Psychopathy, narcissism, and borderline personality: A critical test of the affective empathy-impairment hypothesis☆

David A. Lishner [a,*], Phan Y. Hong [a], Lixin Jiang [a], Michael J. Vitacco [b], Craig S. Neumann [c]

[a] Department of Psychology, University of Wisconsin Oshkosh, United States
[b] Department of Psychiatry, Georgia Regents University, United States
[c] Department of Psychology, University of North Texas, United States

ARTICLE INFO

ABSTRACT

Two studies were conducted to test whether psychopathy, narcissism, and borderline personality are linked to impairment in affective empathy experience. In both studies, two forms of affective empathy (emotional contagion and empathic concern) were covertly manipulated and measured. Use of state empathy change scores and data aggregation across both studies and a third previously published study revealed little evidence of a consistent negative association between most measures of narcissistic, borderline, or psychopathic traits and affective empathy change scores. The one exception was the psychopathic trait of Callous Affect, which revealed consistent negative associations with affective empathy change scores. Specifically, relative to neutral stimuli, 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. The results suggest that claims of clear links between affective empathy impairment and most traits comprising narcissism and border-line personality are unsubstantiated when subjected to critical test conditions. Moreover, emotional callousness, as opposed to other psychopathic traits, appears to be responsible for the proposed link between psychopathy and affective empathy impairment.

1. Introduction

A growing body of work spanning the domains of social-personality psychology, neuropsychology, clinical psychology, psychiatry, and forensic psychology has long assumed a link between affective empathy impairment and various divisive personality constructs including psychopathy, narcissism, and borderline personality (APA, 2013; Blair, 2007; Cleckley, 1941; Dadds et al., 2009; Furnham, Richards, & Paulhus, 2013; Soderstrom, 2003; Woollastan & Hixenbaugh, 2008). However, the evidence supporting this assumed link is based mostly on the use of ambiguous measures of affective empathy and relatively weak test conditions. These limitations may in turn promote overstated conclusions regarding the link between these personality constructs and affective empathy.

1.1. Psychopathy, narcissism, and borderline personality

Although some have noted similarities among psychopathy, narcissism, and borderline personality (Furnham et al., 2013; Huchzermeier et al., 2007; Miller et al., 2010; Murphy & Vess, 2003; Thoma, Friedmann, & Suchan, 2013), they are typically treated as distinct in the literature. Psychopathy refers to a higher-order personality construct characterized by emotional callousness, egocentricity, deceptive and manipulative interpersonal style, and tendency to engage in antisocial behavior that is rash, erratic, and impulsive (Hare, 1996; Hare & Neumann, 2009; Vitacco, Neumann, & Jackson, 2005). Narcissism is characterized by an overly positive and grandiose view of the self, as well as tendency to engage in behavior that is interpersonally exploitive and designed to promote admiration by others and aggrandizement of the self (Cain, Pincus, & Ansell, 2008; Pincus et al., 2009). Borderline personality is marked by instability in self-image, heightened emotional reactivity, and behavioral impulsivity, which may manifest in behavior that is antisocial, self-injurious, or suicidal (Crowell, Beauchaine, & Linehan, 2009; Domes, Schulze, & Herpertz, 2009).

Prominent theoretical approaches typically emphasize that psychopathy, narcissism, and borderline personality are multifaceted. For example, psychopathy has been conceptualized as consisting of two overarching dimensions—an affective–interpersonal dimension and an impulsive–antisocial dimension. The affective–interpersonal and impulsive–antisocial dimensions may be further subdivided into pairs of lower order traits: (a) callous emotionality and tendency to be interpersonally manipulative, and (b) lifestyle impulsivity and tendency to engage in antisocial behavior, respectively (Hare & Neumann, 2009; Vitacco et al.,

2005). Likewise, one prominent view of narcissism proposes that it can be explained by seven lower-order traits: a sense of esteem based on the opinions of others, tendency to exploit others, tendency to engage in prosocial behavior to promote self-enhancement, tendency to present a false self, tendency to engage in grandiose fantasy, tendency to devalue others, and a hostile sense of entitlement (Cain et al., 2008; Pincus et al., 2009). Finally, one influential view on borderline personality assumes that it reflects manifestation of four lower-order traits: affect instability, identity uncertainty, tendency to engage in problematic relationship behavior, and tendency to engage in self-harm (Morey, 1991).

1.2. Affective empathy

Like psychopathy, narcissism, and borderline personality, empathy also is multifaceted. Indeed, it may be best to think of the term empathy as a category label for eight distinct, yet related psychological phenomena. These phenomena include (1) accurately identifying what another person is thinking or feeling; (2) imagining what another person is thinking or feeling; (3) imagining how one would think or feel in the place of another; (4) aesthetically projecting oneself into the state of another person or object; (5) feeling the same emotion as another; (6) feeling other-oriented concern for another; (7) feeling personally distressed by another's negative situation; or (8) matching the behavioral posture of another (Batson, 2011; Lishner et al., 2012). Four of these phenomena may be categorized as *cognitive empathy* (Concepts 1–4) and one may be categorized as *behavioral empathy* (Concept 8). Of importance for the present research are the three phenomena that may be categorized as *affective empathy* (Concepts 5–7) as it is impairment in the emotional forms of empathy that are often implicated in psychopathy, narcissism, and borderline personality.

1.3. Evaluation of the evidence for the affective empathy-impairment hypothesis

On the surface, extant empirical work seems consistent with the proposition that psychopathy, narcissism, and borderline personality are linked to an impaired capacity to experience affective empathy. Research has revealed an association between one or more of these personality constructs and (a) lowered physiological reactivity in response to observing others' interpersonal distress (e.g., crying faces, distress expressions; Blair, Jones, Clark, & Smith, 1997; Verona, Bresin, & Patrick, 2013); (b) difficulty in identifying discrete emotionality in others' facial and vocal expressions (Bagley, Abramowitz, & Kosson, 2009; Blair et al., 2002, 2004; Del Gaizo & Falkenbach, 2008; Marissen, Deen, & Franken, 2012; Minzenberg, Poole, & Vinogradov, 2012; Robin et al., 2012); (c) lower scores on dispositional measures of affective empathy (Brouns et al., 2013; Dziobek et al., 2011; Hepper, Hart, Meek, Cisek, & Sedikides, 2014; Jonason & Krause, 2013; Mahmut, Homewood, & Stevenson, 2008; New et al., 2012; Salekin, Chen, Sellbom, Lester, & MacDougall, 2014; Sandoval, Hancock, Poythress, Edens, & Lilienfeld, 2000; Sellbom & Phillips, 2013; Stanley, Wygant, & Sellbom, 2013; Vonk, Zeigler-Hill, Mayhew, & Mercer, 2013; Wai & Tiliopoulous, 2012; Watson, Grisham, Trotter, & Biderman, 1984; Watson & Morris, 1991; White, 2014; Zágon & Jackson, 1994); (d) higher ratings of positive valence in response to viewing faces expressing negative emotion (Ali, Amorim, & Chamorro-Premuzic, 2009; Lockwood, Bird, Bridge, & Viding, 2013; Wai & Tiliopoulous, 2012); (e) lower neural activity in brain regions thought to be involved in the experience of pain or attachment processes as a consequence of viewing physical injuries or pain expressions of others (Decety, Chen, Harenski, & Kiehl, 2013; Decety, Skelly, & Kiehl, 2013; Marsh et al., 2013); and (f) lower state reports of affective empathy to emotionally evocative stimuli (Lishner et al., 2012; Ritter et al., 2011; Wai & Tiliopoulous, 2012).

