

BRIEF REPORT

Examining the Correlates of the Coldheartedness Factor of the Psychopathic Personality Inventory–Revised

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Coldheartedness is a subscale of the Psychopathic Personality Inventory–Revised (PPI-R) that does not load onto either of the PPI-R's two traditional higher order factors (Fearless Dominance [FD] and Self-Centered Impulsivity [SCI]). As a result, it has been omitted from analyses in many studies. However, owing to Coldheartedness's associations with lack of empathy, guilt, and deep-seated social emotions, this subscale may be highly relevant to the construct of psychopathy. In a sample of 1,158 undergraduates, we attempted to clarify Coldheartedness's correlates within the context of a nomological network of psychopathology and personality; in addition, we examined Coldheartedness's contributions to psychopathy above and beyond FD and SCI. Coldheartedness demonstrated negative correlations with the Big Five personality factors, mixed correlations with indices of impulsivity, and largely negative correlations with measures of depression and anxiety. Regressions suggested that Coldheartedness displays substantial overlap with both FD and SCI but also contains psychologically important unique variance. Although the nature of this variance requires clarification, further research and perhaps an expansion of the Coldheartedness subscale may move the field toward a clearer understanding of the construct assessed by this measure.

Keywords: psychopathy, coldheartedness, impulsivity, depression, assessment

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Increasing evidence suggests that psychopathic personality, or psychopathy (Lewis, 1974), is not a monolithic construct but is instead a constellation of several partially independent traits (Skeem, Polaschek, Patrick, & Lilienfeld, 2011). The nature and relevance of these traits to psychopathy remain unresolved. Yet, in both research and clinical lore, a trait that captures affective detachment (“coldness”) has consistently emerged as a key component (Cleckley, 1941; Karpman, 1929; McCord & McCord, 1964; Patrick, Fowles, & Krueger, 2009). In addition, burgeoning research over the past decade has found that manifestations of

coldness in childhood and adolescence, which have been termed *callous/unemotional (CU) traits* (Frick & Marsee, 2006), may be predictors of developing psychopathic traits in adulthood. Despite the potential importance of coldness, its place within the nomological network of psychopathy is not well understood. Therefore, the correlates of one particular index of coldness—the Coldheartedness subscale of the Psychopathic Personality Inventory–Revised (PPI-R; Lilienfeld & Andrews, 1996; Lilienfeld & Widows, 2005)—are the focus of this article.

PPI-R Coldheartedness

Most psychopathy instruments (e.g., the Psychopathy Checklist–Revised [PCL-R], Hare, 1991, 2003; the Levenson Self-Report Psychopathy Scale [LSRPS], Levenson, Kiehl, & Fitzpatrick, 1995) do not include an explicit, standalone measure of “coldness,” although most contain items that appear to detect coldness, meanness, or allied constructs (e.g., “Love is overrated,” an item from the LSRPS). If this construct is distinct, however, the inclusion of a specific coldness subscale is important to ensure that this dimension is adequately represented, as well as to facilitate statistical analyses examining its implications for psychopathy and other conditions. Indeed, several more recent assessment instruments have included coldness as an explicit factor or scale. Of

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particular interest to this study, the PPI-R (Lilienfeld & Andrews, 1996; Lilienfeld & Widows, 2005) includes a factor analytically derived subscale called “Coldheartedness.” It is the only PPI-R subscale that does not typically load highly onto either of the two traditional higher order factors, Fearless Dominance (FD) and Self-Centered Impulsivity (SCI; Benning, Patrick, Blonigen, Hicks, & Iacono, 2005; Benning, Patrick, Hicks, Blonigen, & Krueger, 2003).

