-SR with psychophysiological (startle blink and postauricular reflexes) and behavioral measures during laboratory tasks. The startle blink and postauricular reflex findings were non-significant in both studies; however, Study 3 yielded significant behavioral findings. Specifically, Imperviousness was unexpectedly associated with instrumental behavioral aggression.

The Places of Empathy in Psychopathic Meanness and Related Constructs

The first study confirmed that the empathy subscales of the MiP-SR were capturing their intended empathy constructs. A unique aspect of the MiP-SR is that through its subscales it captures broad empathic deficits that include both positive and negative emotionality. While cognitive empathy is largely captured through the Perspective Taking subscale, affective empathy requires further parsing to capture adequately. The combination of the Responsive Joy, Responsive Distress, and Empathic Concern subscales allows for a broader understanding of affective empathy. In particular, Responsive Joy captures positive emotional contagion, which has been largely ignored in the empathy literature with only a few scales measuring this aspect of empathy (e.g., the Quick Scale of Empathy; Caruso & Mayer, 1999). The Responsive Distress subscale focuses on capturing the contagion of negative emotions, distinct from the IRI's Personal Distress subscale that captures general negative emotional distress. Given prior

research's suggestions that the lack of responsivity to others' emotional distress is linked specifically to psychopathy (Blair et al., 1997), this construct was important to include on the MiP-SR. Lastly, the Emotion Perception subscale bridges cognitive, social, and affective empathy to provide information about how well individuals can perceive emotional cues. All of these individual subscales were associated with empathy as captured via the IRI, EQ, and TEQ, which indicates that capturing the broad spectrum of empathy (including parsing apart empathy into positive and negative emotional contagion) is important to understanding the construct of empathy.

Interestingly, the MiP-SR's empathy subscales do not all load onto the same factor (Benning et al., 2018a), indicating that the construct of empathy is complex and cannot be captured by solely one aspect of psychopathic traits. While the majority of empathy subscales (Responsive Joy, Empathic Concern, Perspective Taking, and Emotion Perception) load onto the Coldness factor, Responsive Distress falls onto the Imperviousness factor. This distinction suggests that the negative emotional contagion that is captured by the Responsive Distress subscale provides unique information that is not adequately assessed via the Empathic Concern subscale. It is important to highlight this distinction as traditionally, Empathic Concern alone is utilized to capture affective empathy (Baron-Cohen & Wheelwright, 2004; Davis, 1980; Spreng et al., 2009).

Overall, the empathy subscales were uniquely related to psychopathy relative to narcissism and Machiavellianism. This suggests that it is indeed important to incorporate scales that capture the broad spectrum of empathy. In particular, it will be valuable to assess the contagion of positive emotions (i.e., Responsive Joy) when examining empathy within the context of psychopathy as well. These findings provide support for the notion that psychopathic

traits have distinct deficits in affective and cognitive empathy that vary from other similar destructive personality styles (i.e., narcissism and Machiavellianism; Jonason & Krause, 2013; Jonason & Kroll, 2015).

Personal Distress as an Unnecessary Component of Empathy?

Study 2 was designed to assess the discriminant validity of the empathy subscales as this task was not designed to elicit empathy from the participant. Instead, the participant was receiving shocks and consequently it was most likely that their friend was providing them with empathy. For example, empathy may have been conveyed by the friend wincing or squeezing the participant's shoulder when the participant received a shock. Because the friends' facial or psychophysiological responses were not measured, their responsiveness to seeing a friend in pain could not be assessed. The null psychophysiological findings from the participant indicate that the participants, regardless of their levels of psychopathic meanness, benefited from the presence of their friend in the room. I had expected that given the lack of emotional connectivity and empathy deficits that make up the construct of Coldness, these individuals would not benefit from having a friend with them during a stressful situation. However, the results of this study show that is not the case. Thus, it may be that while individuals high on Coldness traits exhibit deficits providing empathy, they still benefit from receiving empathy.

The second study highlights the distinction between deficits in receiving versus displaying empathy. It is likely that the participants were undergoing personal distress as they focused on their own negative emotional state. In light of these findings, the construct of personal distress and its role within the empathy literature is questionable. The IRI includes personal distress as a scale of empathy which assesses the respondent's own negative feelings (i.e., apprehension, fear, and discomfort) as they witness other people undergoing negative

experiences (Davis, 1980). However, the construct of personal distress is often described as being distinct from empathy as it focuses on the individual's own emotional discomfort which results in a higher concern for themselves rather than another person in need (Batson et al., 1983). In fact, personal distress has been implicated in the reduction of empathic concern and prosocial behaviors as individuals are focused on alleviating their own negative emotional state (Batson et al., 1983; Decety & Lamm, 2009; Tice, Bratslavsky, & Baumeister, 2001). Thus, while developing the MiP-SR, Benning et al. (2018a) chose to exclude this scale because of its focus on the individual's own negative emotional state rather than sharing the emotional experience of another. Instead, the MiP-SR included a Responsive Distress scale that focuses on assessing how well the respondent shares in the negative emotional state of another. Overall, the combination of the findings in this study within the broader context of the empathy literature suggests that experiencing personal distress as well as a lack of personal distress while receiving social support are both not empathy.

Empathy and Aggression in Psychopathy

Study 3 captured behavioral as well as psychophysiological data while assessing aggression in psychopathic meanness, a construct that was once widely accepted to be inversely associated with empathy. However, recent evidence has suggested this may not be the case (Vachon et al., 2014). The results of this study provide further support for the notion that aggression and empathy may indeed not be associated with one another. That is, the minimally significant findings between behavioral aggression and the empathy subscales may represent type I errors. Coldness, the factor that encompasses the majority of the empathy subscales, was also unrelated to aggressive behavior. On the other hand, Imperviousness was significantly related to instrumentally aggressive behavior.

While one of the empathy subscales (i.e., Responsive Distress) loads onto the Imperviousness factor, its null relationship with behavioral aggression indicates that the empathy deficits are not driving the behavior. This contradicts the notion that a lack of empathy – namely, deficits with responsive distress – is a consequence of problems with developing a violence inhibition mechanism (VIM; Blair et al., 1997). In this model, deficits in the VIM are at the core of maladaptive behaviors exhibited by individuals high in psychopathic traits (Blair, 1995). Instead, the findings of Study 3 suggest that it is the other aspects of psychopathy, not a lack of responding to others' distress cues, that are driving aggressive behaviors. Specifically, it may be the other parts of Imperviousness (i.e., resistance to inferiority, lack of sensitivity to rejection, and a lack of shame) that can explain deficits with the VIM.

The significant findings with Imperviousness and instrumental aggression help to further elucidate the role of aggression within psychopathic meanness. Prior research has noted that instrumental aggression may be unique to psychopathy (Cornell et al., 1996; Glenn & Raine, 2009). Coupled with the findings in this study, this suggests that Imperviousness (i.e., maladaptive boldness) may be driving these behaviors. To capture Malice in aggression, it may be necessary to include a more pronounced interpersonal component (i.e., a pre-recording of the opponent while being shocked). Miller et al. (2015) and Reidy et al. (2007) utilized such a recording, which may explain why those with callous, cold, and manipulative traits behaved more aggressively in their studies relative to this one.

The third study also included psychophysiological measures to assess emotional reactivity during aggressive behaviors. The null findings for both the startle blink and postauricular reflexes suggest that those high in psychopathic meanness traits show intact emotional reactivity during aggressive behaviors. Taken together, it appears that, while those

high in Imperviousness act aggressively, at a psychophysiological level they are neither emotionally indifferent to nor appetitively motivated by the pain they are inflicting. Thus, empathic deficits in Imperviousness may be less important for understanding aggression in psychopathy than behavioral correlates of this factor.

How Important is Low Empathy to Psychopathic Outcomes?

Indeed, despite the literature suggesting that empathic deficits in psychopathy may be specific to meanness (Almeida et al., 2015; Sellbom & Phillips, 2013; Sellbom et al., 2015), empathic deficits do not appear to drive the behavioral difficulties (e.g., aggression) associated with psychopathy. Instead, it may be that the empathy deficits in psychopathy are leading to other interpersonal problems. For example, it may be that low affective empathy leads to a lack of closeness and attachment in relationships (Mullins-Nelson et al., 2006). Research has shown that individuals who self-reported having lower levels of empathy reported through an experience sampling methodology having less meaningful and positive social interactions over a week's span (Grühn, Rebucal, Diehl, Lumley, & Labouvie-Vief, 2008). Yet despite a lack of meaningful and/or close relationships, it may be that individuals with Coldness traits can still benefit from those relationships.

