

Personality Disorders: Theory, Research, and Treatment

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Online First Publication, October 31, 2016. <http://dx.doi.org/10.1037/per0000226>

CITATION

Marshall, J., Watts, A. L., & Lilienfeld, S. O. (2016, October 31). Do Psychopathic Individuals Possess a Misaligned Moral Compass? A Meta-Analytic Examination of Psychopathy's Relations With Moral Judgment. *Personality Disorders: Theory, Research, and Treatment*. Advance online publication. <http://dx.doi.org/10.1037/per0000226>

Do Psychopathic Individuals Possess a Misaligned Moral Compass? A Meta-Analytic Examination of Psychopathy's Relations With Moral Judgment

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Psychopathic individuals are often characterized as lacking a moral sense. Although this hypothesis has received ample experimental attention over the past decade, findings have been inconsistent. To elucidate the relationship between psychopathy and abnormal moral judgment, we conducted a meta-analysis of the research on psychopathy and morality-related variables ($k = 23$, $N = 4376$). A random effects model indicated a small but statistically significant relation between psychopathy and moral decision-making ($r_w = .16$) and moral reasoning ($r_w = .10$) tasks. These results reveal at best modest support for the common perception that psychopathic individuals fail to understand moral principles. A secondary meta-analysis ($k = 9$, $N = 4294$) of the growing body of literature on the relationship between psychopathy and moral reasoning on moral foundations measures provides preliminary evidence that psychopathic individuals may possess a differential set of "moral taste buds" than less psychopathic individuals. We discuss the implications of the results from both meta-analyses for models of the etiology of psychopathy and the criminal responsibility of psychopathic individuals.

Keywords: moral judgment, psychopathy, utilitarianism, Kohlberg

Supplemental materials: <http://dx.doi.org/10.1037/per0000226.supp>

Psychopathy comprises a constellation of personality traits and associated behaviors, including superficial charm, lack of empathy, narcissism, guiltlessness, dishonesty, and poor impulse control (Hare, 1991, 2003). In his formative work *The Mask of Sanity*, first published in 1941, Cleckley (1988) described a pronounced lack of moral sense as a hallmark of psychopathy. Long before that, British physician James Prichard (1837) famously characterized psychopathy as "moral insanity" (p. 36). Other scholars have long considered psychopaths "moral monsters" (Ellis, 1890, p. 17) because of their proclivity for unethical behavior. These classic descriptions are consistent with the modal layperson's perception of psychopathic individuals (Furnham, Daoud, & Swami, 2009) and psychopathic individuals' heightened tendency to engage in criminal and otherwise immoral activity (Leistico, Salekin, DeCoster, & Rogers, 2008). More recently, some influential scholars have contended that psychopathic individuals should be considered eligible for the insanity defense given their inability to think rationally about moral problems (Morse, 2008). For example, Levy (2008) argued that "psychopaths do not possess the relevant moral knowledge for distinctively moral responsibility; lacking this

knowledge, they are unable to control to control their actions in light of moral reasons" (p. 129).

Research, however, has painted a decidedly mixed picture of psychopathic individuals' moral decision-making capacities across a variety of well-validated morality-related measures (Borg & Sinnott-Armstrong, 2013), suggesting a potential misalignment between popular conception and research. Such misalignment may also hold important implications for the controversial question of whether criminal responsibility should be extended to psychopathic individuals, as is presently the norm in the U.S. legal system (Stern, 2014). With this ambiguity in mind, we conducted a meta-analysis of research on psychopathy's relationship with three commonly utilized indices of moral judgment to ascertain whether psychopathic individuals reason differently about moral situations compared with other individuals. In doing so, we examined several potential moderators in an attempt to account for the inconsistent findings in the literature.

Psychopathy and Moral Judgment

Psychopathic individuals' moral judgment has been examined using a variety of measurement tools. The three most commonly used approaches examine (a) *sacrificial moral dilemmas* (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001), in which participants decide how one would act in a situation that entails harming one or more people to avoid harming a larger group of other individuals, such as authorizing the death of one person to save several others; (b) measures of *Kohlbergian moral reasoning*, which typically ask people to rank the reasons they believe are most relevant to deciding how to respond to moral dilemmas (e.g.,

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should a man steal a legally prohibited medication to save his wife's life?); and (c) *Moral Foundations questions* (Haidt & Graham, 2007), in which participants indicate which moral concerns, such as purity and harm, are most pertinent to their moral judgments.

Together, these three methods of moral judgment measures, although conceptually overlapping, provide distinctive insights into how people vary in their moral conceptions. Sacrificial moral dilemmas examine one's ultimate moral choices while placing little emphasis on the reasoning underlying these decisions and are thought of as measures of people's moral decision-making capacities. Kohlbergian measures of moral judgment, however, focus on the *reasons* for why one chooses a certain course of action and thus characterized as indices of moral reasoning. Moral foundation measures, in contrast, examine which concerns people consider when deciding whether an action is morally permissible.

Sacrificial Moral Dilemmas

A commonly used method for measuring moral decision-making draws from seminal work by Greene and colleagues (2001). They used sacrificial moral dilemmas to assess individuals' moral intuitions in various scenarios by pitting utilitarian against deontological considerations. In these contexts, *utilitarian* moral judgments ostensibly reflect calculative, rational decisions (i.e., saving the greatest amount of net lives), because the choice to act is decided strictly on the basis of the consequence of an action. *Deontological* decisions, in contrast, do not attend exclusively to outcomes; these choices instead generally value the adherence to moral duties or obligations (i.e., one should not kill). In the case of the classic trolley dilemma (Thomson, 1976), participants must choose whether to flip a switch that would divert a train that would run over one person to save five others who are lying on the tracks ahead (e.g., the switch dilemma).