Although the PPI-R is a well-established measure of psychopathy, the Coldheartedness subscale remains poorly understood. Because this subscale is largely unrelated to either of the two higher order factors of the instrument, it is often excluded from analyses of the PPI-R (e.g., Edens, Poythress, Lilienfeld, Patrick, & Test, 2008): a recent meta-analysis (Marcus, Fulton, & Edens, 2013) of 37 studies examining the PPI-R found that only 12 of these studies included Coldheartedness. In this meta-analysis, Marcus et al. (2013) found that Coldheartedness correlated moderately to highly with the affective/interpersonal factors of two widely used psychopathy measures (the PCL-R and LSRPS). However, all other aggregated correlations, including those with PPI-R FD and SCI, were in the small to moderate range; Coldheartedness correlated negatively with positive emotionality, negative emotionality, and constraint and positively with sensation seeking.

In the present study, we intended to contribute to the existing literature by embedding PPI-R Coldheartedness within a nomological network (Cronbach & Meehl, 1955) of hypothesized convergent and discriminant correlates. Specifically, we examined the relations of Coldheartedness with positive emotionality, negative emotionality, and impulsivity; we also included a measure of the five-factor model (FFM) of personality and measures of depression and anxiety. The constructs assessed by these instruments are partially subsumed under the findings from Marcus et al. (2013), but we aimed to build on their important work by broadening our understanding of Coldheartedness’s nomological network. In particular, because we were not constrained by the format of a meta-analysis, we included an arguably more “fine-grained” set of variables than did Marcus et al. We also conducted analyses beyond zero-order correlations to enable a more nuanced examination of Coldheartedness’s relations with PPI-R FD and SCI.

Current Aims and Hypotheses

Although the aforementioned meta-analysis (Marcus et al., 2013) synthesized many of the extant findings for the PPI-R Coldheartedness scale, several important constructs that are potentially relevant to the coldness construct were left unexamined. The aims of this study are therefore to (a) examine the applicability of the Marcus et al. (2013) meta-analytic findings to the present sample, (b) add to the existing body of research on Coldheartedness’s correlates, (c) examine the statistical contributions of this scale above and beyond PPI-R FD and SCI in the statistical prediction of theoretically relevant constructs, and (d) in more exploratory analyses, examine sex differences in Coldheartedness’s correlations with other variables.

Following from these aims, we hypothesized that Coldheartedness would correlate negatively with all five factors of the FFM but most strongly with Extraversion, Agreeableness, and Neuroticism: when Coldheartedness has been examined in relation to the

FFM, it tends to demonstrate negative or null correlations with all five factors but is most strongly associated with reversed Neuroticism (Ross, Benning, Patrick, Thompson, & Thurston, 2009), reversed Extraversion, and reversed Agreeableness (Derefinko & Lynam, 2006; Smith, Edens, & Vaughn, 2011). Consistent with Coldheartedness’s associations with general affective poverty, we also predicted that Coldheartedness would correlate negatively with indices of depression and anxiety.

We hypothesized that Coldheartedness would be largely positively correlated with indices of impulsivity; however, given the multifaceted nature of impulsivity (e.g., Nigg, 2000), we expected differential correlations to emerge across impulsivity factors. Specifically, we expected positive correlations with indices of sensation seeking but negative correlations with indices of emotion-laden impulsivity—for example, UPPS-P (standing for [Negative] Urgency, [Lack of] Premeditation, [Lack of] Perseverance, Sensation Seeking, and Positive Urgency) Negative Urgency (see Method section).

We also examined the extent to which Coldheartedness possesses psychologically important unique variance above and beyond other key features of psychopathy, that is, PPI-R FD and SCI. We hypothesized that because Coldheartedness is ostensibly a distinctive attribute of psychopathy, it would contribute unique variance to the statistical prediction of most or all dependent measures. Finally, some studies have reported that males score higher than females on Coldheartedness (e.g., Cale & Lilienfeld, 2002), and we expected to replicate this finding. In exploratory analyses, we also examined potential sex differences in the correlates of Coldheartedness; given the absence of research on this issue, we advanced no a priori hypotheses in this regard.