The apparent convergence of findings across multiple measures seems impressive. However, except for the last aforementioned category, the remaining categories consist of fairly indirect evidence given a more nuanced conceptualization of affective empathy phenomena. For example, lower physiological responding to negative emotional expressions and higher ratings of positive valence in response to negative facial expressions may indicate a lower tendency to feel, or "catch," the same emotions of others (Concept 5), a lower tendency to experience personal distress (Concept 7) or empathic concern (Concept 6) in response to the needs of others, or alternative responses that are not empathic (e.g., boredom with the stimuli). Given some theorists' claims that empathic concern may become inhibited if one experiences high levels of personal distress (Eisenberg, Fabes, & Spinrad, 2006; Eisenberg et al., 1994), a paradoxical conclusion one may draw is that lower physiological arousal actually indicates the potential for more, rather than less, affective empathy depending on which affective empathy phenomenon one considers.

Another complicating issue is that experimental research suggests dispositional measures of affective empathy do not necessarily predict genuine *state* experiences of affective empathy or the prosocial tendencies typically evoked by such states (e.g., Batson, Bolen, Cross, & Neuringer-Benefiel, 1986). This may be traced back to initial validation studies of dispositional empathy measures that have tended to rely on other trait measures or indirect measures of state empathy as criteria for establishing construct validity (e.g., Davis, 1983). In addition, dispositional measures of affective empathy may share method variance with trait measures of narcissism, borderline personality, and psychopathy (e.g., item and rater social desirability effects, transient or dispositional rater mood effects, rater consistency motif effects; Podsakoff, Mackenzie, Lee, & Podsakoff, 2003), leading to overestimates of the true association between these personality constructs and affective empathy. Ambiguity in the interpretation of findings also exists in the neuroscience literature on psychopathy and affective empathy due to the absence of measures of subjective emotional experience (e.g., Decety et al., 2013; Marsh et al., 2013). Without corresponding subjective measures of emotional experience, it remains unclear whether differences in brain activity associated with one or more of these constructs reflects corresponding differences in affective empathy.

Finally, one major issue with the research literature involving ambiguous measures of affective empathy is multiple instances of disconfirmation of the proposed link between one of more of the personality constructs and affective empathy. Indeed, disconfirmations even occur in studies conducted by some researchers who also reported confirming evidence of a link depending on the empathy measure adopted or personality construct assessed (Domes, Hollerbach, Vohs, Mokros, & Habermeyer, 2013; Dziobek et al., 2011; Fertuck et al., 2009; Harari, Shamay-Tsoory, Ravid, & Levkovitz, 2010; Hengartner et al., 2014; Jonason & Krause, 2013; Jovev et al., 2011; Konrath, Corneille, Bushman, & Luminet, 2014; Lannin, Gull, Krizan, Madon, & Cornish, 2014; Lishner et al., 2012; Lynch et al., 2006; Marissen et al., 2012; Minzenberg et al., 2012; New et al., 2012; Ritter et al., 2011; Stanley et al., 2013; Robin et al., 2012; Vonk et al., 2013; Wagner & Linehan, 1999). It is worth noting that disconfirmation of the link between these personality constructs and affective empathy impairment appears more pronounced in research on narcissism and borderline personality than research on psychopathy.

1.4. Establishing construct validity of the affective empathy measure

Contrary to widespread assumptions regarding the link between affective empathy and psychopathy, narcissism, and borderline personality, evaluation of the research testing the affective empathy-impairment hypothesis reveals findings that are fairly equivocal. Generally speaking, the lack of clarity can be traced to questions regarding the construct validity of the affective empathy measure used to test the hypothesis. This issue was raised by Lishner et al. (2012), who sought

to provide a more direct test of the affective empathy-impairment hypothesis with regard to psychopathy by using a task designed to covertly manipulate and measure changes in state affective empathy, specifically Concepts 5 and 6 (emotional contagion and empathic concern, respectively). The task included an elaborate cover story and counterbalanced presentation of stimuli designed to minimize the plausibility that state changes in affective empathy could be attributed to experimental demand, socially desirable responding, or many forms of method variance (common rater effects, common item effects, and item context effects).

Importantly, before evaluating whether psychopathic traits predicted impairment in emotional contagion or empathic concern, Lishner et al. (2012) first established that their task stimuli produced predicted changes in state emotional responses that would be expected based on the theoretical and empirical affective empathy literature. Specifically, they demonstrated that stimuli that should evoke different affective empathy states (pictures of adult emotional expressions and infants, and an article about those in need) did so relative to neutral stimuli baselines (neutral adult faces and a neutral article). These predicted change scores in state affective empathy were then used as the basis for evaluating the hypothesized negative association between psychopathy (measured using the Self-Report Psychopathy Scale-Version 3; Paulhus, Neumann, & Hare, 2015) and affective empathy. Surprisingly, evidence of a negative association between affective empathy change scores and psychopathy was fairly weak. Neither overall psychopathy scores nor three of the four lower-order trait scores were negatively associated with affective empathy change scores. Only for the psychopathic trait of Callous Affect were negative associations in the predicted direction obtained.

2. The present research

2.1. Overview

The goals of the present research were two-fold. The first goal was to apply the methodology used by Lishner et al. (2012) to test the empathy-impairment hypothesis with regard to narcissism and borderline personality (Study 1). The second goal was to produce a replication of Study 1, with regard to narcissism and borderline personality, and of Lishner et al. (2012, Study 1), with regard to psychopathy.

Replication was important for several reasons. First, it provided two additional evaluations of the Lishner et al. (2012) covert state empathy task's construct validity. Second, as will become clear, evaluation of the empathy-impairment hypothesis is based on multiple, a-priori significance tests of associations between key affective empathy change scores and personality trait scores, which raises the potential for Type I errors. Replication permitted a clearer sense of which significant associations from Study 1 and Lishner et al. were likely to be dependable given Type I errors are unlikely to replicate repeatedly. We further sought to minimize Type I errors by aggregating data across studies whenever possible, which should help "wash out" Type I errors produced in individual studies. Unlike Lishner et al. (2012), we tested the association between a given affective empathy change score and all traits for a given personality construct simultaneously instead of sequentially.

Aggregation of data from Study 1, Study 2, and Lishner et al. (2012) also increased statistical power, which would reduce the likelihood of Type II errors. Minimizing the likelihood of Type II errors was important because failure to find evidence of the affective empathy impairment hypothesis as a result of "null findings" would likely be met with unusually high skepticism given widespread acceptance of and belief in the empathy-impairment hypothesis. Moreover, data aggregation permitted an approach to data analysis that is consistent with recent recommendations calling for research practices that permit stronger inferences regarding the replicability of effects (Asendorpf et al., 2013; Stanley & Spence, 2014) and the dependability of research findings (Funder et al., 2014; Lishner, 2015).

2.2. Predictions

In Study 1 and Study 2, participants were first administered the covert affective empathy task developed by Lishner et al. (2012) and then completed a battery of questionnaires. Among these questionnaires were measures of narcissism (Study 1 and Study 2), borderline personality (Study 1 and Study 2), and psychopathy (Study 2). Consistent with predictions and findings reported in Lishner et al. (2012, Study 1), as well findings in the literature documenting the antecedents of emotional contagion and empathic concern (Batson, Lishner, Cook, & Sawyer, 2005; Lishner, Batson, & Huss, 2011; Lishner, Cooter, & Zald, 2008; Lishner, Oceja, Stocks, & Zaspel, 2008), it was expected that the covert affective empathy task would produce theoretically-predicted state changes in affective empathy. Specifically, relative to neutral adult faces, (a) adult emotional facial expressions would produce emotional contagion of facial expression-consistent discrete emotion (more happiness following happy faces, more sadness following sad faces, etc.), and (b) infant faces would produce more empathic concern. Moreover, it was predicted that relative to a neutral news story, reading a news story about those in need would produce more emotional contagion of negative emotion (sadness, anger, and fear) and more empathic concern. Confirmation of these theoretically expected effects would speak to the construct validity of the affective empathy task (Cronbach & Meehl, 1955).