Understanding the role of empathy within the context of psychopathy has important clinical implications. Though psychopathy is often regarded as being an untreatable condition, recent research has provided some evidence of treatment success when the focus is on treatment intensity as well as cognition and behavioral changes (Olver, 2016; Polaschek & Daly, 2013; Skeem et al., 2011). For example, one successful treatment study consisted of a high-intensity violence prevention program and showed a notable reduction in violent recidivism rate at a 5-year follow-up for high-risk psychopathic offenders (Olver, Lewis, & Wong, 2013). In

particular, they noted that the decrease in violent recidivism and the positive therapeutic changes were negatively correlated with PCL-R Factor 1 and Affective facet scores (Olver et al., 2013), the portion of psychopathy most strongly associated with meanness This finding is consistent with prior treatment recommendations that clinicians should work to modify Factor 2 features (i.e., antisocial attitudes, cognitions, behaviors, and lifestyle) rather than attempting to change the interpersonal and affective features of Factor 1 (Wong & Hare, 2005). In fact, unsuccessful treatment programs tend to target affective features such as empathy and warmth rather than antisocial behaviors (Olver, 2016). The findings of a null relationship between empathy and aggression in this dissertation provide further support for treatment programs that target the antisocial features of psychopathy rather than the affective features in their efforts to reduce violence.

Limitations and Future Directions

There are a number of limitations that deserve further mention. In particular, the poor internal consistencies of the MiP-SF empathy subscales for both Studies 2 and 3 are troublesome. Given that Study 1 was part of the MiP-SR's development sample and utilized the full form of the MiP-SR, I was able to derive the short form empathy subscales from it and conduct reliability analyses. In the community sample from Study 1, the internal consistencies for the empathy subscales for the MiP-SF version utilized in Study 2 were good to acceptable with the following Cronbach alphas: .81 for Responsive Joy, .78 for Responsive Distress and Empathic Concern, .77 for Perspective Taking, and .75 for Emotion Perception. In contrast, the internal consistencies were generally poor for the undergraduate samples in studies two and three, with Cronbach alphas ranging from .59 to .68. The one exception was an acceptable alpha of .78 for the Emotion Perception subscale in Study 3, which was greater than an alpha of .61 in

Study 2. This discrepancy suggests that further studies need to be done utilizing the MiP-SF in undergraduate and community samples to determine what may be driving these differences.

Another limitation of this dissertation is that the tasks utilized in the second and third studies were adapted from previous studies; as such, further replication studies demonstrating consistency of the basic effects should be conducted. In addition, both tasks left questions regarding if the intended construct of psychopathic meanness was being measured. Given that Study 2's task design may have elicited empathy from the friend rather than the participant, it would be ideal to collect psychophysiological data from the friend during future experiments. This simple adaption in the task design may allow for the intended empathy deficits in psychopathic meanness to be captured. In addition, the design for Study 2 may also benefit from a broader interpersonal component (e.g., doing the task with different friends) with multiple lab sessions to accurately capture psychopathic meanness. Designing the study so that the participants undergo the task multiple times with different friends would help to reduce confounds (e.g., familiarity of the situation) that might be impacting task performance (Funder & Colvin, 1991) as well as provide a more comprehensive understanding of the participants' broader interpersonal style. While Study 3 provided valuable information regarding Imperviousness, including a stronger interpersonal component (e.g., audio from an opponent in pain) may elicit the maliciousness I had initially intended to capture with this task. Thus, future validation studies would benefit from incorporating these adaptations into the task design.

In the future, it would be beneficial to include other measures of psychopathy in analyses as well. This would allow for comparison of how psychopathic traits from different self-reports manifest behaviorally. Utilizing the TriPM and the MiP-SF, for example, will allow for a more comprehensive understanding of how meanness on the TriPM may look differently than

meanness from the MiP-SF. Similarly, it would be helpful to expand the psychophysiological measures utilized in analyses to include event-related potentials (ERPs). For example, a smaller P300 amplitude response has been implicated in deficits with defensive reactivity with those with higher levels of affective-interpersonal psychopathic traits (Drislane, Vaidyanathan, & Patrick, 2013). Thus, including these measures in future studies will allow for a more detailed understanding of the psychophysiological processes associated with psychopathic meanness.

Lastly, while laboratory tasks are helpful at providing researchers with glimpses into human behavior, they are at best analogues of real-world behavior. To increase the real-world applicability of the MiP-SR, future validation studies should incorporate data acquired from record reviews into their analyses. A record review is not possible for community and undergraduate samples; however, incorporating this method in studies conducted with correctional and/or forensic inpatient populations is feasible. For example, Cornell et al. (1996) used institutional records to divide violent offenders into instrumental and reactive groups. Offenders who committed instrumentally aggressive acts exhibiting higher levels of psychopathy (as assessed via the PCL-R; Cornell et al., 1996), though it is unclear whether this increase was specific to meanness. Thus, a multimodal design that includes behavioral, psychophysiological, and record reviews of legal and institutional behavioral data may prove to be ideal for understanding the complex relationship between psychopathic meanness and empathy deficits.

Appendix A

Table 1

Correlations between MiP-SR Factors and Empathy Measures

	Coldness	Malice	Imperviousness	*N*
IRI: Empathic Concern	-.80**	-.57**	-.34**	286
IRI: Personal Distress	-.09	-.09	-.59**	286
IRI: Perspective Taking	-.63**	-.48**	-.14	286
IRI: Fantasy	-.42**	-.20	-.24**	286
EQ: Cognitive	-.48**	-.17	-.08	285
EQ: Affective	-.76**	-.59**	-.31**	285
EQ: Social	-.48**	-.30**	.12	285
TEQ: Total	-.85**	-.60**	-.32**	286

**$p < .001$.

Table 2

Correlations between MiP-SR Empathy Subscales and Empathy Measures

	Responsive Joy	Responsive Distress	Perspective Taking	Empathic Concern	Emotion Perception	*N*
IRI: Empathic Concern	.68**	.49**	.58**	.79**	.57**	286
IRI: Personal Distress	-.09	.60**	-.21*	.12	-.21*	286
IRI: Perspective Taking	.56**	.23*	.80**	.54**	.55**	286
IRI: Fantasy	.41**	.26**	.31**	.32**	.32**	286
EQ: Cognitive	.46**	.10	.62**	.38**	.78**	285
EQ: Affective	.60**	.45**	.47**	.69**	.51**	285
EQ: Social	.49**	-.03	.46**	.29**	.56**	285
TEQ: Total	.77**	.45**	.66**	.76**	.66**	286

*$p < .005$; **$p < .001$.

Table 3

Hierarchical Regressions with MiP-SR Factors Predicting the IRI

	IRI-Fantasy			IRI-Empathic Concern			IRI- Perspective Taking			IRI- Personal Distress		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.08			.38			.23			.35
Malice	-.16	.06		-.52**	.05		-.47**	.05		.01	.05	
Imperviousness	-.21**	.06		-.25**	.05		-.06	.05		-.60**	.05	
Step 2			.11			.25			.18			.07
Coldness	-.51**	.08		-.79**	.06		-.67**	.07		.40**	.07	
Step 1			.17			.64			.39			.01
Coldness	-.42**	.05		-.80**	.04		-.63**	.05		-.09	.06	
Step 2			.02			.00			.02			.40
Malice	.16	.08		-.03	.05		-.04	.06		-.24**	.06	
Imperviousness	-.05	.06		.00	.04		.16*	.05		-.72**	.05	

*p <.005; **p <.001.

Table 4

Hierarchical Regressions with MiP-SR Factors Predicting the EQ and TEQ

	EQ-Cognitive			EQ- Affective			EQ-Social			TEQ-Total		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.03			.39			.12			.40
Malice	-.16	.06		-.55**	.05		-.33**	.06		-.56**	.05	
Imperviousness	-.05	.06		-.22**	.05		.18*	.06		-.22**	.05	
Step 2			.29			.19			.26			.32
Coldness	-.84**	.08		-.68**	.06		-.80**	.07		-.89**	.05	
Step 1			.23			.58			.23			.72
Coldness	-.49**	.05		-.76**	.04		-.48**	.05		-.85**	.03	
Step 2			.09			.01			.15			.00
Malice	.37**	.07		-.12	.05		.18	.07		.00	.04	
Imperviousness	.22**	.06		.01	.04		.44**	.05		.07	.04	

*p <.005; **p <.001.