Method

Participants

Data were collected from 1,169 undergraduates at a large, racially diverse public Southeastern university.¹ Eleven participants were excluded on the basis of scores on the PPI-R Inconsistent Responding and Deviant Responding subscales, in accord with recommendations in the PPI-R manual (Lilienfeld & Widows, 2005), leaving a total of 1,158 participants. Participants were 72.9% female ($n = 852$), ranging in age from 18–58 years ($M = 20.71$, $SD = 4.65$), and were 37.5% African American ($n = 434$), 33.8% Caucasian ($n = 391$), 14.4% Asian ($n = 167$), and 14.3% other ($n = 166$).

Procedure

Data were collected through an online survey program, typically lasting approximately 60 min. Participants were recruited through the university’s study pool and were awarded course credit for their participation. All study procedures were approved by the university’s institutional review board.

¹ Certain correlational analyses and internal consistencies from this sample are reported in Latzman, Vaidya, Malikina, Berg, and Lilienfeld (2014), which addresses a very different set of hypotheses than those examined here. Any duplicated data will be indicated.

Measures

Psychopathy. Psychopathy was assessed using the PPI-R (Lilienfeld & Widows, 2005), a 154-item self-report scale developed on multiple samples of college students. The PPI-R contains eight subscales, seven of which compose the higher order factors of FD and SCI (Benning et al., 2003); Coldheartedness is often treated as a standalone factor. In the present sample, all PPI-R factors demonstrated acceptable reliability ($\alpha_{FD} = .87$, $\alpha_{SCI} = .92$, and $\alpha_{Cold} = .83$, as reported in Latzman et al., 2014).

Big Five personality traits. The Big Five Inventory (BFI; John, Donahue, & Kentle, 1991) is a 44-item questionnaire that assesses the traits of the Big Five model of personality: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. Each subscale contains 8–10 items. Cronbach's alpha for all subscales was acceptable ($\alpha_E = .76$, $\alpha_A = .78$, $\alpha_C = .61$, $\alpha_N = .77$, and $\alpha_O = .80$, as reported in Latzman et al., 2014).

Depression and anxiety. The Inventory of Depression and Anxiety (IDAS; Watson et al., 2007) is a 64-item questionnaire consisting of a General Depression scale, a Dysphoria scale, and nine subscales, each consisting of three items, that assess specific symptoms of depression or anxiety (e.g., insomnia, panic, suicidality). The General Depression subscale subsumes the Dysphoria scale and includes items from each of the other subscales; no other scales overlap with each other. Cronbach's alpha for the two broader IDAS subscales were high ($\alpha_{Dysphoria} = .91$; $\alpha_{GenDepr} = .91$).²

Impulsivity. Impulsivity was assessed using two widely used self-report questionnaires, the UPPS-P scale (Whiteside & Lynam, 2001) and the Barratt Impulsiveness Scale (BIS-11; Patton, Stanford, & Barratt, 1995).

The UPPS-P is a 59-item instrument that assesses "pathways" to impulsive behavior or developmental patterns and trajectories that ostensibly lead to behavioral manifestations of impulsivity. Each of the five subscales contains 10–14 items, and the instrument's factors demonstrate convergent and discriminant validity with a number of personality and psychopathological correlates; Cronbach's alpha for all UPPS-P subscales was high ($\alpha_{NegUrg} = .88$, $\alpha_{LackPrem} = .87$, $\alpha_{LackPers} = .85$, $\alpha_{SensSeek} = .86$, and $\alpha_{PosUrg} = .95$, as reported in Latzman et al., 2014).

The BIS-11 is a 30-item self-report questionnaire that assesses quick decision making, behaving without thinking, and acting without forethought. The instrument has received extensive construct validation since its first incarnation several decades ago (Barratt, 1959). Cronbach's alpha for the total BIS-11 score was adequate ($\alpha_{Total} = .80$).

Analyses

To address the first and second aims of examining and extending prior findings, we computed zero-order correlations between Coldheartedness, FD, and SCI, as well as variables within our previously described nomological network for Coldheartedness. The third aim, to examine Coldheartedness's contributions to these dependent variables above and beyond FD and SCI, was addressed by computing two sets of multiple regression analyses, one with Coldheartedness entered as the first step and FD and SCI entered together as the second step and one with these steps reversed. Finally, to address the fourth aim of exploring sex differences in the Coldheartedness subscale, we examined mean-level differ-

ences on the total Coldheartedness score, conducted correlational analyses separately by sex, and conducted multiple regression analyses with sex entered as the first step.