Following evaluation of the affective empathy task, the empathy impairment-hypothesis was tested by examining the associations between personality trait scores and state changes in affective empathy. Empirically, this was accomplished by computing regression beta weights between affective empathy change scores and personality trait scores, which should be negative in sign if the affective empathy-impairment hypothesis is correct. In Study 1, the empathy-impairment hypothesis was tested for narcissistic and borderline personality traits. In Study 2, the empathy-impairment hypothesis was tested for narcissistic, borderline personality, and psychopathic traits.

3. Method

3.1. Participants

3.1.1. Study 1
Participants were 182 undergraduate students enrolled in introductory psychology courses at a medium-sized Midwestern University located in the United States. Participants received partial credit toward a course research requirement in return for participation. The majority of participants were female (51.1%) and Caucasian (92.3%), with an age range of 18 to 35 years old ($M = 19.31$, $SD = 2.34$).

3.1.2. Study 2
Participants were a second, independent sample of 192 undergraduate students enrolled in introductory psychology courses at the same university. Participants received partial credit toward a course research requirement in return for participation. The majority of the participants were female (58.3%) and Caucasian (83.9%), with an age range of 17 to 35 years old ($M = 19.72$, $SD = 2.41$).

3.2. Procedure

3.2.1. Study 1
The procedure was identical to that of Lishner et al. (2012, Study 1) except for a few minor differences (see Supplementary Materials). Participants completed the study in groups but were separated from other participants so they could not see each other's responses. One female graduate student who was blind to the stimulus presentation order of the affective empathy task interacted minimally with all participants. Upon arrival, participants completed a consent form and a questionnaire packet consisting of the affective empathy task and

various personality questionnaires. Included among the personality questionnaires were the Pathological Narcissism Inventory (PNI; Pincus et al., 2009) and the Personality Assessment Inventory-Borderline section (PAI-BOR; Morey, 1991), both of which are commonly used, dimensional self-report measures of narcissism and borderline personality. Both the PNI and PAI-BOR evidence adequate reliability and construct validity within clinical and non-clinical samples, and the scores on both predict clinical diagnosis or assessment scores of Narcissistic Personality Disorder and Borderline Personality Disorder, respectively (Hopwood et al., 2013; Miller et al., 2014; Morey, 1991; Pincus et al., 2009; Stein, Pinsker-Aspen, & Hilsenroth, 2007).

The affective empathy task instructions described it as a study of how different stimulus characteristics affect people's liking of the stimuli. Participants were asked to view multiple series of picture sets. Each series contained three picture sets. Each picture set contained three similar pictures, which participants were asked to rank-order in terms of their preference. The first two sets were distracter sets. The third, critical picture set consisted of human emotional expressions (neutral faces, happy faces, sad faces, angry faces, fearful faces, and neutral infant faces), which were varied to induce difference empathic states. Immediately after finishing a picture series, and thus immediately after viewing the facial expressions, participants were asked to complete a mood questionnaire. Each mood questionnaire included items designed to measure happiness, sadness, anger, fear, and empathic concern. After completing all the picture series, participants were then asked to read and rate their liking of two ostensible news stories (a relatively neutral story about building a new community center and a need story about an elderly couple losing their home). After reading each story, participants completed the same type of mood questionnaire used after viewing the picture series.

The order of the critical picture set in each series (the facial expressions), but not the distracter sets, and the order of both stories was counterbalanced across participants. Thus, for each participant, completion of the affective empathy task resulted in ratings of each emotion (happiness, sadness, anger, fear, empathic concern) immediately after presentation of each set of emotional facial expressions (neutral faces, happy faces, sad faces, angry faces, fearful faces, infant faces) and immediately after reading each story (neutral story, need story). Use of the counterbalancing procedure described above ensured that any between-condition differences in self-reported emotion could only be a function of differences in the presented faces or story. A similar counterbalancing scheme involving distracter stimuli and pictures of facial expression was used by Lishner, Cooter, et al. (2008), Lishner, Oceja, et al. (2008) to covertly manipulate and measure emotional contagion of discrete emotions. More detailed descriptions of the affective empathy task, PNI, and PAI-BOR measures may be found in the Supplementary Materials.

3.2.2. Study 2

The procedure was similar to that of Study 1 except for several differences. First, one male graduate student who was blind to the stimulus presentation order of the affective empathy task interacted minimally with all participants. Second, participants were given a version of the task that included fewer pictures to view in each picture set. The amount of stimuli participants were asked to evaluate was reduced due to a concern that fatigue might create overly high error variance in the measures, which in turn might obscure associations consistent with the affective empathy-impairment hypothesis. Also, there was an error in counterbalancing of the stimuli, although this seemed unlikely to account for the predicted results (see Supplementary Materials). Third, in addition to the PNI and PAI-BOR, participants also completed the Self-Report Psychopathy Scale-Version 3 (SRP-III; Paulhus et al., 2015). The SRP-III evidences adequate reliability and construct validity within clinical and non-clinical samples, and scores on the measure predict clinical assessment scores of psychopathy in forensic settings (Neumann, Hare, & Pardini, in press; Paulhus et al.,

2015). Fourth, debriefing information was administered in a written format rather than a verbal format. See the Supplementary Materials for a more detailed description of study materials and procedures.

4. Results

4.1. Data reduction

4.1.1. Emotion ratings

Within each study, and for each facial set and story, five rating indexes of self-reported emotional experience were created by averaging participants' ratings on items measuring happiness, sadness, fear, anger, and empathic concern (for a total of 40 rating index scores; Study 1: .79 < Cronbach's alphas < .97, mean alpha = .89; Study 2: .69 < Cronbach's alphas < .96, mean alpha = .88).

4.1.2. Personality trait scores

After reverse coding negatively worded items, participants' overall narcissism (Study 1 and Study 2), borderline personality (Study 1 and Study 2), and psychopathy trait scores (Study 2) were computed by summing across relevant subscale items. For narcissism, traits included Contingent Self-Esteem, Exploitativeness, Self-Sacrificing Self-Enhancement, Hiding the Self, Grandiose Fantasy, Devaluing, and Entitlement Rage. For borderline personality, traits included Affect Instability, Identity Problems, Negative Relationships, and Self-Harm. For psychopathy, traits included Callous Affect, Interpersonal Manipulation, Erratic Lifestyle, and Criminal Tendencies. Cronbach's alpha values for these trait scores within each study ranged from .58 to .95 (mean = .77) and can be found in Tables 3, 4, and 5 of the Supplementary Materials.

4.2. Data aggregation

Data were aggregated across studies prior to primary data analysis. For narcissism and borderline personality, data from Study 1 and Study 2 were aggregated. For psychopathy, data from Study 2 and data from Lishner et al. (2012, Study 1, test sample) were aggregated. Data were aggregated for the following reasons: (a) to evaluate the generalizability (and thus reliability and construct validity, Cronbach & Meehl, 1955) of the affective empathy effects produced by the state empathy task; (b) to reduce the influence of Type I errors from individual studies in drawing conclusions from the findings; (c) to increase total statistical power to detect theoretically meaningful but small hypothesized effects (Schimmack, 2012); and (d) to increase confidence in conclusions regarding the replicability of effects (Stanley & Spence, 2014).