A corresponding dilemma, the footbridge dilemma, asks participants to decide whether to push a heavyset man off of a bridge, thereby stopping the train, which would prevent the deaths of five people on the tracks ahead. Because participants in both cases must make a decision that may cause the death of *one* person to save *several*, an endorsement of action in either situation would indicate one's willingness to engage in utilitarian decision-making. Alternatively, avoiding action in either case would represent a deontological decision. In addition, because the footbridge dilemma entails physically killing someone, Greene and colleagues (2001) characterized this and related scenarios as "personal" dilemmas, whereas they characterized the classic trolley dilemma (e.g., the switch dilemma) and its variants as "impersonal" dilemmas because they do not require the actor to engage in direct physical harm. Most individuals deem flipping the switch in the trolley dilemma as more morally acceptable than pushing the person onto the tracks, despite the fact that both choices elicit identical outcomes in terms of net lives lost (Cushman, Young, & Hauser, 2006). Hence, Greene (2007) argued that most peoples' disapproval of pushing the heavyset man in the footbridge dilemma is irrational because most people's intuitions fail to attend to consequences of an action when making a moral decision, and instead coheres more closely with deontological principles.

One explanation for the discordance in moral decision-making across these dilemmas posits that most individuals do not engage

in utilitarian decision-making when responding to the footbridge dilemma because most do not want to inflict direct physical harm toward another individual (Cushman, Gray, Gaffey, & Mendes, 2012). This explanation makes a unique prediction about how psychopathic individuals should respond differentially to sacrificial moral dilemmas compared with less psychopathic individuals. Specifically, because psychopathic individuals have deep-seated emotional deficits in empathy and guilt (Blair, 2007), they may engage in less emotional, more utilitarian moral reasoning (Berg, Lilienfeld, & Waldman, 2013). Ironically, according to some definitions, their decisions in these scenarios are more rational than those of nonpsychopathic individuals.

Supporting this possibility, Bartels and Pizarro (2011) found that self-reported psychopathy was positively associated with utilitarian decision-making on sacrificial dilemmas among undergraduates, and Koenigs and colleagues (2012) partially replicated these findings among prisoners, albeit demonstrating that this was the case specifically for impersonal moral dilemmas. Additionally, these findings were most pronounced among psychopathic individuals with low levels of anxiety on personal dilemmas compared with those with high levels of anxiety (Koenigs, Kruepke, Zeier, & Newman, 2012). This finding is consistent with the possibility that low anxiety, and perhaps diminished negative emotion more broadly, renders deontological reactions less likely.

Other research, however, suggests that psychopathy does not relate to moral decision-making (Cima, Tonnaer, & Hauser, 2010) insofar as psychopathic individuals' responses to sacrificial moral dilemmas largely mirror those of nonpsychopathic individuals. Specifically, Cima and colleagues (2010) found that psychopathic offenders, nonpsychopathic controls, and healthy individuals exhibited a similar pattern of judgments on sacrificial moral dilemmas. In light of these findings, they contended that psychopathic people know right from wrong, but are insufficiently motivated to act in ways that coincide with their moral conceptions of the real world: That is, they understand moral principles, but do not care. This null finding has been replicated among French university students (Tassy, Deruelle, Mancini, Leistedt, & Wicker, 2013) and American community participants (Glenn, Iyer, Graham, Koleva, & Haidt, 2009).

Kohlberg's Test of Morality

An additional way to measure moral cognition emerges from classic work on Kohlberg's (1963) theory of moral development, which outlines three overarching moral stages: (a) pre-conventional, (b) conventional, and (c) postconventional, with each stage subdivided further into two substages. At each overarching stage, Kohlberg proposed that people invoke different considerations when making decisions of moral significance. Individuals at the pre-conventional stage decide moral issues by prioritizing matters such as avoiding punishment or preserving self-interest, whereas those at the postconventional stage make decisions based on largely universal ethical principles, such as safeguarding human rights or appealing to the importance of consensus in making decisions. Those in the intermediate, conventional stage typically look to the intentions of others or authority figures when making ethical judgments. Most people do not reach the postconventional stage (Snarey, 1985), leaving open the possibility that individual

differences in personality or cognitive attributes may be predictors of those who do not reach postconventional moral reasoning.

One well-validated and widely used questionnaire measure of Kohlberg's moral development framework, the Defining Issues Test (DIT; Rest, Cooper, Coder, Masanz, & Anderson, 1974), comprises 5 moral dilemmas. One well-known example, the Heinz drug dilemma, asks participants whether a man should steal a drug to save his dying wife's life when there are no other options, even though doing so is against the law. The DIT yields an overall moral development score, the *P score*, which is an index of the extent to which one prioritizes postconventional considerations. For example, in the Heinz and the drug dilemma, an individual with a high P score (viz., who engages in high levels of postconventional reasoning) may justify stealing the drug because saving a human life is more important than adhering to a law; alternatively, this individual may also opt not to steal the drug because doing so would delegitimize important legal rules that are crucial to the fabric of society.

Researchers have used Kohlbergian measures of moral reasoning, such as sacrificial moral dilemmas, to acquire an understanding of which elements of psychopathic individuals' moral cognition may be compromised. Given that psychopathy is marked by egocentricity, lack of empathy, and guiltlessness, some authors (Campbell et al., 2009) have hypothesized that psychopathic individuals tend to prioritize self-interest over adherence to more abstract, ethical principles (e.g., do not kill innocent individuals) when making moral decisions. Because psychopathic individuals exhibit these distinctive characteristics, some scholars have hypothesized that psychopathic individuals do not progress beyond the lower levels of moral development (Campbell et al., 2009; O'Kane, Fawcett, & Blackburn, 1996).