Table 5

Hierarchical Regressions with MiP-SR Subscales Predicting the IRI

	IRI-Fantasy			IRI-Empathic Concern			IRI- Perspective Taking			IRI- Personal Distress		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.29			.67			.48			.41
Unemotional	-.27**	.07		-.24**	.05		.16	.06		-.35**	.06	
Emotional Imperturbability	.06	.07		.08	.05		-.01	.06		.04	.07	
Uncaring	-.09	.08		-.67**	.05		-.76**	.07		.22*	.07	
Superiority	.00	.06		.00	.04		.03	.05		-.25**	.05	
Resistance to Inferiority	.11	.06		.04	.04		.06	.05		-.16	.06	
Sentimentality	.33**	.06		.13*	.04		.03	.05		.25**	.06	
Connection	.09	.07		.03	.05		.07	.06		.08	.06	
Unattached	.22**	.07		.13*	.04		.12	.06		.41**	.06	
Step 2			.04			.09			.21			.16
Responsive Joy	.28*	.09		.17*	.05		.03	.06		-.05	.07	
Responsive Distress	-.02	.07		.10	.04		.05	.05		.54**	.06	
Perspective Taking	.13	.09		.06	.05		.74**	.06		-.04	.07	
Empathic Concern	-.06	.09		.37**	.05		.01	.06		-.03	.07	
Emotion Perception	.04	.08		.06	.05		-.11	.05		-.09	.06	
Step 1			.20			.71			.67			.48
Responsive Joy	.27**	.08		.21**	.05		.06	.05		-.17	.06	
Responsive Distress	.16	.07		.14**	.04		.08	.04		.70**	.05	
Perspective Taking	.06	.08		.08	.05		.77**	.05		-.09	.07	
Empathic Concern	-.01	.08		.48**	.05		.09	.05		-.03	.07	
Emotion Perception	.10	.08		.14*	.05		-.10	.05		-.13	.06	
Step 2			.13			.05			.02			.10
Unemotional	-.30**	.07		-.19**	.04		.00	.05		-.19*	.06	
Emotional Imperturbability	.10	.97		.18**	.04		.08	.05		.06	.06	
Uncaring	.12	.12		-.24**	.07		-.19	.08		.19	.09	
Superiority	-.04	.06		.00	.04		-.08	.04		-.15*	.05	
Resistance to Inferiority	.05	.07		.01	.04		-.03	.04		.01	.05	

Sentimentality	.31**	.06	.04	.04	.05	.04	.10	.05
Connection	.04	.07	.03	.04	.04	.05	.09	.06
Unattached	.24**	.07	.06	.04	.01	.05	.31**	.06

*p <.005; **p <.001.

Table 6

Hierarchical Regressions with MiP-SR Subscales Predicting the EQ and TEQ

	EQ-Cognitive			EQ- Affective			EQ-Social			TEQ-Total		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.39			.59			.46			.72
Unemotional	.17	.07		-.28**	.05		-.04	.06		-.15*	.04	
Emotional Imperturbability	-.11	.07		.08	.06		-.10	.06		.00	.05	
Uncaring	-.60**	.07		-.50**	.06		-.26**	.07		-.68**	.05	
Superiority	.31**	.05		-.06	.04		.18**	.05		.00	.04	
Resistance to Inferiority	.06	.06		-.04	.05		.08	.05		.05	.04	
Sentimentality	.11	.06		.10	.05		-.08	.05		.10	.04	
Connection	-.01	.07		.03	.05		.03	.06		.03	.04	
Unattached	.07	.06		-.09	.05		-.39**	.06		.01	.04	
Step 2			.26			.05			.06			.08
Responsive Joy	-.02	.06		.04	.07		.04	.08		.25**	.05	
Responsive Distress	.02	.05		.14	.05		-.05	.06		.11*	.04	
Perspective Taking	.13	.06		-.01	.06		.06	.07		.09	.05	
Empathic Concern	-.01	.07		.25**	.07		-.10	.08		.20**	.05	
Emotion Perception	.69**	.06		.08	.06		.29**	.07		.15**	.04	
Step 1			.62			.55			.39			.77
Responsive Joy	-.03	.05		.21**	.06		.34**	.07		.33**	.04	
Responsive Distress	.01	.04		.15*	.05		-.18*	.06		.13**	.03	
Perspective Taking	.16	.06		-.03	.06		.02	.07		.12	.04	
Empathic Concern	-.04	.06		.40**	.06		-.03	.07		.33**	.04	
Emotion Perception	.71**	.06		.18*	.06		.39**	.07		.21**	.04	
Step 2			.03			.09			.14			.03
Unemotional	.13	.05		-.23**	.06		-.08	.06		-.12*	.04	
Emotional Imperturbability	-.07	.05		.14	.05		-.10	.06		.10	.04	
Uncaring	-.04	.09		-.24	.09		-.07	.10		-.24**	.06	
Superiority	.15**	.04		-.05	.04		.10	.05		-.03	.03	
Resistance to Inferiority	-.04	.05		-.02	.05		.01	.06		.00	.04	

Sentimentality	.06	.05	.02	.05	-.08	.05	.01	.03
Connection	-.01	.05	.04	.05	.01	.06	-.00	.04
Unattached	.01	.05	-.15*	.05	-.38**	.06	-.04	.04

*p <.005; **p <.001.

Table 7

Correlations between MiP-SR Factors and SD3 Factors

	Coldness	Malice	Imperviousness
Machiavellianism	.38**	.64**	-.03
Narcissism	.07	.53**	.09
Psychopathy	.42**	.78**	-.04

Note. $N = 297$. ** $p < .001$.

Table 8

Correlations between MiP-SR Empathy Subscales and SD3 Factors

	Responsive Joy	Responsive Distress	Perspective Taking	Empathic Concern	Emotion Perception
Machiavellianism	-.31**	-.14	-.26**	-.30**	-.20*
Narcissism	-.06	-.20*	-.06	-.23**	.04
Psychopathy	-.37**	-.18	-.39**	-.44**	-.28**

Note. $N = 297$. *$p < .005$; **$p < .001$.

Table 9

Hierarchical Regressions with SD3 Factors Predicting MiP-SR Empathy Subscales

	Responsive Joy			Responsive Distress			Perspective Taking			Empathic Concern			Emotion Perception		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.10			.05			.07			.11			.05
Machiavellianism	-.32**	.06		-.09	.06		-.27**	.06		-.25**	.06		-.24**	.06	
Narcissism	.04	.06		-.17*	.06		.03	.06		-.15	.06		.11	.06	
Step 2			.07			.00			.09			.09			.06
Psychopathy	-.33**	.07		-.10	.07		-.39**	.07		-.39**	.07		-.31**	.07	
Step 1			.14			.03			.15			.20			.08
Psychopathy	-.37**	.05		-.18*	.06		-.39**	.05		-.44**	.05		-.29**	.06	
Step 2			.02			.02			.01			.01			.03
Machiavellianism	-.15	.07		-.04	.07		-.07	.07		-.05	.07		-.08	.07	
Narcissism	.12	.06		-.15	.06		.12	.06		-.07	.06		.19*	.06	

*p <.005; **p <.001.

Table 10

Correlations between MiP-SF and Psychophysiological Measures

	Postauricular (Friend-Alone)	Startle (Friend-Alone)
Coldness	-.07	.05
Malice	-.15	.01
Imperviousness	.02	.12
Responsive Joy	-.13	-.09
Responsive Distress	.02	.05
Perspective Taking	-.08	.10
Empathic Concern	-.13	.04
Emotion Perception	.08	-.08

Note. Postauricular $N = 67$; Startle $N = 61$.

Table 11

Hierarchical Regressions with MiP-SF Factors Predicting Psychophysiological Modulation

	Postauricular: Friend-Alone			Startle: Friend-Alone		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.02			.02
Malice	-.15	.12		-.01	.14	
Imperviousness	.03	.13		.12	.13	
Step 2			.00			.00
Coldness	.01	.16		.01	.17	
Step 1			.01			.00
Coldness	-.07	.12		.05	.13	
Step 2			.02			.01
Malice	-.16	.13		-.01	.17	
Imperviousness	.03	.21		.12	.14	

Note. Postauricular $N = 67$; Startle $N = 61$.