4.3. Primary data analyses

4.3.1. Affective empathy change scores

To create measures of discrete emotional contagion and empathic concern, emotion change scores were created from the emotion rating index scores. Nine critical change scores were computed as measures of predicted change in state affective empathy. For each, change was determined as a difference between a stimulus class predicted to produce relatively high affective empathy (emotional expressions, the need story) and a comparable baseline stimulus class (neutral expressions, the neutral story). Meaningful change in emotion would be indicated by a statistically significant non-zero mean difference score.

The nine critical emotion scores and which changes in affective empathy they reflect are as follows: (1) happiness to happy faces (emotional contagion of happiness); (2) sadness to sad faces (emotional contagion of sadness); (3) anger to angry faces (emotional contagion of anger); (4) fear to fearful faces (emotional contagion of fear); (5) empathic concern to infant faces (induction of empathic concern); (6) sadness to the need story (emotional contagion of sadness); (7) anger to

the need story (emotional contagion of anger); (8) fear to the need story (emotional contagion of fear); and (9) empathic concern to the need story (induction of empathic concern). Each of these nine critical emotion change scores provides an evaluation of state changes in affective empathy while holding constant general individual differences in response biases, method biases, and baseline emotionality. Moreover, each of these change scores offers a criterion test for evaluating the affective empathy-impairment hypothesis.

Table 1 lists the mean for each of the nine critical affective empathy change scores depending on which two data sets are aggregated. As can be seen, for all but one of the affective empathy change scores, completion of the empathy task produced significant mean change across participants regardless of which two data sets were aggregated. The one exception was the change indicating emotional contagion of fear to fearful faces, which was only significant when Study 1 and Study 2 were aggregated, but not when Study 2 and the Lishner et al. (2012) study were aggregated. Thus, the results reveal that the task was generally successful at manipulating state changes in emotion that would be indicative of changes in affective empathy. (For those interested in change effects by individual study see Table 1 in the Supplementary Materials).

4.4. Prediction of change in state affective empathy by personality traits

To evaluate the affective empathy-impairment hypothesis we tested whether the three categories of personality traits (narcissistic, borderline personality, and psychopathic) predicted each of the nine critical affective empathy change scores. This was accomplished by testing all the traits for a specific personality construct simultaneously using multiple regression. A simultaneous test is advantageous in that it evaluates the unique contribution of each trait in predicting affective empathy change while controlling for the other traits. In addition to the personality construct traits of interest, participant sex also was included as a control variable in predicting affective empathy changes scores. This variable was included to rule out the possibility that any association between traits and affective empathy could be explained by inverse associations with sex (see Eisenberg & Lennon (1983) for evidence that affective empathy may be related to sex; see Lishner, Swim, Hong, and Vitacco (2011) for an example of how failure to control for sex can inflate associations between psychopathy and other emotional abilities).

Table 2 lists standardized beta weights and change in R^2 for the narcissistic traits when simultaneously used to predict each of the nine critical affective empathy change scores. Tables 3 and 4 depict

the same type of information as Table 2, but for borderline personality traits and psychopathic traits, respectively. Each table can be considered in two ways. First, the R^2 values at the bottom of each column represents the ability of the respective traits and sex as a set to predict the given affective empathy change score. Second, the beta weights for a specific trait within a row represent the ability of the trait to individually predict each affective empathy change score independent of the other traits and sex.

As can be seen, when considered as sets of traits, evidence of empathy impairment was weak. However, when the beta weights are considered individually by trait, they reveal that evidence of affective empathy impairment is found, but only for a limited set of individual traits. Specifically, the majority of traits were poor individual predictors of affective empathy change scores as indicated by a lack of statistically significant beta weights. As can be seen in Tables 2 through 4, among those traits that did produce statistically significant beta weights for a given affective empathy change score (13 out of 135, or 9.63%), four were positive in value, which indicated the corresponding trait predicted higher change in affective empathy. The remaining nine weights were negative, and thus may be considered evidence consistent with the affective empathy-impairment hypothesis.

Four of the negative beta weights were produced by one narcissistic trait and two borderline personality traits. Specifically, the narcissistic trait of Exploitativeness predicted lower change in emotional contagion of anger to the need story, the borderline personality trait of Negative Relationships predicted decreased change in emotional contagion of sadness to the need story, and the borderline personality trait of Self Harm predicted lower change in emotional contagion of sadness and anger to the need story. The remaining five negative beta weights were produced by the psychopathic trait of Callous Affect, which was the only personality trait that showed a consistent pattern of negative association across multiple affective empathy change scores. Specifically, relative to neutral stimuli, Callous Affect predicted (a) lower change in empathic concern to the need story, (b) lower change in emotional contagion of sadness to the sad faces and to the need story, and (c) lower change of emotional contagion of anger and fear to the need story. For comparison, Table 6 in the Supplementary Materials includes the zero-order correlations between the individual psychopathic traits and the affective empathy change scores.

One way to conceptualize these findings is to consider the number of associations between traits and the nine affective empathy change scores that were significantly negative (indicative of empathy impairment), positive (indicative of empathy enhancement), or non-significant (no association with empathy). Of the 63 tests of the

Table 1
Affective empathy change scores by comparison stimuli and emotion after data aggregation.

Emotion	Comparison stimuli					
	HF–NF	SF–NF	AF–NF	FF–NF	BF–NF	NeedS–NeutS
Happiness						
Study 1 & Study 2	.466*					
Lishner et al. (2012) & Study 2	.460*					
Sadness						
Study 1 & Study 2		.292*				2.531*
Lishner et al. (2012) & Study 2		.299*				2.493*
Anger						
Study 1 & Study 2			.156*			2.101*
Lishner et al. (2012) & Study 2			.142*			1.994*
Fear						
Study 1 & Study 2				.139*		.694*
Lishner et al. (2012) & Study 2				.046		.781*
Empathic Concern						
Study 1 & Study 2					.744*	1.605*
Lishner et al. (2012) & Study 2					.487*	1.541*

Note. $N = 365$–374 for Study 1 & Study 2. $N = 338$–345 for Lishner et al. (2012) & Study 2. HF = happy faces. NF = neutral faces. SF = sad faces. AF = angry faces. FF = fearful faces. BF = baby faces. NeedS = need story. NeutS = neutral story. Significant positive value indicates increase in listed emotion. Significant negative value indicates reduction in listed emotion.
  * $p < .05$ (two-tailed).

Table 2
Standardized beta weights for the prediction of affective empathy change scores by narcissistic traits and sex after data aggregation (Study 1 & Study 2, N = 339–348).

Trait	Critical affective empathy change score								
	HF–NF (Happiness)	SF–NF (Sadness)	AF–NF (Anger)	FF–NF (Fear)	BF–NF (EC)	NeedS–NeutS (Sadness)	NeedS–NeutS (Anger)	NeedS–NeutS (Fear)	NeedS–NeutS (EC)
CSE	−.096	.146	−.011	.120	−.124	.019	−.057	.010	−.005
E	−.082	−.094	.003	−.040	−.129	−.136	−.139*	−.071	−.017
SSSE	−.028	.201*	.023	.053	−.056	.150	.084	−.066	.139
HS	.145	−.058	−.146	−.100	.152*	.026	.084	−.010	.012
GF	.029	−.002	.070	.033	.122	.089	.087	.039	.026
D	.079	−.108	.169	.119	−.056	−.142	−.084	.029	.009
ER	−.047	−.041	−.056	−.035	.148	.036	.130	.172*	−.084
Sex	.117*	−.023	−.008	−.009	−.012	.085	.023	.052	.006
R^2	.034	.044	.025	.033	.037	.059*	.040	.030	.018

Note. CSE = contingent self-esteem. E = exploitativeness. SSSE = self-sacrificing self-enhancement. HS = hiding the self. GF = grandiose fantasy. D = devaluing. Sex (0 = *male*, 1 = *female*). HF = happy faces. NF = neutral faces. SF = sad faces. AF = angry faces. FF = fearful faces. BF = baby faces. NeedS = need story. NeutS = Neutral story. EC = empathic concern. Standardized beta weights are computed simultaneously for all traits.