Paralleling the moral decision-making literature, research evaluating this contention has yielded decidedly inconsistent findings. Supporting the hypothesis that psychopathic individuals reason differentially about moral issues, Campbell and colleagues (2009) found that psychopathic individuals tended to both prioritize lower moral considerations (e.g., potential threats to personal interest) and de-emphasize higher moral reasons (e.g., attempts to protect human rights). In contrast, two other studies revealed no significant association between psychopathy and moral development (Lose, 1997; O'Kane et al., 1996). Adding to the confusion, Link and colleagues (1977) found that psychopathic individuals received significantly *higher* moral reasoning scores than did non-psychopaths on Kohlberg's (1958) Moral Judgment Interview (MJI), a precursor to the DIT. On balance, these findings, like those examining decisions on sacrificial moral dilemmas and psychopathy, provide a murky picture of how psychopathy relates to moral development.

Moral Foundations Theory

A third and final way in which researchers have examined psychopathy's relations with moral judgments emerges from work on moral foundations (Haidt & Graham, 2007), which has elucidated five separable moral domains that represent various ethical concerns while making decisions: (a) harm, (b) purity, (c) authority, (d) loyalty, and (e) fairness (recent evidence has proposed the addition of a sixth moral foundation, liberty; Haidt, 2012). More specifically, moral concerns with harm typically include condemn-

ing violence directed toward a victim or denouncing the suffering of others (e.g., polluting is bad because it hurts innocent people). Purity concerns, in contrast, are generally thought of as unrelated to harm concerns; instead, such concerns focus on what sorts of actions or behaviors elicit feelings of disgust or violate intuitions about the sanctity of the body or soul (e.g., throwing away a Bible is bad because it disrespects religious laws). Haidt and his colleagues have argued that each of these five moral domains represent distinct psychological systems that are purportedly automatic and culturally widespread (Graham et al., 2011).

In contrast to Kohlbergian measures of moral reasoning and sacrificial moral dilemmas, it is less clear what constitutes atypical or deviant moral reasoning in the context of moral foundations theory, as the scores on moral foundation measures have not been construed as carrying moral valence. A helpful analogy commonly utilized to illustrate this point compares moral foundations to taste buds (Haidt, 2012): one may prefer sweet foods to salty ones, but a preference for sweet over salty foods does not mean one has "superior" taste buds. In the context of moral judgment, moral foundations research is focused primarily on preferences in moral reasoning as opposed to identifying deficits in moral judgment patterns. For instance, political psychology research suggests that social conservatives tend to value all five of the moral foundations, whereas social liberals tend to value only harm and fairness (Graham, Haidt, & Nosek, 2009). Critically, however, these differences in moral preference do not mean that social conservatives possess a superior set of moral beliefs relative to social liberals. Instead, variations in moral preference are normal variation in which considerations (i.e., avoiding harm to others, maintaining the sanctity of the body) people find most relevant to moral judgments.

Although the body of work relating psychopathy and moral foundations theory is relatively small, some have hypothesized (Glenn, et al., 2009), based on research by Blair (2007), that highly psychopathic individuals would exhibit less concern about harm and fairness than would those with low levels of these traits, but would report similar levels of concern for the other moral domains, such as purity or loyalty. Indeed, Glenn and colleagues (2009) found that psychopathic traits related to diminished moral concern in the harm and fairness moral domains within a large online sample, and Aharoni, Antonenko, and Kiehl (2011) replicated this finding in a forensic sample. Others (Jonason, Strosser, Kroll, Duinevel, & Baruffi, 2015), in contrast, have found that psychopathy is related to diminished moral concern in all five moral domains.

Making Sense of the Mixed Findings

The differential findings across studies of psychopathy and moral judgment measures are puzzling, and potential explanations for these inconsistencies abound. One possibility that lends itself well to meta-analytic examination is that the discrepancies arise from methodological differences across studies, pointing to potential boundary conditions of the relations between psychopathy and moral judgment. Hence, we conducted a meta-analysis of the literature, in an effort to clarify the mixed state of the literature on psychopathy and moral cognition. We intended this meta-analysis to serve two purposes: to (a) elucidate the extent to which psychopathy is associated with moral deficits by estimating the ag-

gregated magnitude of effects and (b) examine the boundary conditions, such as psychopathy measure, analytic approach, or sample type, under which psychopathy is associated with moral deficits.

Based on the extant literature, we predicted that the meta-analytic relations between psychopathic traits and moral judgment would be small in magnitude, reflecting the varied nature of the findings but consistent with the notion that psychopathic individuals possess subtle deficits in moral judgment. In exploratory analyses, we examined whether variation in the relationship between psychopathy and moral judgment indices was a function of several potential moderators, including the type of moral judgment (e.g., sacrificial dilemmas or Kohlbergian measures of morality), psychopathy measure used, and various demographic sample characteristics (e.g., percent male, age) of a given study.

Method

Using the search terms *psychopathy*, *psychopathic*, *personality*, *moral decision making*, *moral reasoning*, *morality*, *trolley dilemmas*, *defining issues*, and *moral foundations*, we located published and unpublished studies that examined the relation between psychopathy and (a) sacrificial moral dilemmas, (b) the DIT or other indices of Kohlbergian moral reasoning, (c) the Moral Foundations Questionnaire (MFQ; Haidt & Graham, 2007), or any combination of these three types of measures on *Google Scholar* and *PsycInfo*.

Because we were interested primarily in elucidating the relationship between psychopathy and aberrant moral reasoning, and because the moral foundations measure assesses preferences rather than deviance in moral judgment, we conducted two separate meta-analyses. The primary meta-analysis comprised 23 studies with 27 independent samples including 4376 participants and examined the relationship between psychopathy and two measures of moral judgment that test typical moral reasoning and decision-making capacities (i.e., Kohlbergian moral reasoning and sacrificial moral dilemmas; see Table 1 for a summary of study characteristics). Doing so allowed us to ascertain the aggregate correlation between psychopathy and deficits in these two measures of moral understanding. As a subsidiary aim, we assessed the relationship between psychopathy and moral foundations, which comprised 6 studies, 9 independent samples, and 4294 participants (see Table 2 for a summary of study characteristics).