Due to the large number of analyses and to balance the risks of Type I with Type II error, we used a modified Bonferroni correction, addressing each measure separately. We divided the threshold significance values by the number of subscales per measure (e.g., for the UPPS-P, which has five subscales, we divided the threshold for *p* values for all relevant correlations by 5).

Results

Correlational Analyses

Coldheartedness demonstrated a moderate positive correlation with SCI and a small to moderate positive correlation with FD (see Table 1).

As predicted, each of the five BFI factors correlated negatively with Coldheartedness; Agreeableness demonstrated the strongest correlation ($r = -.50$) and Extraversion the weakest ($r = -.08$). Remaining correlations had moderate or small to moderate effect sizes (see Table 1).

Largely as predicted, Coldheartedness correlated negatively with both IDAS General Depression as well as IDAS Dysphoria, although both effect sizes were small (see Table 1).

Correlations with measures of impulsivity were varied and inconsistent with prediction. Coldheartedness correlated negatively and moderately with total scores on the BIS-11 but correlated mostly positively with the UPPS-P subscales. Positive Urgency demonstrated the largest effect size ($r = .33$), whereas Lack of Perseverance demonstrated the smallest ($r = -.09$). Other subscales correlated weakly to moderately with Coldheartedness (see Table 1).³

Regression Analyses

Hierarchical multiple regression analyses (see Supplemental Table 2) revealed that Coldheartedness contributed unique variance above and beyond FD and SCI for a number of variables, although effect sizes varied substantially. Coldheartedness demonstrated the largest effect sizes for (reversed) BFI Agreeableness and (reversed) Openness (respectively: $\Delta R^2 = .13$, $\Delta R^2 = .12$). In contrast, Coldheartedness did not contribute significant incremental validity for UPPS-P Negative Urgency, Lack of Premeditation, and Sensation Seeking (in each of these cases, $\Delta R^2 < .001$). When Coldheartedness was entered first, however, FD and SCI combined contributed unique variance in the explanation of every variable, demonstrating moderate to large effect sizes for all BFI subscales, large effect sizes for both IDAS subscales and all UPPS-P subscales, and a small effect size for the BIS-11 total score.

Sex Differences

Males scored significantly higher than did females on all PPI-R subscales, including Coldheartedness (Cohen's $d = .66$; see Sup-

² We focus here on the two broad IDAS scales; contact the first author for analyses of all nine subscales.

³ Select correlational analyses have been reported in Latzman et al. (2014). See Table 1 for indications of which analyses were previously reported.

Table 1
Psychopathic Personality Inventory–Revised (PPI-R)
Subscale Correlates

	PPI-C	PPI-FD	PPI-SCI
PPI-R ($p < .02$)			
PPI-FD	.15 ^{sa} (.11)		
PPI-SCI	.30 ^{sa} (.27)	.07 ^a (.05)	
Big Five Inventory ($p < .01$)			
Extraversion	-.08 (.06)	.51 [*] (.54)	-.05 (-.04)
Agreeableness	-.50 ^{sa} (-.47)	.07 ^a (.10)	-.59 ^{sa} (-.57)
Conscientiousness	-.26 [*] (-.23)	.19 [*] (.22)	-.59 [*] (-.59)
Neuroticism	-.20 [*] (-.16)	-.55 [*] (-.54)	.29 [*] (.31)
Openness	-.33 [*] (-.33)	.24 [*] (.25)	-.12 [*] (-.12)
UPPS-P ($p < .01$)			
Negative Urgency	.15 [*] (.16)	-.11 [*] (-.12)	.58 [*] (.59)
Lack of Premeditation	.18 ^{sa} (.17)	.10 ^{sa} (.09)	.56 ^{sa} (.56)
Lack of Perseverance	-.09 ^{sa} (-.09)	.09 ^{sa} (.10)	.34 ^{sa} (.34)
Sensation Seeking	.13 [*] (.07)	.53 [*] (.51)	.18 [*] (.16)
Positive Urgency	.33 [*] (.30)	.03 (.00)	.61 [*] (.60)
BIS-11 total score ($p < .05$)	-.31 [*] (-.29)	.12 [*] (.14)	-.15 [*] (-.14)
IDAS ($p < .025$)			
General Depression	-.12 [*] (-.10)	-.30 [*] (-.29)	.50 [*] (.51)
Dysphoria	-.15 [*] (-.14)	-.31 [*] (-.31)	.48 [*] (.49)