* $p < .05$ (two-tailed).

impairment hypothesis involving narcissistic traits (7 traits correlated with 9 empathy change scores), 1.59% (1/63) was indicative of impairment, 4.76% (3/63) were indicative of enhancement, and 93.65% (59/63) showed no association. Of the 36 tests of the impairment hypothesis involving borderline personality traits (4 traits correlated with 9 empathy change scores), 8.3% (3/36) were indicative of impairment, 2.78% (1/36) were indicative of enhancement, and 88.89% (32/36) showed no association. For psychopathy, 13.89% (5/36) of the 36 tests (4 traits correlated with 9 empathy change scores) were indicative of impairment, 0% (0/36) were indicative of enhancement, and 86.11% (31/36) were indicative of no association. Moreover, all five tests indicative of empathy impairment were for Callous Affect, which accounted for 55.56% (5/9) of the tests of the affective empathy-impairment hypothesis conducted for this trait.

5. General discussion

The present research tested the hypotheses that psychopathy, narcissism, and borderline personality are linked to impairment in the capacity to experience affective empathy. In contrast to other published studies, the measure of affective empathy used in the present research was task-based, which allowed for an evaluation of its construct validity among study participants. Specifically, the task produced theoretically expected within-subject changes in state emotion in response to covert presentation of antecedent stimuli found in previous work to evoke emotional contagion and empathic concern.

This covert task-based approach and use of change scores possessed additional strengths compared to other approaches to measuring affective empathy found in the literature. Specifically, it minimized the potential for social desirability, experimental demand, and shared method bias to explain predicted affective empathy effects by using distracter stimuli and a cover story that cast the task as evaluating

stimulus preference as opposed to evaluating emotional reactions. The task responses are less ambiguous in their interpretation (changes in discrete emotion in response to empathy-evoking stimuli relative to neutral baseline stimuli) compared to other measures used in the literature (e.g., ability to identify emotional expressions, general physiological arousal). Differences in item response formats between the personality construct measures and affective empathy measures, as well as use of within-subject comparison of affective empathy reactions in response to counterbalanced stimuli, reduces the inflation of effect size between the measures of personality and affective empathy that might result from sharing common rater, common item, and item context method biases (see Podsakoff et al., 2003).

The methodological and data analytic strategy adopted in the present research offers a further advantage in that it relied on strategic use of replication and data aggregation across studies. This strategy is more ideal than single-study approaches because it lessens the potential influence of Type I and Type II errors on identification of meaningful associations among personality and state emotion variables, which enhances the dependability of the findings.

5.1. Evaluation of the affective empathy-impairment hypothesis

Contrary to commonly accepted assumptions, the present findings provide little evidence that narcissism and borderline personality are linked to impairment in the ability to experience affective empathy. Of the seven narcissistic traits measured, only one (Exploitativeness) showed the predicted negative association with change in affective empathy. Moreover, the association was only found for one of the nine measures of state change in affective empathy (emotional contagion of anger to the need story). Similarly, of the four borderline personality traits measured, only two traits (Negative Relationships, Self Harm) showed the predicted negative association with change in

Table 3
Standardized beta weights for the prediction of affective empathy change scores by borderline personality traits and sex after data aggregation (Study 1 & Study 2, N = 322–364).

Trait	Critical Affective Empathy Change Score								
	HF–NF (Happiness)	SF–NF (Sadness)	AF–NF (Anger)	FF–NF (Fear)	BF–NF (EC)	NeedS–NeutS (Sadness)	NeedS–NeutS (Anger)	NeedS–NeutS (Fear)	NeedS–NeutS (EC)
AI	.064	.025	.065	.104	.014	.146	.137	.135	.103
IP	−.020	.154	−.027	−.003	−.099	.152*	.057	.085	.077
NR	−.003	−.071	.059	.070	.117	−.245*	−.113	−.090	−.115
SH	.032	−.098	.015	.105	−.043	−.175*	−.134*	−.073	−.075
Sex	.138*	.010	−.048	−.027	.001	.150*	.017	.039	.014
R^2	.024	.018	.011	.047*	.012	.071*	.024	.021	.014

Note. AI = affect instability. IP = identity problems. NR = negative relationships. SH = self-harm. Sex (0 = *male*, 1 = *female*). HF = happy faces. NF = neutral faces. SF = sad faces. AF = angry faces. FF = fearful faces. BF = baby faces. NeedS = need story. NeutS = neutral story. EC = empathic concern. Standardized beta weights are computed simultaneously for all traits.

* $p < .05$ (two-tailed).

Table 4
Standardized beta weights for the prediction of affective empathy change scores by psychopathic traits and sex after data aggregation (Lishner et al. & Study 2, N = 337–344).

Trait	Critical affective empathy change score								
	HF–NF (Happiness)	SF–NF (Sadness)	AF–NF (Anger)	FF–NF (Fear)	BF–NF (EC)	NeedS–NeutS (Sadness)	NeedS–NeutS (Anger)	NeedS–NeutS (Fear)	NeedS–NeutS (EC)
CA	−.017	−.190*	−.044	−.069	−.151	−.343*	−.225*	−.202*	−.226*
IM	−.072	.020	.097	.028	.126	.126	.146	.162	.064
EL	.073	.068	.004	−.047	.005	.031	−.016	.082	.097
CT	.010	−.023	−.002	.089	.012	.074	.058	.092	−.035
Sex	.055	−.095	−.010	.017	−.028	.008	.019	.020	−.055
R^2	.008	.019	.006	.010	.013	.069*	.033*	.044*	.025

Note. CA = callous affect. IM = interpersonal manipulation. EL = erratic lifestyle. CT = criminal tendencies. Sex (0 = *male*, 1 = *female*). HF = happy faces. NF = neutral faces. SF = sad faces. AF = angry faces. FF = fearful faces. BF = baby faces. NeedS = need story. NeutS = neutral story. EC = empathic concern. Standardized beta weights are computed simultaneously for all traits.

  * $p < .05$ (two-tailed).

affective empathy. Of the nine measures of state change in affective empathy, Negative Relationships predicted less emotional contagion of sadness to the need story and Self Harm predicted less emotional contagion of sadness and anger to the need story.

Only for psychopathy was consistent evidence of affective empathy impairment found, but only for the trait of Callous Affect. Specifically, Callous Affect predicted less emotional contagion of sadness to sad faces, less emotional contagion of sadness, anger, and fear to the need story, and less empathic concern to the need story. It is meaningful that even under critical test conditions the link between Callous Affect and affective empathy impairment was noted in adult participants, a finding that is consistent with emerging developmental evidence suggesting that emotional callousness is associated with low empathy and deviant behavior in childhood (for a review, see Frick & White, 2008). The convergence of these two research domains calls attention to the potential role played by emotional callousness in producing a number of the negative interpersonal consequences linked to psychopathy.

Overall, these findings call for a more nuanced consideration of whether affective empathy impairment should be considered a feature or outcome of psychopathy, narcissism, and borderline personality. The findings suggest that any true associations between affective empathy and these personality constructs are likely obscured if examined from a global construct level. Indeed, examination of Tables 2 through 4 reveals that the associations between affective empathy and some of the traits comprising the constructs may oppose one another.