For the primary meta-analysis, data were coded such that positive correlation coefficients reflected associations consistent with the notion that psychopathic individuals exhibit atypical moral judgment. This point is noteworthy given that positive correlation coefficients in the three types of tasks included in the meta-analysis reflect utilitarian decision-making, postconventional reasoning, and preference for a moral foundation. We coded the effects for decision-making tasks (i.e., sacrificial moral dilemmas) such that utilitarian responses were positive, in line with how these data are typically coded in the psychopathy literature (Bartels & Pizarro, 2011; Greene et al., 2001). For Kohlbergian reasoning indices, we coded the effects for postconventional moral reasoning as negative, as a tendency to prioritize such concerns represents more advanced reasoning capacity, and Personal Interest scores as positive, as reliance on more self-centered strategies during moral dilemmas is conceptualized as reflecting less advanced moral reasoning. When reporting effect sizes broken down by each

moral judgment index, we reflected the valence of the correlation in accord with how they are reported in the literature (Lose, 1997; O'Kane et al., 1996).

For the meta-analysis of moral foundations studies, we included the correlations between psychopathy and all five moral foundations. Again, because a diminished concern for certain moral foundations (e.g., purity, authority, loyalty) does not constitute a moral deficit per se, we did not include these studies in the primary meta-analysis assessing deficits in moral understanding. The correlations in this meta-analysis were coded in line with how they are reported in the literature (Aharoni, Antonenko, & Kiehl, 2011; Jonason et al., 2015), with positive correlations representing greater weight of a certain moral foundation.

For all the studies in both the primary and secondary meta-analyses, the first and second authors coded the following descriptive details from each study, where available, for evaluation as moderators: (a) the type of moral judgment measure; (b) whether the moral dilemmas were personal, impersonal, or a composite of both, or (c) the specific moral reasoning index (e.g., DIT-2 N2, P score); (d) psychopathy measure; (e) psychopathy factor, where applicable; (f) overall sample size, (g) percent male, (h) percent Caucasian, (i) percent African American, (j) percent Asian, (k) sample type (e.g., community, undergraduate, forensic, psychiatric), and (l) publication status (i.e., published vs. unpublished). Some of these variables were coded quantitatively (e.g., percent females), whereas others were coded categorically (e.g., task, psychopathy measure, sample type, publication status).

We adopted a random effects model (Hedges & Olkin, 1983; Lipsey & Wilson, 2001) rather than a fixed effects model because random effects models leave open the possibility of systematic differences among studies that account for variation arising from random error and true variation from study to study. We calculated the following statistics: (a) effect sizes for the relations between psychopathy and moral judgment across all tasks and outcomes; (b) I^2 statistics (Thompson & Higgins, 2002) for each effect size, which estimate the percentage of variation in the effect attributable to true heterogeneity across studies as opposed to random error; and (c) the Q -statistic (which is distributed in the form of a χ^2 test) to evaluate the statistical significance of the observed heterogeneity. The I^2 statistic is generally preferred over common alternatives, such as the Q -statistic or the tau-squared statistic, because I^2 is less affected by the number of studies and the scaling of the measures on which effects are based (Borenstein, Cooper, Hedges, & Valentine, 2009). A value of I -squared exceeding 25% suggests that tests of moderation are justified (Higgins, Thompson, Deeks, & Altman, 2003).

Many studies yielded multiple effect sizes. A potential problem with including more than one effect size from a given study in the same analysis is that doing so may violate the assumption of statistical independence. To address this issue, effects were averaged across conditions when multiple indicators derived from the same measure were reported in the same study. When studies reported multiple measures within the same study, analyses were conducted separately, and we coded the effect sizes for both outcome measures. When studies reported multiple distinct samples (e.g., Kahane, Everett, Earp, Farias, & Savulescu, 2015), these samples were treated as independent in analyses.