Note. Partial correlations controlling for sex are presented in parentheses. PPI-C = PPI-R Coldheartedness; PPI-FD = PPI-R Fearless Dominance; PPI-SCI = PPI-R Self-Centered Impulsivity; UPPS-P = (Negative) Urgency, (Lack of) Premeditation, (Lack of) Perseverance, Sensation Seeking, and Positive Urgency; BIS-11 = Barratt Impulsiveness Scale; IDAS = Inventory of Depression and Anxiety Symptoms.

^a Correlations reported in Latzman et al. (2014).

* r is significant at indicated p value.

plemental Table 3 for all means and standard deviations for sex differences). A Box's M test (Box, 1949) indicated that covariance matrices for men versus women were significantly different (Box's $M = 1,115.24$, $p < .001$); in view of differing male and female sample sizes, we examined Wilks' Λ (Tabachnik & Fidell, 2001), which was also significant ($\Lambda = .73$, $p < .001$). As a consequence, the correlational analyses were reexamined with particular attention to sex as a variable.

We first recomputed all correlations controlling for sex (see Table 1). None of these correlations was statistically significantly different from those in the uncontrolled analyses (all $ps > .10$). We also computed correlations separately by sex (Supplemental Table 4). Statistically significant differences included stronger correlations for women with PPI-R SCI, BFI Neuroticism and Conscientiousness, and UPPS-P Lack of Premeditation, as well as weaker correlations for women with UPPS-P Negative Urgency. However, none of these significant differences survived a conservative Bonferroni correction for total number of comparisons (i.e., 15). Finally, our hierarchical regression analyses were reconduted with sex entered as the first step. Sex contributed significant variance for 6 of 13 variables but did not substantially change betas for any findings; ΔR^2 did not exceed .05 for any variables (see Supplemental Table 5 for results).

Discussion

The role of Coldheartedness within the nomological network of psychopathy remains poorly understood, in part because it is often excluded from analyses of the PPI-R's correlates. Our findings

suggest that Coldheartedness displays a correlational profile distinct from the two PPI-R higher order factors. Consistent with our hypotheses, Coldheartedness demonstrated negative or nonsignificant correlations with most variables. Still, the exceptions to this pattern are notable, especially regarding variables (e.g., reversed Agreeableness and reversed Openness) on which Coldheartedness contributed significant unique variance above and beyond both FD and SCI. Such correlations raise the possibility that Coldheartedness measures certain personality features that are not well represented by other features of psychopathy. Furthermore, despite higher mean Coldheartedness scores among men, an examination of sex differences in Coldheartedness's correlational patterns with other variables yielded unclear results, with only a few significant differences that in turn did not withstand a conservative post hoc correction.

Coldheartedness's correlations with the BFI suggest that individuals who score more highly on this scale are less prone to anxiety and more disagreeable, careless, unscrupulous, and closed to new experiences and ideas. Counter to hypotheses, Coldheartedness was essentially uncorrelated with Extraversion, although regressions revealed that Coldheartedness contributed unique variance to (reversed) Extraversion above and beyond both FD and SCI, albeit with a small effect size. Specifically, supplementary analyses controlling simultaneously for FD and SCI yielded a modest but statistically significant negative correlation between Coldheartedness and Extraversion, $r = -.16$, $p < .001$, reflecting a suppressor effect. This negative correlation is broadly consistent with previous research (Derefinko & Lynam, 2006; Ross et al., 2009; Smith et al., 2011) as well as with the conceptualization of Coldheartedness as reflecting a withdrawal and paucity of social emotion (e.g., Lilienfeld & Widows, 2005).