One limitation of the findings is that clinical assessments of these constructs were not used, which raises questions about the generalizability of the findings across multiple approaches to measuring the traits comprising these constructs. However, given that the three personality measures used are predictive of clinically assessed levels of psychopathy, Narcissism Personality Disorder, and Borderline Personality Disorder (Miller et al., 2014; Paulhus et al., 2015; Stein et al., 2007), we expect the present findings would be successfully replicated if valid and reliable clinical measures of these constructs were used in place of self-reports. Nonetheless, we propose that future research should identify the operative core traits (e.g., emotional callousness) using both clinical assessments and alternative self-report measures of personality when examining relations between psychopathy, narcissism, and borderline personality constructs and affective empathy processes. Moreover, we urge researchers to adopt a more precise and nuanced delineation of the empathic processes of interest (e.g., affective empathy as opposed to empathy) when selecting or designing measures of affective empathy as this would more likely yield clearer theoretical insight.

5.2. Other forms of empathic emotion?

There are some alternative interpretations of the present findings worth considering. First, some of the effects interpreted as changes in emotional contagion may instead indicate changes in alternate forms of affective empathy. Specifically, effects interpreted as change in emotional contagion of sadness and fear in response to reading the need story may instead indicate change in empathic concern (feeling other-oriented sadness or fear) or change in personal distress (feeling self-focused distress in response to the needs of others) (Batson, Early, & Salvarani, 1997; Batson et al., 1989). Change in anger in response to the story may indicate empathic anger (feeling anger on behalf of another in need; Batson et al., 2007; Vitaglione & Barnett, 2003) as opposed to emotional contagion of anger. Another possibility is that the sadness, anger, and fear change scores capture multiple forms of affective empathy (emotional contagion, empathic concern, and personal distress), which presumably would imply that the change scores are better conceptualized as broad measures of affective empathy.

These various interpretations of the affective empathy change scores raise questions regarding whether the affective empathy task taps into a relatively broad range of phenomena (other-oriented and self-focused forms of affective empathy) or a relatively narrow range of phenomena (other-oriented forms of affective empathy). Which interpretation is correct would in turn dictate whether the findings pertain to either a broad or narrow framing of the affective empathy-impairment hypothesis, respectively.

5.3. Interpretation of null results

As can be seen in Tables 2 through 4 (also see Tables 3 through 5 in the Supplementary Materials), only a subset of association trends were found to be significant following aggregation. Conclusions based on positive associations between affective empathy reactions and the personality traits are difficult to challenge regardless of whether they are statistically significant, because the associations are in the direction opposite to that predicted by the empathy-impairment hypothesis.

But can nonsignificant effects that are directionally negative be considered strong disconfirmations of the empathy-impairment hypothesis? We believe the answer is yes for several reasons. First, based on large bodies of empirical work, the personality measures used in the present studies are each considered to possess construct validity and sensitivity to variability in the traits they are designed to operationalize. Thus, failure to adequately measure psychopathic, narcissistic, and borderline personality traits does not provide a plausible explanation for null effects. Second, as noted earlier, there is good reason to place confidence in the construct validity of the covert affective empathy measure. It was sensitive to within-subject changes in emotional reactions that would be expected given theoretical antecedents and empirical results documented in the existing empathy literature. This sensitivity was found using two stimulus modalities (pictures of faces, news articles about events) both within and across three studies (see Table 1 and Table 1 in the Supplementary Materials). Third, following aggregation of data across studies, the effective power to detect significant effects at the $p < .05$ level between personality traits and affective empathy reactions for effects on the order of $r = .15$ to $r =$

.25 was approximately .80 to .99, respectively (assuming sample sizes of approximately 300–400). Consequently, null results based on aggregate analyses may be plausibly interpreted as evidence against the empathy-impairment hypothesis rather than as evidence of inadequate measurement or statistical power.

6. Conclusions

An impaired capacity to experience affective empathy for others has long been thought to accompany narcissism, borderline personality, and psychopathy. Yet, for most traits encompassing these personality constructs the presumed links failed to emerge under critical test conditions that (a) sought to minimize social desirability, experimental demand, and shared method bias; (b) created empirical discrimination between different forms of affective empathy identified in the theoretical literature; (c) used within-subject comparisons of reactions to different classes of low and high empathy-evoking stimuli rather than between-subject comparisons to single classes of stimuli; and (d) employed large-sample tests using data aggregated across replication studies that sought to balance between protection against Type I errors and Type II errors. Indeed, except for psychopathic Callous Affect, those higher in the majority of narcissistic, borderline personality, and other psychopathic traits evidenced little consistent impairment in affective empathy in response to empathy-evoking stimuli. Thus, it may be time to reconsider the extent to which, as well as the manner in which, impairment in affective empathy meaningfully contributes to the interpersonal outcomes linked to these traits.

Ethical statement

Informed consent was obtained from all human participants.

Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.paid.2015.05.036.

References

Ali, F., Amorim, I. S., & Chamorro-Premuzic, T. (2009). Empathy deficits and trait emotional intelligence in psychopathy and Machiavellianism. *Personality and Individual Differences, 47,* 758–762.
American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Washington DC: Author.
Asendorpf, J. B., Conner, M., De Fruyt, F., De Houwer, J., Denissen, J. J. A., Fiedler, K., et al. (2013). Recommendations for increasing replicability in psychology. *European Journal of Personality, 27,* 108–119.
Bagley, A., Abramowitz, C., & Kosson, D. (2009). Vocal affect recognition and psychopathy: converging findings across traditional and cluster analytic approaches to assessing the construct. *Journal of Abnormal Psychology, 118,* 388–398.
Batson, C. D. (2011). *Altruism in Humans.* New York: Oxford University Press.
Batson, C. D., Batson, J. G., Griffitt, C. A., Barreintos, S., Brandt, J. R., Sprengelmeyer, P., et al. (1989). Negative-state relief and the empathy–altruism hypothesis. *Journal of Personality and Social Psychology, 56,* 922–933.
Batson, C. D., Bolen, M. H., Cross, J. A., & Neuringer-Benefiel, H. (1986). Where is the altruism in the altruistic personality? *Journal of Personality and Social Psychology, 50,* 212–220.
Batson, C. D., Early, S., & Salvarani, G. (1997). Perspective taking: imagining how another feels versus imagining how you would feel. *Personality and Social Psychology Bulletin, 23,* 751–758.
Batson, C. D., Kennedy, C. L., Nord, L., Stocks, E. L., Fleming, D. A., Marzette, C. M., et al. (2007). Anger at unfairness: is it moral outrage? *European Journal of Social Psychology, 37,* 1272–1285.
Batson, C., Lishner, D., Cook, J., & Sawyer, S. (2005). Similarity and nurturance: two possible sources of empathy for strangers. *Basic and Applied Social Psychology, 27,* 15–25.
Blair, R. (2007). *Empathic dysfunction in psychopathic individuals.* Empathy in Mental Illness. New York, NY US: Cambridge University Press, 3–16.
Blair, R., Jones, L., Clark, F., & Smith, M. (1997). The psychopathic individual: a lack of responsiveness to distress cues? *Psychophysiology, 34,* 192–198.
Blair, R., Mitchell, D., Peschardt, K., Colledge, E., Leonard, R., Shine, J., et al. (2004). Reduced sensitivity to others' fearful expressions in psychopathic individuals. *Personality and Individual Differences, 37,* 1111–1122.