Table 1
Characteristics of Studies Included in the Primary Meta-Analysis

Study	Mean <i>r</i>	<i>N</i>	Demographics	Sample type	Psychopathy measure	Morality measure
Barb (2005) ^a	-.30	29	Male – 100 Caucasian – 17 African American – 31 Asian – 14 Hispanic – 38	Community	PCL-R	SRM-SF
Bartels and Pizarro (2011)	.38	208	Male – 51	Undergraduate	SRP	Moral Dilemmas
Campbell et al. (2009)	.18	472	Male – 21	Community	SRP	DIT-2
Chang (2001) ^a	-.41	90	Male – 100 Caucasian – 29 African American – 37 Asian – 6 Hispanic – 38	Forensic	PCL-R	SRM-SF
Cima et al. (2010)	.02	32	Male – 100	Forensic	PCL-R	Moral Dilemmas
Djeriouat and Tremoliere (2014)	.38	180	Male – 59	Community	Short Dirty Dozen-3 Psychopathy	Moral Dilemmas
Gao and Tang (2013)	.07	302	Male – 27 Caucasian – 40 African American – 14 Asian – 25 Hispanic – 12	Undergraduate	PPI-R	Moral Dilemmas
Gay et al. ^a #1	-.07	121	Male – 30 Caucasian – 66 African American – 20 Asian – 1 Hispanic – 5	Undergraduate	PPI-SF	MJT
Gay et al. ^a #2	-.13	206	Male – 38 Caucasian – 84 African American – 7 Asian – 4	Community	PPI-SF	MJT
Heinze et al. (2010)	.22	66	Male – 56	Forensic	PCL-SV	SRM-SF
Kahane et al. (2015) #1	.29	194	Male – 66	Community	LSRP	Moral Dilemmas
Kahane et al. (2015) #2	.22	283	Male – 47	Community	LSRP	Moral Dilemmas
Kahane et al. (2015) #3	-.05	190	Male – 51	Community	LSRP	Moral Dilemmas
Kahane et al. (2015) #4	-.33	253	Male – 50	Community	LSRP	Moral Dilemmas
Koenigs et al. (2012)	.33	48	Male – 100	Forensic	PCL-R	Moral Dilemmas
Lose (1997) ^a	.59	10	Male – 100 Caucasian – 74 African American – 13 Asian – 3	Forensic	PCL-R	DIT
Marshall et al. ^a	.04	191	Male – 39 Caucasian – 35 African American – 9 Asian – 33	Undergraduate	LSRP PPI-R	Moral Dilemmas DIT-2
O’Kane et al. (1996)	.14	95	Male – 32	Undergraduate	SRP	Moral Dilemmas
Pan (2009)	.30	40	Male – 100	Psychiatric	PCL	DIT-2
	-.19	98	Male – 100 Caucasian – 30 African American – 36 Asian – 1 Hispanic – 34	Forensic	YPI	MJT-R
Patil (2015)	.03	404	Male – 36	Community	LSRP	Moral Dilemmas
Pennuto (2007)	.06	29	Male – 100 Caucasian – 36 African American – 61	Forensic	PCL-R	DIT-2
Pletti et al. (2016)	.29	51	Male – 41	Community	LSRP	Moral Dilemmas
Reniers et al. (2012)	.67	24	Male – 100	Community	LSRP	MJT
Ritchie and Forth (2016)	.30	534	Male – 23 Caucasian – 73 African American – 6 Asian – 10	Community	SRP	Moral Dilemmas
Seara-Cardoso et al. (2011)	.03	124	Male – 93	Community	SRP	Moral Dilemmas
Spears et al. (2014) ^a	.14	95	Male – 32	Undergraduate	SRP	Moral Dilemmas
Tassy et al. (2013)	.12	102	Male – 11	Undergraduate	LSRP	Moral Dilemmas

Note. All demographic information represents percentages of the study’s sample size. SRP = Self-Report Psychopathy Scale; LSRP = Levenson Self-Report Psychopathy Scale; PCL-R = Psychology Checklist - Revised; PCL = Psychology Checklist; PPI-R = Psychopathy Personality Inventory-Revised; PCL-SV = Psychopathy Checklist: Screening version; PPI-SF = Psychopathy Personality Inventory Short Form scores.

^a Unpublished study.

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Table 2
Characteristics of Studies Included in the Subsidiary Meta-Analysis

Study	Mean <i>r</i>	<i>N</i>	Demographics	Sample type	Psychopathy measure	Morality measure
Aharoni et al. (2011)	-.17	222	Male – 100 Caucasian – 43 Hispanic – 51	Inmates	PCL-R	MFQ
Cardinale and Marsh (2015)	-.10	40	Male – 38	Community	PPI-R	MFQ
Djeriouat and Tremoliere (2014)	.38	180	Male – 59	Community	Short Dirty Dozen-3 Psychopathy	MFQ
Gay et al. ^a #1	-.07	121	Male – 30 Caucasian – 66 African American – 20 Asian – 1 Hispanic – 5	Undergraduate	PPI-SF	MFQ
Gay et al. ^a #2	-.02	206	Male – 38 Caucasian – 84 African American – 7 Asian – 4	Community	PPI-SF	MFQ
Glenn et al. (2009)		2172	Male – 61	Community	LSRP	MFQ
Jonason et al. (2015) #1	-.02	585	Male – 46 Caucasian – 78	Community	Dirty Dozen Psychopathy	MFQ
Jonason et al. (2015) #2	-.25	252	Male – 38 Caucasian – 87	Community	Dirty Dozen Psychopathy	MFQ
Jonason et al. (2015) #3	-.08	516	Male – 35	Community	Dirty Dozen Psychopathy	MFQ

Note. All demographic information represents percentages of the study's sample size. MFQ = Moral Foundations Questionnaire; LSRP = Levenson Self-Report Psychopathy Scale; PCL-R = Psychology Checklist - Revised; PPI-R = Psychopathy Personality Inventory Revised.

^a Unpublished study.

Results

The overall results indicated a small relationship between psychopathy and moral deficits ($r = .14, p = .001, 95\% \text{ CI } [.06, .22], k = 27$), including two moral judgment measures. Seventy-nine percent of effects were consistent with the notion that psychopathic individuals possess moral deficits (but see Barb, 2005; Kahane et al., 2015; and Pan, 2009). Nevertheless, effects varied considerably, corroborating our adoption of a random effects model. We detected significant and substantial heterogeneity across effect sizes ($I^2 = 85.22; Q(26) = 175.87, p < .001$). No studies were identified as outliers on the basis of residuals greater than 3.0. To explore the potential source or sources of the significant heterogeneity in effect sizes across studies, we performed several follow-up moderator analyses to ascertain the boundary conditions of moral deficits in psychopathy. Given the underpowered nature of conducting moderation analyses within meta-analyses comprising relatively few studies, we report the following analyses in an exploratory effort to elucidate the boundary conditions of this body of literature, but acknowledge that these results should be interpreted with caution.

Sacrificial Moral Dilemmas Versus Kohlbergian Moral Reasoning

In a planned comparison, we compared effects of moral reasoning tasks with those of moral decision-making tasks given the possibility that psychopathy may relate primarily to deficits in one domain but not the other. This analysis did not reveal significant heterogeneity ($Q(1) = .64, p = .42$), indicating that effects for moral reasoning tasks ($r = .10, p = .11, k = 11$) did not differ significantly from those for decision-making tasks ($r = .16, p = .003, k = 17$).