Table 12

Hierarchical Regressions with MiP-SF Subscales Predicting Psychophysiological Modulation

	Postauricular: Friend-Alone			Startle: Friend-Alone		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.08			.09
Unemotional	.00	.10		.20	.17	
Emotional Imperturbability	.16	.15		.10	.16	
Uncaring	-.11	.18		.07	.22	
Sentimentality	.09	.14		-.08	.15	
Connection	.10	.13		-.21	.14	
Unattached	-.24	.15		-.03	.16	
Step 2			.04			.04
Responsive Joy	-.09	.16		-.14	.19	
Responsive Distress	.03	.17		-.04	.19	
Perspective Taking	-.09	.15		.10	.17	
Empathic Concern	-.14	.18		-.12	.19	
Emotion Perception	.13	.15		-.12	.16	
Step 1			.04			.05
Responsive Joy	-.09	.14		-.13	.15	
Responsive Distress	.09	.14		.09	.15	
Perspective Taking	-.09	.14		.18	.16	
Empathic Concern	-.10	.16		.01	.18	
Emotion Perception	.12	.13		-.15	.16	
Step 2			.08			.08
Unemotional	.06	.17		.25	.19	
Emotional Imperturbability	.19	.16		.09	.17	
Uncaring	-.09	.23		.15	.25	
Sentimentality	.14	.15		-.03	.16	
Connection	.09	.14		-.18	.16	
Unattached	-.21	.17		-.02	.20	

Note. Postauricular $N = 67$; Startle $N = 61$.

Table 13

Means and Standard Deviations for Behavioral Aggression Measures

	Instrumental			**Reactive**			**Overall**		
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*
Shock Intensity	1.68	2.54	95	2.17	2.54	94	1.92	2.43	95
Shock Duration	.97	1.36	95	1.25	1.40	94	1.04	1.32	95
Shock Frequency	6.96	8.39	95	7.65	7.59	94	14.53	15.37	95
Proportion of Highest Shock	.16	.32	54	.29	.37	64	.25	.35	68
Flashpoint Intensity	1.97	2.66	95	3.35	3.38	95	1.97	2.66	95
Flashpoint Duration	1.18	1.44	95	1.88	1.79	95	1.79	1.44	95

Note. SD= Standard deviation.

Table 14

Correlations between MiP-SF and Aggression Measures

	Coldness	Malice	Imperviousness	Responsive Joy	Responsive Distress	Perspective Taking	Empathic Concern	Emotion Perception	*N*
Instrumental Aggression									
Shock Intensity	.05	.04	.28**	.03	.08	-.05	-.17	-.09	95
Shock Duration	.01	.00	.21*	.08	.12	-.04	-.12	-.02	95
Shock Frequency	.11	.08	.23*	.04	-.06	-.08	-.30**	-.16	95
Proportion of Highest Shock	.03	.15	.32*	.02	.12	.01	.05	.18	54
Flashpoint Intensity	.02	-.02	.28**	.01	.00	-.04	-.06	-.03	95
Flashpoint Duration	-.07	-.13	.31**	.10	-.02	.01	.01	.03	95
Reactive Aggression									
Shock Intensity	-.04	.02	.24*	.12	.10	.09	-.07	.01	94
Shock Duration	-.10	.02	.19	.18	.16	.11	-.08	.01	94
Shock Frequency	.01	.07	.21*	.11	.01	.01	-.22*	-.11	94
Proportion of Highest Shock	-.01	.07	.08	.03	.10	.18	.13	-.18	64
Flashpoint Intensity	-.12	-.04	.14	.13	.11	.19	.03	.07	95
Flashpoint Duration	-.20	-.14	.16	.21*	.19	.14	.08	-.02	95
Overall Behavioral Aggresssion									
Shock Intensity	.01	.03	.27**	.08	.09	.02	-.13	-.04	95
Shock Duration	-.05	.02	.21*	.14	.14	.04	-.10	-.01	95
Shock Frequency	.07	.08	.23*	.07	-.03	-.03	-.28**	-.14	95
Proportion of Highest Shock	-.07	.08	.14	.07	.16	.20	.15	.21	68
Flashpoint Intensity	.02	-.02	.28**	.01	.00	-.04	-.06	-.03	95
Flashpoint Duration	-.07	-.13	.31**	.10	-.02	.01	-.01	.03	95
Psychophysiological Measures									
Postauricular-Instrumental Aggression	-.05	-.02	.17	-.06	.08	-.17	.02	-.10	72
Startle- Instrumental Aggression	-.18	-.21	.12	.04	.11	.07	.04	.18	63
Postauricular-Reactive Aggression	-.04	.03	-.04	-.04	-.04	-.03	-.02	.09	71
Startle- Reactive Aggression	-.09	-.14	.11	.03	.00	-.03	-.07	.13	56

*p <.05; **p < .01.

Table 15

Proposed Hierarchical Regressions with MiP-SF Factors Predicting Behavioral Instrumental Aggression

	Shock Intensity			Shock Duration			Shock Frequency		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.08			.04			.06
Coldness	.03	.10		-.00	.09		.10	.10	
Imperviousness	.27**	.10		.21*	.10		.23*	.10	
Step 2			.00			.00			.00
Malice	.03	.13		.01	.14		.02	.13	
Step 1			.00			.00			.01
Malice	.04	.10		.00	.10		.08	.10	
Step 2			.08			.04			.06
Coldness	.02	.13		-.01	.13		.09	.13	
Imperviousness	.27**	.10		.21*	.10		.23*	.10	
	Proportion of Highest Shock			Flashpoint Intensity			Flashpoint Duration		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.10			.08			.11
Coldness	-.01	.14		.00	.11		-.09	.10	
Imperviousness	.32*	.13		.28**	.10		.32**	.10	
Step 2			.04			.00			.01
Malice	.24	.16		-.03	.13		-.11	.13	
Step 1			.02			.00			.02
Malice	.15	.14		-.02	.11		-.13	.10	
Step 2			.12			.08			.10
Coldness	-.16	.16		.02	.13		-.02	.13	
Imperviousness	.34*	.13		.28**	.10		.31**	.10	

Note. N=95 for all measures except Proportion of Highest Shock whose N=54. *p <.05; **p < .01.

Table 16

Proposed Hierarchical Regressions with MiP-SF Factors Predicting Behavioral Reactive Aggression

	Shock Intensity			Shock Duration			Shock Frequency		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.06			.05			.04
Coldness	-.06	.10		-.11	.10		.00	.00	
Imperviousness	.24*	.10		.20	.10		.21*	.10	
Step 2			.01			.01			.01
Malice	.10	.13		.15	.13		.12	.13	
Step 1			.00			.00			.01
Malice	.02	.10		.02	.10		.07	.10	
Step 2			.07			.06			.05
Coldness	-.12	.13		-.20	.13		-.08	.13	
Imperviousness	.25*	.10		.20	.10		.21*	.10	
	Proportion of Highest Shock			Flashpoint Intensity			Flashpoint Duration		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.01			.04			.07
Coldness	-.02	.13		-.13	.10		-.21*	.10	
Imperviousness	.08	.13		.15	.10		.17	.10	
Step 2			.01			.00			.00
Malice	.15	.17		.07	.13		-.02	.13	
Step 1			.01			.00			.02
Malice	.07	.13		-.04	.10		-.14	.10	
Step 2			.02			.04			.05
Coldness	-.12	.17		-.18	.13		-.19	.13	
Imperviousness	.11	.13		.15	.10		.17	.10	

Note. N=94 for shock measures; N = 64 for Proportion of Highest Shock; N = 94 for flashpoint measures. *p <.05.

Table 17

Exploratory Hierarchical Regressions with MiP-SF Factors Predicting Behavioral Instrumental Aggression

	Shock Intensity			Shock Duration			Shock Frequency		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.00			.00			.01
Coldness	.05	.14		.01	.14		.11	.13	
Malice	.01	.13		-.00	.11		.01	.13	
Step 2			.08			.04			.05
Imperviousness	.27**	.10		.21*	.10		.23*	.10	
Step 1			.08			.04			.05
Imperviousness	.28**	.10		.21*	.10		.23*	.10	
Step 2			.00			.00			.01
Coldness	.02	.13		-.01	.13		.09	.13	
Malice	.03	.13		.01	.14		.02	.13	
	Proportion of Highest Shock			Flashpoint Intensity			Flashpoint Duration		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.03			.00			.02
Coldness	-.09	.17		.05	.13		.02	.13	
Malice	.20	.17		-.05	.13		-.14	.13	
Step 2			.11			.08			.10
Imperviousness	.34*	.13		.28**	.10		.31**	.10	
Step 1			.10			.08			.10
Imperviousness	.32*	.13		.28**	.10		.31**	.10	
Step 2			.04			.00			.02
Coldness	-.16	.16		.02	.13		-.02	.13	
Malice	.24	.16		-.03	.13		-.11	.13	

Note. N=95 for all measures except Proportion of Highest Shock whose N=54. *p <.05; **p < .01.