Blair, R., Mitchell, D., Richell, R., Kelly, S., Leonard, A., Newman, C., et al. (2002). Turning a deaf ear to fear: impaired recognition of vocal affect in psychopathic individuals. *Journal of Abnormal Psychology, 111,* 682–686.
Brouns, B. H. J., de Wied, M. A., Keijsers, L., Branje, S., van Goozen, S. H. M., & Meeus, W. H. J. (2013). Concurrent and prospective effects of psychopathic traits on affective and cognitive empathy in a community sample of late adolescents. *Journal of Child Psychology and Psychiatry, 54,* 969–976.
Cain, N. M., Pincus, A. L., & Ansell, E. B. (2008). Narcissism at the crossroads: phenotypic description of pathological narcissism across clinical theory, social/personality psychology, and psychiatric diagnosis. *Clinical Psychology Review, 28,* 638–656.
Cleckley, H. (1941). *The Mask of Sanity.* St. Louis, MO: Mosby Books.
Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52,* 281–302.
Crowell, S. H., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: elaborating and extending Linehan's theory. *Psychological Bulletin, 135,* 495–510.
Dadds, M., Hawes, D., Frost, A., Vassallo, S., Bunn, P., Hunter, K., et al. (2009). Learning to 'talk the talk': the relationship of psychopathic traits to deficits in empathy across childhood. *Journal of Child Psychology and Psychiatry, 50,* 599–606.
Davis, M. H. (1983). Measuring individual differences in empathy: evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44,* 113–126.
Decety, J., Chen, C., Harenski, C., & Kiehl, K. A. (2013a). An fMRI study of affective perspective taking in individuals with psychopathy: imagining another in pain does not evoke empathy. *Frontiers in Human Neuroscience, 7,* 1–11.
Decety, J., Skelly, L. R., & Kiehl, K. A. (2013b). Brain response to empathy-eliciting scenarios involving pain in incarcerated individuals with psychopathy. *Journal of American Medical Association Psychiatry, 70,* 638–645.
Del Gaizo, A. L., & Falkenbach, D. M. (2008). Primary and secondary psychopathic-traits and their relationship to perception and experience of emotion. *Personality and Individual Differences, 45,* 206–212.
Domes, G., Hollerbach, P., Vohs, K., Mokros, A., & Habermeyer, E. (2013). Emotional empathy and psychopathy in offenders: an experimental study. *Journal of Personality Disorders, 27,* 67–84.
Domes, G., Schulze, L., & Herpertz, S. C. (2009). Emotion recognition in borderline personality disorder—a review of the literature. *Journal of Personality Disorders, 23,* 6–19.
Dziobek, I., Preißler, S., Grozdanovic, Z., Heuser, I., Heekeren, H. R., & Roepke, S. (2011). Neuronal correlates of altered empathy and social cognition in borderline personality disorder. *NeuroImage, 57,* 539–548.
Eisenberg, N., Fabes, R. A., Murphy, B., Karbon, M., Maszk, P., Smith, M., et al. (1994). The relations of emotionality and regulation to dispositional and situational empathy-related responding. *Journal of Personality and Social Psychology, 66,* 776–797.
Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of Child Psychology: Vol. 3, Social, Emotional, and Personality Development* (pp. 646–718) (6th ed.). Hoboken, NJ: John Wiley & Sons, Inc.
Eisenberg, N., & Lennon, R. (1983). Sex differences in empathy and related capacities. *Psychological Bulletin, 94,* 100–131.
Fertuck, E. A., Jekal, A., Song, I., Wyman, B., Morris, M. C., Wilson, S. T., et al. (2009). Enhanced 'reading the mind in the eyes' in borderline personality disorder compared to healthy controls. *Psychological Medicine, 39,* 1979–1988.
Frick, P. J., & White, S. F. (2008). Research review: the importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry, 49,* 359–375.
Funder, D. C., Levine, J. M., Mackie, D. M., Morf, C. C., Vazire, S., & West, S. J. (2014). Improving the dependability of research in personality and social psychology: recommendations for research and educational practice. *Personality and Social Psychology Review, 18,* 3–12.
Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). The dark triad of personality: a 10 year review. *Social and Personality Psychology Compass, 7,* 199–216.
Harari, H., Shamay-Tsoory, S. G., Ravid, M., & Levkovitz, Y. (2010). Double dissociation between cognitive and affective empathy in borderline personality disorder. *Psychiatry Research, 175,* 277–279.
Hare, R. D. (1996). Psychopathy: a clinical construct whose time has come. *Criminal Justice and Behavior, 23,* 25–54.
Hare, R., & Neumann, C. (2009). *Psychopathy* Oxford Textbook of Psychopathology (2nd ed.). New York, NY US: Oxford University Press, 622–650.
Hengartner, M. P., Ajdacic-Gross, V., Rodgers, S., Müller, M., Haker, H., & Rössler, W. (2014). Fluid intelligence and empathy in association with personality disorder trait-scores: exploring the link. *European Archives of Psychiatry Clinical Neuroscience, 264,* 441–448.
Hepper, E. G., Hart, C. M., Meek, R., Cisek, S., & Sedikides, C. (2014). Narcissism and empathy in young offenders and non-offenders. *European Journal of Personality, 28,* 201–210.
Hopwood, C. J., Wright, A. G. C., Krueger, R. F., Schade, N., Markon, K. E., & Morey, L. C. (2013). DSM-5 pathological personality traits and the personality assessment inventory. *Assessment, 20,* 269–285.
Huchzermeier, C., Geiger, F., Bruß, E., Godt, N., Köhler, D., Hinrichs, G., et al. (2007). The relationship between DSM-IV cluster B personality disorders and psychopathy according to Hare's criteria: clarification and resolution in previous contradictions. *Behavioral Sciences and the Law, 25,* 901–911.
Jonason, P. K., & Krause, L. (2013). The emotional deficits associated with the Dark Triad traits: cognitive empathy, affective empathy, and alexithymia. *Personality and Individual Differences, 55,* 532–537.
Jovev, M., Chanen, A., Green, M., Cotton, S., Proffitt, T., Coltheart, M., et al. (2011). Emotional sensitivity in youth with borderline personality. *Psychiatry Research, 187,* 234–240.

Konrath, S., Corneille, O., Bushman, B. J., & Luminet, O. (2014). The relationship between narcissitic exploitativeness, dispositional empathy, and emotion recognition abilities. *Journal of Nonverbal Behavior, 38*, 129–143.

Lannin, D. G., Gull, M., Krizan, Z., Madon, S., & Cornish, M. (2014). When are grandiose and vulnerable narcissists least helpful? *Personality and Individual Differences, 56*, 127–132.

Lishner, D. A. (2015). A concise set of core recommendations to improve the dependability of psychological research. *Review of General Psychology, 19*, 52–68.

Lishner, D. A., Batson, C. D., & Huss, E. (2011). Tenderness and sympathy: distinct empathic emotions elicited by different forms of need. *Personality and Social Psychology Bulletin, 37*(5), 614–625.

Lishner, D. A., Cooter, A., & Zald, D. (2008). Rapid emotional contagion and expressive congruence under strong test conditions. *Journal of Nonverbal Behavior, 32*, 225–239.

Lishner, D. A., Oceja, L., Stocks, E., & Zaspel, K. (2008). The effect of infant-like characteristics on empathic concern for adults in need. *Motivation and Emotion, 32*, 270–277.

Lishner, D. A., Swim, E. R., Hong, P. Y., & Vitacco, M. J. (2011). Psychopathy and ability emotional intelligence: widespread or limited association among facets? *Personality and Individual Differences, 50*, 129–133.

Lishner, D. A., Vitacco, M. J., Hong, P. Y., Mosely, J., Miska, K., & Stocks, E. L. (2012). Evaluating the relation between psychopathy and affective empathy: two preliminary studies. *International Journal of Offender Therapy and Comparative Criminology, 56*, 1161–1181.

Lockwood, P. L., Bird, G., Bridge, M., & Viding, E. (2013). Dissecting empathy: high levels of psychopathic and autistic traits are characterized by difficulties in difference social information processing domains. *Frontiers in Human Neuroscience, 7*, 1–6.