We also examined differential relations between psychopathy and various indices of moral reasoning (i.e., postconventional reasoning, reasoning consistent with personal interest) and moral decision-making (i.e., performance on personal and impersonal sacrificial moral dilemmas) meta-analytically (see Table 3). With respect to sacrificial moral dilemmas, studies reported either total dilemma scores or separated personal from impersonal dilemmas. There was significant heterogeneity across effect sizes depending on the type of moral decision-making dilemma ($Q(2) = 8.77, p = .01$). Effects were strongest, but slightly to moderately positive, for overall sacrificial moral dilemma performance (i.e., a composite of personal and impersonal dilemmas; $r = .26, p < .001, k = 7$), whereas effects were small and positive for impersonal dilemmas, $r = .09, p = .05, k = 7$, and personal dilemmas, $r = .06, p = .40, k = 11$; effects were statistically significant for total dilemmas, but not for personal or impersonal dilemmas considered separately. Broadly, these results suggest small to moderate relations between psychopathy and sacrificial dilemmas depending on the type of dilemmas, with effects being most pronounced for impersonal dilemmas compared with personal dilemmas.

No significant heterogeneity was observed across moral reasoning tasks, $Q(4) = 5.18, p = .27$. Effects for the DIT and DIT-2 did not differ, so these two measures were collapsed into one category ($Q = 3.72, p = .06$). Effects were significant for DIT P scores (i.e., postconventional reasoning; $r = -.22, p < .001, k = 5$) and DIT Personal Interest scores, $r = .11, p = .02, k = 2$, which were significant and small to moderate in magnitude, followed by the following nonsignificant moral reasoning variables: DIT N2 scores, $r = -.10, p = .11, k = 2$ and Social Moral Reflection-Short Form scores (SRM-SF; Gibbs, Widaman, & Colby, 1982; $r = .08, p = .83, k = 2$), and C-index scores from the Moral Competence Test (Lind, 1998; $r = .06, p = .64, k = 4$). These

Table 3
Correlation Between Psychopathy and Moral Decision-Making Indices

Index	<i>k</i>	Mean <i>r</i>	95% CI	<i>Q_w</i> (<i>df</i>)	<i>I</i> ²
Moral dilemmas (<i>Q_b</i> = 8.77, <i>df</i> = 2, <i>p</i> = .01)					
Total	7	.26***	.16, .35	19.61** (6)	69.40%
Impersonal	7	.09	.00, .18	12.95* (6)	53.66%
Personal	11	.06	-.07, .18	81.72*** (10)	87.76%
Moral reasoning (<i>Q_b</i> = 5.18, <i>df</i> = 4, <i>p</i> = .27)					
DIT N2	2	-.10			
DIT P	5	-.22***			
DIT PI	2	.11*			
MJT Total	4	.06			
SRM-SF	2	.08			
Moral Foundations Questionnaire (<i>Q_b</i> = 19.52, <i>df</i> = 5, <i>p</i> = .001)					
Authority	6	-.14**	-.22, -.05	15.86** (5)	68.48%
Fairness	6	-.17***	-.25, -.08	16.76** (5)	70.16%
Harm	8	-.26***	-.31, -.21	9.60 (7)	27.07%
Ingroup	6	-.07	-.15, .02	15.80** (5)	68.36%
Purity	6	-.15***	-.19, -.10	2.34 (5)	.00%

* *p* < .05, ** *p* < .01, *** *p* < .001.

findings indicate that psychopathy was associated with lower levels of postconventional reasoning and greater reported emphasis on personal interest concerns when responding to dilemmas on the DIT. In contrast, effects for some Kohlbergian moral reasoning indices (i.e., SRM-SF scores, C-index scores), perhaps indicating slightly higher, albeit nonsignificant, levels of postconventional reasoning among psychopathic individuals.

Moral Foundations

Six studies reported psychopathy's relations with the Moral Foundations Questionnaire (MFQ; Graham et al., 2011). There was heterogeneity across the effects for the five subscales of the MFQ, $Q(4) = 19.52, p = .001$. Relationships between psychopathy and all but one of the MFQ subscales were significant and negative, with the relations being most pronounced for Harm ($r = -.26, p < .001, k = 6$), Fairness ($r = -.17, p < .001, k = 6$), Purity ($r = -.15, p < .001, k = 6$), and Authority ($r = -.14, p = .002, k = 6$); relations were nonsignificant for Ingroup Loyalty, $r = -.07, p = .11, k = 6$. These results, although limited given that the analysis included only 6 studies, suggest that psychopathic individuals may emphasize nearly all moral foundations about equally. At the same time, the slightly but nonsignificantly stronger magnitude for the Harm subscale aligns slightly with the hypothesis of Glenn and colleagues (2009) that psychopathic individuals exhibit less concern about harm than about other foundations.

Psychopathy Measure and Factor

Given the possibility that psychopathy may relate to moral decision-making but not moral reasoning, or vice versa, we presented effects separately for moral dilemmas and moral reasoning, broken down by measure. Given the small number of samples across categories, the overwhelming majority of effects were not statistically significant. With regard to sacrificial moral dilemmas, there was significant heterogeneity in effects across psychopathy measures, $Q(6) = 25.07, p < .001$. Effects were significant for

Short Dark Triad-3 psychopathy scores ($r = .38, p < .001, k = 1$) and the Self-Report Psychopathy Scale (SRP; Paulhus, Neumann, & Hare, 2009; $r = .30, p < .001, k = 4$). The remaining psychopathy measures were not significant predictors of the outcomes: Levenson Self-Report Psychopathy Scale (LSRP, Levenson, Kiehl, & Fitzpatrick, 1995; $r = .06, p = .46, k = 8$), Psychology Checklist - Revised (PCL-R; Hare, 1991, 2003; $r = .19, p = .22, k = 2$), Psychopathy Personality Inventory (PPI; Lilienfeld & Andrews, 1996 $r = .05, p = .50, k = 1$), and PPI-Revised (PPI-R; Lilienfeld & Widows, 2005; $r = .07, p = .20, k = 1$).