Table 18

Exploratory Hierarchical Regressions with MiP-SF Factors Predicting Behavioral Reactive Aggression

	Shock Intensity			Shock Duration			Shock Frequency		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.01			.02			.01
Coldness	-.09	.13		-.18	.13		-.06	.14	
Malice	.08	.13		.14	.13		.11	.13	
Step 2			.06			.04			.04
Imperviousness	.25*	.10		.20*	.10		.21*	.10	
Step 1			.06			.04			.04
Imperviousness	.24*	.10		.19	.10		.21*	.10	
Step 2			.01			.03			.01
Coldness	-.12	.13		-.20	.13		-.08	.13	
Malice	.10	.13		.15	.13		.12	.13	

	Proportion of Highest Shock			Flashpoint Intensity			Flashpoint Duration		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.01			.02			.04
Coldness	-.08	.17		-.16	.13		-.18	.13	
Malice	.12	.17		.06	.13		-.03	.13	
Step 2			.01			.02			.03
Imperviousness	.11	.13		.15	.10		.17	.10	
Step 1			.01			.02			.03
Imperviousness	.08	.13		.14	.10		.16	.10	
Step 2			.01			.02			.04
Coldness	-.12	.17		-.17	.13		-.19	.13	
Malice	.15	.17		.07	.13		-.02	.13	

Note. N=94 for shock measures; N = 64 for Proportion of Highest Shock; N = 94 for flashpoint measures. *p <.05.

Table 19a

Proposed Hierarchical Regressions with MiP-SF Empathy Subscales Predicting Behavioral Instrumental Aggression

	Shock Intensity			Shock Duration			Shock Frequency		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.05			.05			.12
Responsive Joy	.05	.12		.08	.12		.13	.11	
Responsive Distress	.13	.11		.14	.11		-.01	.11	
Perspective Taking	-.00	.25		-.03	.12		.01	.11	
Empathic Concern	-.21	.12		-.18	.12		-.31**	.11	
Emotion Perception	-.05	.12		.01	.11		-.11	.11	
Step 2			.00			.00			.00
Malice	-.03	.12		-.04	.12		-.02	.12	
Step 1			.00			.00			.01
Malice	.04	.10		.00	.10		.08	.10	
Step 2			.05			.05			.11
Responsive Joy	.04	.12		.07	.13		.14	.12	
Responsive Distress	.13	.12		.15	.12		-.01	.11	
Perspective Taking	-.00	.12		-.04	.12		.01	.12	
Empathic Concern	-.22	.12		-.19	.12		-.31*	.12	
Emotion Perception	-.05	.12		.02	.12		-.11	.11	

Note. N=95. *p <.05; **p < .01.

Table 19b

Proposed Hierarchical Regressions with MiP-SF Empathy Subscales Predicting Behavioral Instrumental Aggression

	Proportion of Highest Shock			Flashpoint Intensity			Flashpoint Duration		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.06			.00			.01
Responsive Joy	-.03	.16		.03	.12		.13	.12	
Responsive Distress	.14	.16		.01	.12		-.06	.12	
Perspective Taking	-.10	.17		-.03	.12		-.04	.12	
Empathic Concern	-.04	.16		-.05	.12		.01	.12	
Emotion Perception	.24	.17		-.01	.11		.01	.12	
Step 2			.04			.00			.01
Malice	.23	.16		-.05	.13		-.12	.13	
Step 1			.02			.00			.02
Malice	.15	.14		-.02	.11		-.13	.10	
Step 2			.07			.01			.01
Responsive Joy	.04	.17		.01	.13		.08	.13	
Responsive Distress	.09	.16		.01	.12		-.04	.12	
Perspective Taking	-.11	.16		-.03	.12		-.05	.12	
Empathic Concern	.05	.17		-.07	.13		-.04	.12	
Emotion Perception	.26	.16		-.01	.12		.01	.12	

Note. $N = 95$ for all measures except Proportion of Highest Shock whose $N = 54$.

Table 20a

Proposed Hierarchical Regressions with MiP-SF Empathy Subscales Predicting Behavioral Reactive Aggression

	Shock Intensity			Shock Duration			Shock Frequency		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.04			.08			.09
Responsive Joy	.10	.12		.15	.12		.17	.12	
Responsive Distress	.10	.12		.16	.11		.03	.11	
Perspective Taking	.10	.12		.11	.12		.08	.12	
Empathic Concern	-.15	.12		-.18	.11		-.27*	.11	
Emotion Perception	-.02	.12		-.03	.11		-.11	.11	
Step 2			.00			.00			.00
Malice	.05	.13		.07	.12		.05	.12	
Step 1			.00			.00			.01
Malice	.02	.10		.02	.10		.07	.10	
Step 2			.04			.08			.09
Responsive Joy	.12	.13		.17	.12		.19	.12	
Responsive Distress	.10	.12		.15	.11		.02	.11	
Perspective Taking	.10	.12		.12	.12		.08	.12	
Empathic Concern	-.13	.12		-.16	.12		-.25*	.12	
Emotion Perception	-.02	.12		-.04	.12		-.12	.11	

Note. N=94. *p <.05.

Table 20b

Proposed Hierarchical Regressions with MiP-SF Empathy Subscales Predicting Behavioral Reactive Aggression

	Proportion of Highest Shock			Flashpoint Intensity			Flashpoint Duration		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.05			.05			.08
Responsive Joy	-.10	.16		.05	.12		.16	.12	
Responsive Distress	.09	.15		.11	.11		.13	.11	
Perspective Taking	.12	.16		.19	.12		.13	.12	
Empathic Concern	.04	.15		-.07	.11		-.00	.10	
Emotion Perception	.12	.16		.00	.20		-.11	.11	
Step 2			.02			.00			.00
Malice	.17	.15		.02	.12		-.07	.12	
Step 1			.01			.00			.02
Malice	.07	.13		-.04	.10		-.14	.10	
Step 2			.07			.05			.06
Responsive Joy	-.06	.16		.06	.12		.13	.12	
Responsive Distress	.07	.15		.10	.11		.14	.11	
Perspective Taking	.12	.16		.20	.12		.12	.12	
Empathic Concern	.11	.16		-.06	.12		-.03	.12	
Emotion Perception	.13	.16		.00	.00		-.11	.11	

Note. N=95 for all measures except Proportion of Highest Shock whose N=64.

Table 21

Correlations between MiP-SF and Residualized Behavioral Aggression Measures

	Coldness	Malice	Imperviousness	Responsive Joy	Responsive Distress	Perspective Taking	Empathic Concern	Emotion Perception	*N*
Instrumental Aggression									
Shock Intensity	.16	.03	.14	-.14	.00	-.24*	-.19	-.17	94
Shock Duration	.16	-.03	.09	-.13	-.02	-.24*	-.10	-.05	94
Shock Frequency	.19	.03	.11	-.10	-.11	-.18	-.21*	-.12	94
Proportion of Highest Shock	-.01	.07	.28	.13	.16	-.09	.00	.04	50
Flashpoint Intensity	.11	.01	.25*	-.08	-.08	-.19	-.09	-.09	95
Flashpoint Duration	.08	-.04	.28*	-.05	-.18	-.11	-.05	.05	95
Reactive Aggression									
Shock Intensity	-.15	-.01	.02	.18	.05	.24*	.12	.15	94
Shock Duration	-.18	.04	.03	.21*	.11	.26*	.05	.04	94
Shock Frequency	-.16	.02	.02	.14	.10	.16	.06	.04	94
Proportion of Highest Shock	.06	.03	-.10	-.14	-.11	.12	.04	.10	50
Flashpoint Intensity	-.17	-.04	-.03	.15	.14	.27**	.07	.11	95
Flashpoint Duration	-.20	-.08	-.06	.19	.26*	.18	.10	-.04	95

*p <.05; ** p <.01.

Table 22

Hierarchical Regressions with MiP-SF Factors Predicting Psychophysiological Modulation

	Postauricular: Instrumental Aggression			Postauricular: Reactive Aggression			Startle Blink: Instrumental Aggression			Startle Blink: Reactive Aggression		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.03			.00			.04			.02
Coldness	-.05	.12		-.03	.12		-.16	.13		-.07	.14	
Imperviousness	.16	.12		-.04	.12		.08	.13		.10	.14	
Step 2			.00			.00			.02			.01
Malice	.05	.16		.07	.16		-.16	.16		-.14	.17	
Step 1			.00			.00			.05			.02
Malice	-.02	.12		.03	.12		-.21	.12		-.14	.14	
Step 2			.03			.01			.01			.01
Coldness	-.08	.16		-.08	.16		-.06	.16		.01	.17	
Imperviousness	.17	.12		-.03	.12		.09	.13		.10	.14	

Note. N=72 for postauricular instrumental aggression; N=71 for postauricular reactive aggression; N=63 for startle blink instrumental aggression; N=56 for startle blink reactive aggression.