Lynch, T. R., Rosenthal, M. Z., Kosson, D. S., Cheavens, J. S., Lejuez, C. W., & Blair, R. J. (2006). Heightened sensitivity to facial expressions of emotions in borderline personality disorder. *Emotion, 6*, 647–655.

Mahmut, M. K., Homewood, J., & Stevenson, R. J. (2008). The characteristics of non-criminals with high psychopathy traits: are they similar to criminal psychopaths? *Journal of Research in Personality, 42*, 679–692.

Marissen, M. A. E., Deen, M. L., & Franken, I. H. A. (2012). Disturbed emotion recognition in patients with narcissistic personality disorder. *Psychiatry Research, 198*, 269–273.

Marsh, A. A., Finger, E. C., Fowler, K. A., Adalio, C. J., Jurkowitz, I. T. N., Schechter, J. C., et al. (2013). Empathic responsiveness in amygdale and anterior cingulated cortex in youths with psychopathic traits. *Journal of Child Psychology and Psychiatry, 54*, 900–910.

Miller, J. D., Dir, A., Gentile, B., Wilson, L., Pryor, L. R., & Campbell, W. K. (2010). Searching for a vulnerable dark triad: comparing factor 2 psychopathy, vulnerable narcissism, and borderline personality disorder. *Journal of Personality, 78*, 1529–1564.

Miller, J. D., McCain, J., Lynman, D. R., Few, L. R., Gentile, B., MacKillop, J., et al. (2014). A comparison of the criterion validity of popular measures of narcissism and narcissistic personality disorder via the use of expert ratings. *Psychological Assessment, 26*, 958–969.

Minzenberg, M. J., Poole, J. H., & Vinogradov, S. (2012). Social-emotion recognition in borderline personality disorder. *Comprehensive Psychiatry, 47*, 468–474.

Morey, L. C. (1991). *Personality Assessment Inventory: Professional Manual.* Odessa, FL: Psychological Assessment Resources.

Murphy, C., & Vess, J. (2003). Subtypes of psychopathy: proposed differences between narcissistic, borderline, sadistic, and antisocial psychopaths. *Psychiatric Quarterly, 74*, 11–29.

Neumann, C. S., Hare, R. D., & Pardini, D. A. (2015). Antisociality and the construct of psychopathy: data from around the globe. *Journal of Personality.* http://dx.doi.org/10.1111/jopy.12127.

New, A. S., aan het Rot, M., Ripoll, L. H., Perez-Rodriguez, M. M., Lazarus, S., Zipursky, E., et al. (2012). Empathy and alexithymia in borderline personality disorder: clinical and laboratory measures. *Journal of Personality Disorders, 26*(5), 660–675.

Paulhus, D., Neumann, C. S., & Hare, R. D. (2015). *Manual for the Self-Report Psychopathy Scales* (4th ed.). Toronto, Ontario CA: Multi-Health Systems.

Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G. C., & Levy, K. N. (2009). Initial construction and validation of the pathological narcissism inventory. *Psychological Assessment, 21*, 365–379.

Podsakoff, P. M., Mackenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879–903.

Ritter, K., Dziobek, I., Preißler, S., Rüter, A., Vater, A., Fydrich, T., et al. (2011). Lack of empathy in patients with narcissistic personality disorder. *Psychiatry Research, 187*(1–2), 241–247.

Robin, M., Pham-Scottez, A., Curt, F., Dugre-Le Bigre, C., Speranza, M., Sapinho, D., et al. (2012). Decreased sensitivity to facial emotions in adolescents with borderline personality disorder. *Psychiatry Research, 200*, 417–421.

Salekin, R. T., Chen, D. R., Sellbom, M., Lester, W. S., & MacDougall, E. (2014). Examining the factor structure and convergent and discriminant validity of the Levenson self-report psychopathy scale: is the two-factor model the best fitting model? *Personality Disorders: Theory, Research, and Treatment, 5*, 289–304.

Sandoval, A., Hancock, D., Poythress, N., Edens, J., & Lilienfeld, S. (2000). Construct validity of the psychopathic personality inventory in a correctional sample. *Journal of Personality Assessment, 74*, 262–281.

Schimmack, U. (2012). The ironic effect of significant results on the credibility of multiple-study articles. *Psychological Methods, 17*, 551–566.

Sellbom, M., & Phillips, T. R. (2013). An examination of the triarchic conceptualization of psychopathy in incarcerated and nonincarcerated samples. *Journal of Abnormal Psychology, 122*, 208–214.

Soderstrom, H. (2003). Psychopathy as a disorder of empathy. *European Child & Adolescent Psychiatry, 12*, 249–252.

Stanley, D. J., & Spence, J. R. (2014). Expectations for replications: Are yours realistic? *Perspectives on Psychological Science, 9*, 305–318.

Stanley, J. H., Wygant, D. B., & Sellbom, M. (2013). Elaborating on the construct validity of the triarchic psychopathy measure in a criminal offender sample. *Journal of Personality Assessment, 95*, 343–350.

Stein, M. B., Pinsker-Aspen, J. H., & Hilsenroth, M. J. (2007). Borderline pathology and the personality assessment inventory (PAI): an evaluation of criterion and concurrent validity. *Journal of Personality Assessment, 88*, 81–89.

Thoma, P., Friedmann, C., & Suchan, B. (2013). Empathy and social problem solving in alcohol dependence, mood disorders and selected personality disorders. *Neuroscience and Biobehavioral Reviews, 37*, 448–470.

Verona, E., Bresin, K., & Patrick, C. J. (2013). Revisiting psychopathy in women: Cleckley/Hare conceptions and affective response. *Journal of Abnormal Psychology, 122*, 1088–1093.

Vitacco, M., Neumann, C., & Jackson, R. (2005). Testing a four-factor model of psychopathy and its association with ethnicity, gender, intelligence, and violence. *Journal of Consulting and Clinical Psychology, 73*, 466–476.

Vitaglione, G. D., & Barnett, M. A. (2003). Assessing a new dimension of empathy: empathic anger as a predictor of helping and punishing desires. *Motivation and Emotion, 27*, 301–324.

Vonk, J., Zeigler-Hill, V., Mayhew, P., & Mercer, S. (2013). Mirror, mirror on the wall, which form of narcissist knows self and others best of all? *Personality and Individual Differences, 54*, 396–401.

Wagner, A. W., & Linehan, M. M. (1999). Facial expression recognition ability among women with borderline personality disorder: implications for emotional regulation? *Journal of Personality Disorders, 13*(4), 329–344.

Wai, M., & Tiliopoulous, N. (2012). The affective and cognitive empathic nature of the dark triad of personality. *Personality and Individual Differences, 52*(7), 794–799.

Watson, P. J., Grisham, S. O., Trotter, M. V., & Biderman, M. D. (1984). Narcissism, and empathy: validating evidence for the narcissistic personality inventory. *Journal of Personality Assessment, 48*, 301–305.

Watson, P. J., & Morris, R. J. (1991). Narcissism, empathy and social desirability. *Personality and Individual Differences, 12*, 575–579.

White, B. A. (2014). Who cares when nobody is watching? Psychopathic traits and empathy in prosocial behaviors. *Personality and Individual Differences, 56*, 116–121.

Woollastan, K. P., & Hixenbaugh, P. (2008). 'Destructive whirlwind': nurses' perceptions of patients diagnosed with borderline personality disorder. *Journal of Psychiatric and Mental Health Nursing, 15*, 703–709.

Zágon, I., & Jackson, H. (1994). Construct validity of a psychopathy measure. *Personality and Individual Differences, 17*, 125–135.