For measures of Kohlbergian moral reasoning, there was also significant heterogeneity in effect sizes for moral reasoning measures as a function of psychopathy measure, $Q(7) = 29.02, p < .001$. Effects were significant for the PCL: Screening Version (Hart, Cox, & Hare, 1995; $r = .41, p < .001, k = 1$) and the SRP ($r = .18, p < .001, k = 1$), but not for the remaining measures: the LSRP, $r = .40, p = .22, k = 2$; the PCL, $r = .30, p = .06, k = 1$ and its revised version, the PCL-R ($r = .10, p < .001, k = 3$); the PPI, $r = .00, p = .93, k = 3$ and its revised version, the PPI-R, $r = .22, p = .08, k = 1$, and the Youth Psychopathic Traits Inventory (Andershed, Kerr, Stattin, & Levander, 2002; $r = -.19, p = .06, k = 1$).

There was little evidence that results for Factor 1, Factor 2, or Coldheartedness/Meanness features varied across moral reasoning outcomes, $Q(3) = 3.59, p = .31$. In contrast, effects varied across moral dilemma types, $Q(3) = 23.72, p < .001$, such that effects were significant for global psychopathy scores ($r = .37, p < .001, k = 4$) but not bold ($r = .11, p = .08, k = 13$), disinhibited, $r = .08, p = .13, k = 9$, or mean, $r = .13, p = .21, k = 4$ psychopathy features. Nevertheless, these negative findings must be interpreted with caution given that the power to detect these differences is low.

Sample Characteristics

When examined as moderators in a random effects metaregression model, sample size and the aforementioned sample demographic characteristics (e.g., percent male, percent Caucasian) did not significantly moderate the overall effect size, suggesting that

effects were not associated with sample characteristics. With regards to categorical moderators, effect sizes did not differ across sample type ($Q = 3.79$, $df = 4$, $p = .44$), whereas they differed across age category ($Q = 16.02$, $df = 1$, $p < .001$) such that effects were significantly positive for adults ($r = .17$, $p < .001$, $k = 25$) and significantly negative for adolescents, $r = -.22$, $p = .01$, $k = 2$. Given the low number of adolescent samples included in the meta-analysis, however, these unexpected results should be regarded as preliminary. Taken together, the results of these analyses suggest that effects did not differ across important sample characteristics, with the exception of sample age. Importantly, however, the power to detect significant effects was limited by low sample size.

Publication Bias

We conducted a series of analyses to estimate potential publication bias. Effects for published studies, $r = .18$, $k = 20$, $p < .001$ did not differ significantly ($Q = 3.51$, $p = .06$) from those for unpublished studies, $r = .03$, $k = 7$, $p = .64$, although heterogeneity across these two categories trended toward significance. Moreover, effects for unpublished studies were themselves not significant, nor were effects moderated by publication year ($\beta = -.01$, $p = .14$). An examination of the funnel plot of the effects from the published studies included in the meta-analysis (see supplemental Figure 1) did not suggest significant publication bias; we excluded unpublished studies from this plot given that we were interested in examining the tendency of studies with larger or significant effects to be published. This interpretation is consistent with the Egger's test for the regression intercept, which revealed no significant evidence of publication bias ($\beta_0 = -1.14$, $df = 18$, $p = .42$). These findings suggest that the published findings may slightly but not significantly overestimate the magnitude of the relations between psychopathy and moral deficits.

Discussion

Overall, the primary meta-analysis, which included 23 independent samples from 27 studies with 4376 participants, revealed a statistically significant but small relationship between psychopathy and the most commonly used measures of moral judgment. Notably, this small relation between psychopathy and moral judgment extended to both measures of moral judgment and did not differ as a function of sample demographic characteristics or subdimension of psychopathy examined. The secondary meta-analysis comprising 6 studies provided preliminary results that suggest psychopathic individuals exhibit different moral "taste buds" than less psychopathic individuals. These findings also suggest that psychopathic individuals may possess a pronounced lack of concern for the harm foundation, but the effects for harm were not significantly larger in magnitude than the other subscales. Whether these findings provide evidence that psychopathic individuals lack normal moral understanding is not clear, as differences in how individuals weigh moral foundations are not a typically interpreted as moral deficits.

Taken together, the present meta-analysis provides evidence against the view that psychopathic individuals possess a *pronounced and overarching* moral deficit, a belief often held by laypersons and professionals alike (Furnham et al., 2009). Our

findings, instead, suggest that psychopathic individuals may exhibit subtle differences in moral decision-making and reasoning proclivities, consistent with a small to moderate meta-analytic effect size. The findings from our subsidiary meta-analysis speak to this possibility too, as they indicate that psychopathic individuals may draw from a different set of moral foundations while making decisions. Nevertheless, because our aggregate positive results held only for published studies, even our modest overall effect sizes may overestimate the magnitude of the relation between psychopathy and moral judgment.

Several potential explanations for the modest relationships between psychopathy and aberrant moral judgment are worth considering. Perhaps the most parsimonious is that psychopathic individuals do not possess a moral deficit in ways that have been previously claimed or documented (Cima et al., 2009; cf., Bartels & Pizarro, 2011; Kahane et al., 2015; Koenigs et al., 2012). Instead, psychopathic individuals may indeed possess intact moral understanding, but do not care to act in line with such beliefs (Cima et al., 2009). Before reaching such a conclusion, however, many researchers (Borg & Sinnott-Armstrong, 2013) have advanced alternative explanations for the mixed findings in this body of literature including: (a) a focus on global as opposed to facet or subdimension scores on psychopathy measures; (b) differential effects across sample types; and (c) the questionable ecological validity of moral measures insofar as they assess hypothetical rather than real-world conceptions of immorality. We address each of these considerations in turn.