Table 23

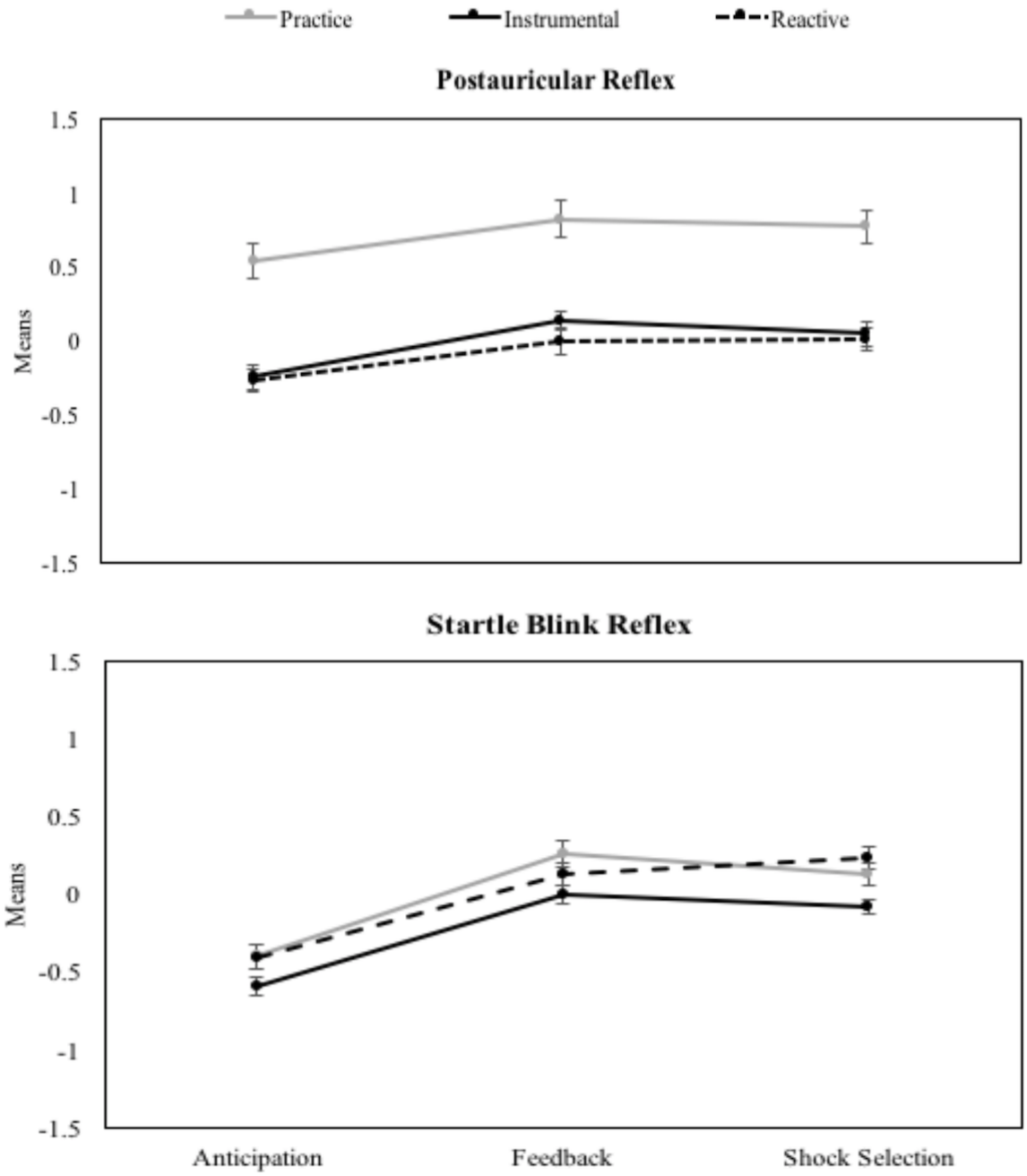
Hierarchical Regressions with MiP-SF Empathy Subscales Predicting Psychophysiological Modulation

	Postauricular: Instrumental Aggression			Postauricular: Reactive Aggression			Startle Blink: Instrumental Aggression			Startle Blink: Reactive Aggression		
Variables entered	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1			.04			.01			.04			.03
Responsive Joy	-.07	.14		-.02	.15		-.01	.16		.09	.17	
Responsive Distress	.08	.14		-.05	.14		.11	.16		-.04	.17	
Perspective Taking	-.15	.14		-.06	.14		.04	.15		-.08	.16	
Empathic Concern	.07	.13		-.00	.13		-.01	.14		-.09	.16	
Emotion Perception	-.07	.13		.12	.13		.16	.14		.16	.15	
Step 2			.00			.00			.06			.06
Malice	-.02	.16		.03	.16		-.32	.16		-.31	.18	
Step 1			.00			.00			.05			.02
Malice	.03	.12		.03	.12		-.22	.13		-.14	.14	
Step 2			.04			.01			.06			.07
Responsive Joy	-.07	.15		-.01	.15		-.02	.15		.10	.16	
Responsive Distress	.09	.15		-.05	.15		.14	.16		-.00	.20	
Perspective Taking	-.15	.14		-.05	.14		-.00	.14		-.13	.16	
Empathic Concern	.05	.16		.01	.16		-.20	.17		-.28	.19	
Emotion Perception	-.06	.13		.11	.13		.16	.13		.16	.14	

Note. N=72 for postauricular instrumental aggression; N=71 for postauricular reactive aggression; N=63 for startle blink instrumental aggression; N=56 for startle blink reactive aggression.

Appendix B

Figure 1. Means and standard errors for the postauricular and startle blink reflexes across each phase of a trial by experimental condition.



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Zágon, I. K., & Jackson, H. J. (1994). Construct validity of a psychopathy measure. *Personality and Individual Differences*, *17*(1), 125–135. https://doi.org/10.1016/0191-8869(94)90269-0

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Zeichner, A., Parrott, D. J., & Frey, F. C. (2003). Gender differences in laboratory aggression under response choice conditions. *Aggressive Behavior*, *29*(2), 95–106. https://doi.org/10.1002/ab.10030

Curriculum Vitae

Stephanie Marie Molina
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EDUCATIONAL BACKGROUND

Ph.D. in Clinical Psychology Anticipated Graduation: Summer 2019
University of Nevada, Las Vegas (Las Vegas, NV) – APA Accredited
Advisor: Stephen D. Benning, Ph.D.
Dissertation: Validating empathy as captured by the Meanness in Psychopathy-Self Report

M.A. in Clinical Psychology November 2015
University of Nevada, Las Vegas (Las Vegas, NV)
Advisor: Stephen D. Benning, Ph.D.
Thesis: The effects of psychopathic traits on social support networks

B.S. in Psychology, *magna cum laude* with Honors in Psychology May 2011
Tulane University (New Orleans, LA)
Minor: Spanish
Thesis: The ego depleting effects of perspective-taking on thought suppression
Award: The Rosa Cahn Hartman Prize in Psychology

Universidad Complutense de Madrid (Madrid, Spain) September 2009- June 2010
Georgetown in Madrid Program

PUBLICATION

Benning, S. D., **Molina, S. M.,** Dowgwillo, E. A., Miller, K. F., & Storrow, A. B. (in press). Psychopathy in the Medical Emergency Department. *Journal of Personality Disorders*. doi: 10.1521/pedi_2017_31_308

TEST

Benning, S. D., Barchard, K. A., Westfall, R. S., Brouwers, V. P., & **Molina, S. M.** (2017). *Meanness in Psychopathy – Self-Report (MiP-SR)*. Unpublished test.

PROFESSIONAL TALKS

Benning, S. D., Barchard, K. A., Westfall, R. S., **Molina, S. M.,** & Brouwers, V. (2017, May). *What does it mean to be mean? Malice, Coldness, and Imperviousness in the Inventory of Psychopathic Meanness.* Paper presented at the 7th Biennial Meeting of the Society for the Scientific Study of Psychopathy, Antwerp, Belgium.