Given the conflicting literature regarding Coldheartedness's correlations with measures of impulsivity, it is perhaps unsurprising that Coldheartedness demonstrated discrepancies in its correlations with the BIS-11 and the UPPS-P. On closer examination, these findings may be illuminating rather than obfuscating, because research on the assessment of impulsivity is itself often contradictory (e.g., Nigg, 2000; Whiteside & Lynam, 2001). Thus, these discrepancies may reflect more on the marked heterogeneity of impulsivity than on the construct validity of the Coldheartedness subscale. In particular, it is possible that the discrepancies observed here stem from the differential content of the UPPS-P, because this measure includes more emotionally valenced items than does the BIS-11.⁴ Controlling for FD in subsidiary analyses did not substantially affect the magnitude of any correlations, whereas controlling for SCI resulted in a nonsignificant association between Coldheartedness and Negative Urgency and a small to moderate positive association between Coldheartedness and Positive Urgency. These latter findings are consistent with the conceptualization of SCI as accounting for much of the emotional variance within psychopathy (e.g., Benning et al., 2003, 2005). The nature of Coldheartedness's contributions to these correlations remains unclear, but Coldheartedness may correlate primarily with the "unemotional" impulsivity components of the UPPS-P subscales.

⁴ Surprisingly, controlling for BFI Neuroticism resulted in stronger correlations between Coldheartedness and Negative Urgency, Lack of Premeditation, and Positive Urgency.

Disentangling these complicated patterns of associations across personality and environmental measures is likely to clarify the construct of Coldheartedness. The PPI subscale assessing this trait appears to be largely distinct from FD and SCI, and conceptually it represents a central trait to psychopathy. Indeed, individual differences in coldness or affective detachment—as presumably measured in part by PPI-R Coldheartedness—have been cited as an often overlooked component of broad personality (Depue & Morrone-Strupinsky, 2005). Nevertheless, the correlates of this trait continue to require clarification. Notably, some of the ambiguities in the data may stem from the limited number of items on the Coldheartedness subscale, which may preclude an adequate understanding of its lower order structure.

Limitations and Future Directions

Two potential obstacles to further investigation lie in the construction of the Coldheartedness scale itself. First, the scale is almost entirely reverse scored, which may introduce a susceptibility to acquiescence or counteracquiescence response bias. Second, as mentioned previously, the Coldheartedness subscale is relatively brief in comparison with the FD and SCI factors. If the coldness construct is central to psychopathy, it would be better represented by a lengthier scale, with the potential for heterogeneity at a lower order level to emerge. Specifically, and among other facets, coldness may include lack of (a) deep social connectedness, (b) love, (c) guilt, (d) shame, (e) empathy, (f) loyalty to others and social causes, and (g) sentimentality. Nevertheless, as the Coldheartedness subscale stands, these lower order elements receive sparse coverage and cannot be parsed out for further examination, potentially resulting in construct underrepresentation (Messick, 1995). A scale with more expansive content coverage may provide greater insight into the multifaceted nature of this construct.

Another potential limitation to the present findings is in the nature of the sample. The use of undergraduates may incur a restriction of range at the high end of psychopathy scores. The generalizability of these findings to broader samples, including forensic or psychiatric samples, therefore requires further investigation. In addition, a great deal of the relevant literature has been conducted on at-risk, delinquent, or forensic samples, which may contribute to some of the discrepancies between our predicted and observed findings.

In sum, the present findings highlight the potential importance of including the trait of coldness in investigations of psychopathy. Further research on this undeservedly neglected construct may lead to greater insights regarding the affective poverty ostensibly central to psychopathy. In turn, these insights may lead to more construct-valid assessments of psychopathy and perhaps ultimately more effective interventions. As ever, then, more research is needed—but in that research, we call for expansion of the Coldheartedness subscale, as well as a heightened emphasis on the construct of coldness within psychopathy.

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