Although psychopathy has historically been conceived of as a unitary construct, some researchers have recently characterized psychopathy as a constellation of personality traits and behaviors reflecting at least four if not all five of the higher-order dimensions of the five factor model of personality (Lilienfeld, Watts, Francis Smith, Berg, & Latzman, 2015). It seems plausible, then, that mixed findings across different studies and the relatively weak relationship between psychopathy and morality reported here could reflect a reliance on total psychopathy scores, which may obscure differential associations at the psychopathy subdimension level. The present meta-analysis, however, provided little support for the notion that different factors of psychopathy correlate preferentially with moral-decision making indices. Still, our analyses were probably underpowered to detect significant differences across psychopathy subdimensions because (a) the majority of studies on forensic samples did not examine psychopathy at the factor level and (b) recent work (e.g., Kahane et al., 2015) has relied exclusively on measures of primary psychopathy, making it difficult to parse the differential effects meta-analytically.

Consistent with the notion that psychopathy facets relate differentially to moral decision-making indices, one unpublished study (Pennuto, 2007) included in our meta-analysis found that the PCL-R facet-level scores diverged in terms of their relations with measures of advanced moral reasoning (i.e., DIT-2 P and N2 scores). Specifically, individuals exhibiting higher levels of the interpersonal (e.g., superficial charm, grandiosity), lifestyle (e.g., impulsivity, irresponsibility), and antisocial (e.g., juvenile delinquency, criminal versatility) aspects of psychopathy tended to appeal to advanced moral reasons less frequently than did other individuals. In contrast, those who reported increased affective (e.g., shallow affect, callousness) deficits tended to appeal to advanced moral reasoning more frequently. Taken together, these

provisional results are consistent with the possibility that aspects of psychopathy relate differentially with morality, although we strongly encourage further research examining the relationship between psychopathy, especially as the subdimension level, and moral judgment indices.

A second potential explanation for the weak relationship between psychopathy and morality is the error induced by aggregating findings across varying samples (Borg & Sinnott-Armstrong, 2013). We find this explanation unlikely given that effects from our meta-analysis did not differ as a function of sample type or demographic characteristics. These findings run counter to Borg and Sinnott-Armstrong's (2013) assertion that previous inconsistent findings can be attributed to different samples and forensic populations containing higher mean levels of psychopathic traits, larger amounts of variance, or both.

Turning to the final potential explanation, perhaps the cause of these meager meta-analytic effects arises from the weak ecological validity of most moral judgment measures. For example, Kahane (2015) argued that sacrificial moral dilemmas do not adequately mirror the distinction between utilitarian and deontological judgments in real-world settings. Furthermore, Kahane proposed that the distinction between personal and impersonal dilemmas does not discriminate utilitarian from deontological decision-making as clearly as originally posited, because the choices on sacrificial dilemmas require people to neglect a variety of other important considerations, such as self-interest. If so, responses to sacrificial dilemmas may be more multiply determined and heterogeneous than typically assumed.

In light of these possibilities, researchers should examine moral judgment using alternative measures of moral decision-making that better detect differences in moral judgment and are more externally valid (Bauman, McGraw, Bartels, & Warren, 2014). For example, measures of moral judgment could better mirror "real world" moral dilemmas to ascertain whether differences exist between psychopathic individuals' responses on trolley and footbridge type dilemmas in comparison with *ordinary* instances of moral conflict (e.g., whether one ought to be a vegetarian, donate money to charity, or cheat on one's spouse; see Kemple, 2016; Seara-Cardoso, Neumann, Roiser, McCrory, & Viding, 2012). All of the studies in the present meta-analysis relied upon hypothetical scenarios that people are extremely unlikely to confront in everyday life (e.g., sacrificing one's child to save other people's lives or stealing a drug to save one's wife from terminal cancer).

Finally, the current results suggest that psychopathic individuals may be slightly morally compromised, but that these deficits are by no means robust and thus are not consistent with popular belief (e.g., Furnham et al., 2009). In line with these findings, we believe that the null hypothesis that psychopathic individuals do not possess a pervasive deficit in moral decision-making is at present difficult to exclude. As Cima and colleagues (2010) suggested, psychopathic individuals are not wholly unlike nonpsychopathic people with regard to moral decision-making. For instance, the small relationship between psychopathy and deviant moral judgment could reflect psychopathic individuals' ability to respond in accordance with the socially appropriate response because they know or can learn social norms (Borg & Sinnott-Armstrong, 2013).

Fittingly, Johns and Quay (1962) argued long ago that psychopathic individuals "know the words, but not the music" (p. 217),

suggesting that they often behave in accord with social conventions despite their profound emotional deficits. This paradoxical blend of attributes may make psychopathic individuals especially interpersonally malignant, as they may strike unwitting observers as morally normal despite their marked propensity toward immoral behavior. Although psychopathic individuals are likely to engage in behavior and otherwise immoral behaviors (e.g., Leistico et al., 2008), the reasons for such behavior may stem not from an incapacity to understand morality. Instead, they may stem from a marked paucity of concern about moral considerations, poor impulse control, or deficient empathy, all coexisting with intact moral comprehension.

In summary, our findings help to clarify a body of mixed literature on psychopathy's relations with moral judgment. Our results raise the distinct possibility that psychopathic individuals are more capable of understanding morality than has been traditionally assumed by laypersons, many mental health professionals, and some prominent psychopathy researchers and theorists. Our meta-analytic findings not only bear implications for our understanding of psychopathic individuals' immoral behavior, but may also raise questions concerning proposals from legal scholars (e.g., Levy, 2008) to excuse psychopathic individuals from criminal responsibility in light of their ostensibly deficient moral comprehension. Specifically, although our meta-analysis is consistent with the possibility that psychopathic individuals possess different moral "taste buds" than other individuals, they do not provide strong support for the contention that their ability to reason about abstract moral problems is wholly abnormal. We encourage further research to determine whether this conclusion extends to moral problems assessed using tasks of greater ecological validity.

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