Molina, S. M., Hall, J. R., & Patrick, C. J. (2013, March). *Traumatic brain injury in offenders: the roles of psychopathy, fearlessness, and disinhibition.* Paper presented at the 2013 American Psychology-Law Society Annual Conference, Portland, OR.

POSTER PRESENTATIONS

Benning, S. D., & **Molina, S. M.** (2018, October). *The postauricular reflex measures positive emotion, not (angry) approach.* Poster to be presented at the 58th Annual Meeting of the Society for Psychophysiological Research, Quebec, Canada.

Molina, S. M., Pierce, M. E., & Benning, S. D. (2017, October). *Psychopathic meanness and emotional processing deficits within the context of a social support task.* Poster presented at the 57th Annual Meeting of the Society for Psychophysiological Research, Vienna, Austria.

Benning, S. D., Pierce, M. E., & **Molina, S. M.** (2017, October). *Postauricular reflex potentiation during tonic social support and phasic relief from shock.* Poster presented at the 57th Annual Meeting of the Society for Psychophysiological Research, Vienna, Austria.

Westfall, R. S., Barchard, K. A., **Molina, S. M.,** Brouwers, V., & Benning, S. D. (2017, January). *Differential Personality Correlates of Three Aspects of Psychopathic Meanness*. Poster presented at the 18th Annual Meeting of the Society of Personality and Social Psychology, San Antonio, TX.

Molina, S. M., Pierce, M. E., & Benning, S. D. (2016, September). *Postauricular and startle blink reflexes capture anticipatory and consummatory emotional deficits in psychopathy.* Poster presented at the 56th Annual Meeting of the Society for Psychophysiological Research, Minneapolis, MN.

Molina, S. M., & Benning, S. D. (2015, September). *The relationships between psychopathy factors and postauricular and startle blink reflexive responses to emotional pictures and sounds.* Poster presented at the 55th Annual Meeting of the Society for Psychophysiological Research, Seattle, WA.

Molina, S. M., Barchard, K. A., Brouwers, V., Westfall, R. S., Benning, S. D. (2015, June). *Convergent validity of the Inventory of Psychopathic Meanness.* Poster presented at the 6th Biennial Meeting of the Society for the Scientific Study of Psychopathy, Chicago, IL.

Molina, S. M., Pierce, M. E., & Benning, S. D. (2015, June). *Relationships between psychopathy and friendships, personality, education, and health behaviors.* Poster presented at the 6th Biennial Meeting of the Society for the Scientific Study of Psychopathy, Chicago, IL.

Molina, S. M., Ait Oumeziane, B., & Benning, S. D. (2015, May). *Postauricular and startle blink reflexes assess consummatory but not anticipatory emotional processing.* Poster presented at the 95th Annual Convention of the Western Psychological Association, Las Vegas, NV.

Schubert, K. N., **Molina, S. M.,** & Benning, S. D. (2015, May). *The association between factors of psychopathy and risk taking and risk perception.* Poster presented at the 95th Annual Convention of the Western Psychological Association, Las Vegas, NV.

Schubert, K. N., **Molina, S. M.,** & Benning, S. D. (2015, May). *Associations between factors of psychopathy, demographics, externalizing, impulsivity and sensation seeking.* Poster presented at the 95th Annual Convention of the Western Psychological Association, Las Vegas, NV.

Molina, S. M., Pierce, M. E., & Benning, S. D. (2015, May). *Relationships between psychopathy and friendships, personality, education, and health behaviors.* Poster presented at the 95th Annual Convention of the Western Psychological Association, Las Vegas, NV.

Molina, S. M., Ait Oumeziane, B., & Benning, S. D. (2014, September). *Postauricular and startle blink reflexes assess consummatory but not anticipatory emotional processing.* Poster presented at the 54th Annual Meeting of the Society for Psychophysiological Research, Atlanta, GA.

Ait Oumeziane, B., **Molina, S. M.,** & Benning, S. D. (2014, September). *ERPs assess consummatory but not anticipatory emotional visual attention.* Poster presented at the 54th Annual Meeting of the Society for Psychophysiological Research, Atlanta, GA.

Wrenn, K., Paytas, J., Mercado, K., **Molina, S. M.,** Ait Oumeziane, B., & Benning, S. D. (2014, May). *Big five personality factors and economic outcomes, health coverage, and higher education: A state-level analysis.* Poster presented at the University Nevada, Las Vegas 2014 Annual Psi Chi Research Conference, Las Vegas, NV.

Molina, S. M. & Wyland, C. L. (2012, January). *The effects of perspective taking on the ability to successfully control unwanted thoughts.* Poster presented at the 13th Annual Meeting of the Society of Personality and Social Psychology, San Diego, CA.

RESEARCH EXPERIENCE

Graduate Student August 2013- Present
Lab Manager July 2014- August 2015
Psychophysiology of Emotion and Personality Lab
University of Nevada, Las Vegas, Psychology Department (Las Vegas, NV)
Advisor: Stephen D. Benning, Ph.D.

- ***Study: Development of Meanness in Psychopathy- Self-Report (MiP-SR)***
  - A member of the group developing a new self-report psychopathy measure. The MiP-SR is designed to assess meanness in psychopathy through 30 subscales and three overarching factors (Coldness, Malice, and Imperviousness).
  - Created items and selected final items for the different versions of the measure.
- ***Study: Behavioral Strategies and Personality Traits***
  - A psychophysiological behavioral study assessing levels of instrumental and reactive aggression.
  - Responsibilities included: IRB approval documentation, designing the study, programming of study tasks, creating the study procedures, and training research assistants.
- ***Study: Effects of Personality on Social Networks and Social Support during Stress***
  - A study investigating the effects of personality on social networks and social support during the stress of a shock.

    - Responsibilities included: training research assistants, developing the study, programming the study task, and submitting IRB continuing approval documents.
- ***Study: Personality Traits and Physical Risk***
    - Validated a novel laboratory task developed to assess individuals' enjoyment of physical risk taking.
    - Responsibilities included: training research assistants and analyzing data.
- ***Study: Modeling Hedonic Processing and Anhedonia in Depression***
    - Tested anhedonia using a tripartite model that separates positive emotional processing into hedonic "liking", motivational "wanting", and reward "learning" in patients with atypical and melancholic depression, and healthy controls in order to identify candidates for endophenotypes of depression.
    - Responsibilities included: training research assistants, and screening participants by administering and scoring the Inventory of Depressive Symptomatology (Clinician-Rated; IDS-C) and the Structured Clinical Interview for DSM-IV TR Axis I Disorders (SCID-I/P) in a clinically depressed community sample.
- **Experimental Programming Skills:** Programming projects using PsychoPy, Python, and Qualtrics.
- **Psychophysiological Testing Skills**: Proficient in SCAN 4.5 psychophysiological acquisition software in conjuncture with SynAmps RT, SynAmps^2 Quik-Cap (64 channel EEG), and Bioderm (SCL, SCR). Acquired measurement of Heart Rate (HR), Skin Conductance Level (SCL), Skin Conductance Response (SCR), Zygomatic, Corrugator, Postauricular Reflex, and Startle Blink EMGs.

Research Assistant July 2012- June 2013
University of South Florida, Mental Health Law and Policy Department (Tampa, FL)
Advisor: Jason Hall, Ph.D.

- Led a study examining the relationship between personality traits, substance abuse, and rule breaking behaviors in offender populations.

Research Assistant August 2011- June 2012
Tulane University/Southeast Louisiana Veterans Health Care System (New Orleans, LA)
Advisor: Joseph Constans, Ph.D.

- Assisted in the Modification of Attributional Style lab examining the effects of a computer-based modification program on coping ability after exposure to a traumatic film clip.
- Researched information for future development of an ICU-based violence prevention program.

Honors Thesis Researcher August 2010- May 2011
Tulane University, Department of Psychology (New Orleans, LA)
Advisor: Carrie Wyland, Ph.D.

- Developed and conducted independent research as an honors thesis project.
- The study examined the effects of perspective-taking on an individual's ability to successfully suppress unwanted thoughts by using a combination of questionnaire and qualitative measures.

DOCTORAL CLINICAL EXPERIENCE

Doctoral Practicum Student June 2017- May 2018
Family and Child Treatment of Southern Nevada (FACT; Las Vegas, NV)
Supervisor: John Matthias, Ph.D.

- Non-profit organization that provides therapeutic services to children, adults, and families impacted by abuse, neglect, and violence. The organization provides services to the victims and perpetrators of abuse.
- Co-facilitated three weekly process psychotherapy groups in English with juvenile and adult sex offenders on probation and parole.
- Facilitated one weekly process psychotherapy group in Spanish with adult sex offenders on probation and parole.
- Conducted and wrote court-ordered psychosexual evaluations to determine levels of sexual offense recidivism risk for convicted juvenile offenders.
- Theoretical approach was integrative with an emphasis on cognitive-behavioral and psychodynamic orientations.
- Common diagnoses included: Paraphilic Disorders, Antisocial Personality Disorder, Borderline Personality Disorder, Narcissistic Personality Disorder, Substance Use Disorders, and Attention-Deficit Hyperactivity Disorder.

Doctoral Practicum Student August 2016- August 2017
Southern Nevada Adult Mental Health Services- Stein Forensic Hospital (Las Vegas, NV)
Supervisors: Shera D. Bradley, Ph.D. & Laurel Stinar, Ph.D.

- A secure inpatient forensic hospital housing adult pretrial and presentencing defendants. The primary focus is to treat and evaluate those found incompetent to proceed.
- Co-conducted and wrote Competency to Stand Trial evaluations for the court.
- Served as member of a multidisciplinary treatment team which met weekly with patients.
- Conducted intake psychiatric evaluations with live supervision from a licensed clinical psychologist and psychiatrist.
- Upon request of the treatment team, conducted collateral phone interviews with family members of select patients.
- Administered, scored, and interpreted cognitive and malingering assessment measures.
- Conducted interviews and evaluations in Spanish.
- Responded to consult requests, which included creating Positive Behavior Support Plans for patients exhibiting severe behavioral dysregulation.
- Most commonly seen diagnoses included: Schizophrenia, Schizoaffective Disorder, Substance-Induced Psychotic Disorders, Bipolar Disorders (with and without psychosis), Malingering, Antisocial Personality Disorder, Borderline Personality Disorder, Narcissistic Personality Disorder, Substance Use Disorders, and Neurocognitive Disorders.

Graduate Assistant May 2016- August 2017
Disability Resource Center (DRC)/ The UNLV Partnership for Research, Assessment, Counseling, Therapy and Innovative Clinical Education (The PRACTICE)
University of Nevada, Las Vegas (Las Vegas, NV)
Supervisor: Michelle G. Paul, Ph.D.

- Administered, scored, interpreted, and wrote integrated psychological evaluations for UNLV students presenting with academic difficulties to determine eligibility for accommodations.
- Administered, scored, and interpreted Spanish assessment measures.
- Participated as a consultant to DRC staff in weekly documentation review meetings regarding students' eligibilities for appropriate accommodations.
- Diagnoses included: Specific Learning Disorders, Attention-Deficit Hyperactivity Disorder, Borderline Intellectual Functioning, Language Disorders, Autism Spectrum Disorder, Unspecified Neurodevelopmental Disorders, Neurocognitive Disorders, Depressive Disorders, Anxiety Disorders, Bipolar I Disorder, Borderline Personality Disorder, Posttraumatic Stress Disorder, Eating Disorders, and Substance Use Disorders.

Doctoral Practicum Student August 2015- August 2016
Desert Psychological/The Offices of Dr. Stephanie Holland (Las Vegas, NV)
Supervisors: Stephanie Holland, Psy.D., Amilie Dubois, Psy.D., & Sarah Ahmad, Psy.D.

- A private practice setting specializing in forensic populations. Namely, contracts with Nevada Youth Parolee Bureau and the Department of Family Services.
- Conducted individual psychotherapy with adjudicated youth at Caliente Youth Center in Caliente, Nevada (a correctional facility) and the Youth Parole Bureau transition program.
- Communicated with youths' parents regarding treatment in both English and Spanish.
- Consulted with parole officers to coordinate youths' reintegrations into the community.
- Administered, interpreted, and wrote integrated psychological evaluations for forensic child custody cases, and children in the custody of the Department of Family Services and Nevada Youth Parole Bureau.
- Theoretical approach was integrative with an emphasis on biopsychosocial, cognitive-behavioral, and interpersonal orientations.
- Diagnoses included: Conduct Disorder, Posttraumatic Stress Disorder, Depressive Disorders, Anxiety Disorders, Attention-Deficit Hyperactivity Disorder, Substance Use Disorders, Borderline Personality Disorder, and Adjustment Disorders.

Doctoral Practicum Student August 2014- August 2015; January 2016- May 2016
The PRACTICE (Las Vegas, NV)
Supervisors: Michelle G. Paul, Ph.D., Jason Holland, Ph.D., Stephen D. Benning, Ph.D., & Chris Heavey, Ph.D.

- Administered, scored, interpreted, and wrote integrated psychological evaluations for adults and children.
- Conducted adult individual and couples outpatient therapy.
- Theoretical approach was integrative with an emphasis on biopsychosocial and cognitive-behavioral orientations.
- Diagnoses included: Depressive Disorders, Anxiety Disorders, Eating Disorders, Borderline Personality Disorder, Neurocognitive Disorders, Attention-Deficit Hyperactivity Disorder, and Schizophrenia.

SUPERVISION TRAINING and EXPERIENCE

Student Clinical Assessment Supervisor May 2017- October 2017

The PRACTICE (Las Vegas, NV)
Supervisor: Michelle G. Paul, Ph.D.

- Provided assessment supervision to eight clinical psychology doctoral practicum students.
- Reviewed videotaped sessions and clinical documentation.
- Discussed case conceptualizations during individual supervision meetings.
- Reviewed, edited, and provided feedback to supervisees on psychological reports.
- Received individual supervision of supervision from a licensed clinical psychologist.

Student Clinical Therapy Supervisor May 2016- August 2016
The PRACTICE (Las Vegas, NV)
Supervisor: Michelle G. Paul, Ph.D.

- In tandem with a formal course (PSY762 Introduction to Clinical Supervision), provided co-supervision to one clinical psychology doctoral practicum student with a caseload of approximately four therapy cases.
- Met weekly with supervisee for individual sessions with my co-supervisor.
- Reviewed videotapes and clinical documentation.
- Received weekly individual and group supervision of supervision from a licensed clinical psychologist.

PROFESSIONAL CLINICAL TRAININGS

Competency to Stand Trial Refresher: Residual Psychosis and Adjudicative Competence
Steven Zuchowski, M.D. 2017

Everything You Need to Know About Internet Sex Offenders: Child Pornographers, Solicitors, and Travelers
Jay Singh, Ph.D. 2016

10-day Comprehensive Training in Dialectical Behavior Therapy: Parts I & II
Alan Fruzzetti, Ph.D. 2015

TEACHING EXPERIENCE

Part-Time Instructor August 2015- May 2016; August 2017- May 2018
University of Nevada, Las Vegas (Las Vegas, NV)

- Teaching two sections of Introduction to Psychology per semester.

SERVICE

Diversity Committee Member October 2015- October 2017
Society for Psychophysiological Research Committee to Promote Student Interests

- Served as a committee member of the diversity subcommittee, which strives to promote diversity within the society.
- Assisted in the preparation for the diversity reception held at the annual conference.

Mentor January 2014- May 2018
Outreach Undergraduate Mentoring Program, UNLV (Las Vegas, NV)

- Mentored under-represented undergraduate students interested in pursuing graduate school in psychology.

Ad Hoc Reviewer – *Nevada State Undergraduate Research Journal* July 2014- August 2015
- Served as a reviewer for articles submitted by undergraduate authors in Nevada.

Secretary August 2013- May 2014
Clinical Student Committee, UNLV (Las Vegas, NV)
- Acted as a liaison between clinical psychology students and faculty.
- Organized social events and promoted peer support within the clinical psychology program.

SKILLS

- Fluent in English and Spanish
- Experience conducting intervention, assessment, and evaluations in Spanish.

SCHOLARSHIPS & AWARDS

Summer Doctoral Research Fellowship	2018
Patricia Sastaunik Scholarship	2015, 2016, 2017, 2018
Graduate Access Scholarship	2013, 2015, 2016, 2017, 2018
UNLV Alumni Sterling Scholarship	2017
Outstanding Mentor Award	2017
GPSA Sponsorship Award	Summer 2015, Fall 2015, Fall 2016, Fall 2017
Society for Psychophysiological Research Student Travel Award	2016
Honorable Mention at the 2016 UNLV Graduate Research Forum	2016
Summer Session Scholarship	2015
UNLV Psi Chi Research Conference (2nd Place Award)	2014
American Psychology-Law Society's Diversity Travel Award	2013

PROFESSIONAL AFFILATIONS

American Psychology-Law Society
Society for the Scientific Study of Psychopathy
Society for Psychophysiological Research
Nevada Psychological Association