Empathy and motivation for justice: Cognitive empathy and concern, but not emotional empathy, predict sensitivity to injustice for others

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Abstract

Why do people tend to care for upholding principles of justice? This study examined the association between individual differences in the affective, motivational and cognitive components of empathy, sensitivity to justice, and psychopathy in participants (N 265) who were also asked to rate the permissibility of everyday moral situations that pit personal benefit against moral standards of justice. Counter to commonsense, emotional empathy was not associated with sensitivity to injustice for others. Rather, individual differences in cognitive empathy and empathic concern predicted sensitivity to justice for others, as well as the endorsement of moral rules. Psychopathy coldheartedness scores were inversely associated with motivation for justice. Moreover, hierarchical multiple linear regression analysis revealed that self-focused and other-focused orientations toward justice had opposing influences on the permissibility of moral judgments. High scores on psychopathy were associated with less moral condemnation of immoral behavior. Together, these results contribute to a better understanding of the information processing mechanisms underlying justice motivation, and may guide interventions designed to foster justice and moral behavior. In order to promote justice motivation, it may be more effective to encourage perspective taking and reasoning to induce concern for others than emphasizing emotional sharing with the misfortune of others.

Keywords

empathy; justice motivation; moral judgment; perspective taking; psychopathy

Introduction

Why do Batman and other super heroes do what they do? What motivates them to care about justice, fight against greed and corruption, not to mention common crooks and street thugs? So many of us have found inspiration in these fantastic characters and perhaps even more so in real life inspirational figures such as Mahatma Gandhi, Dr. Marin Luther King, Jr., and Nelson Mandela. Justice seems to be a fundamental concern in all social organizations, and

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it is deeply rooted in human nature (Decety & Wheatley, 2015). Indeed, there is a growing number of studies with very young children which indicate that very early on, we are sensitive to fairness and are generally motivated to strive for justice and to avoid injustice (Hamlin, 2014; Jensen, Vaish, & Schmidt, 2014; Schmidt & Sommerville, 2011). Moreover, most human beings also want other people to be treated fairly, and they are driven to adhere to principles of justice themselves (Baumert, Rothmund, Thomas, Gollwitzer, & Schmitt, 2013).

While justice serves as a standard of evaluating and motivating actions, the world is still rife with injustice and corruption. Moreover, most theories assume that justice does matter for everyone, but there are significant individual differences in how people perceive injustice and react when witnessing unfairness (Schmitt, Baumert, Gollwitzer, & Maes, 2010; Vermunt, 2014). Social justice research has indeed documented the existence of stable individual differences in sensitivity to justice issues (Baumert & Schmitt, 2009; Schmitt et al., 2010; Schmitt, Neumann, & Montada, 1995). Thus, justice sensitivity is considered a trait variable that reflects the importance of justice issues in people's everyday lives. It is important to note that there are also findings suggesting that justice sensitivity, while relatively stable, develops over time, and is susceptible in predictable ways to previous justice-related experiences (Wijn & Bos, 2010).

Justice sensitivity reflects an individual's concern for justice, and is an important predictor of justice-related emotion and behavior (Baumert et al., 2013). Some research suggests that justice sensitivity may be even as important as situational factors in predicting prosocial behavior such as sharing (Edele et al., 2013). In that latter study, affective empathy was the strongest predictor of sharing behavior, as measured by the Dictator game, in a small sample of participants. The construct of justice sensitivity (JS) can be divided into three different dimensions: (1) JS-Victim, indicating the sensitivity to being treated unfairly by others, (2) JS-Observer, measuring reactions to observing unjust events, and (3) JS-Beneficiary, dealing with reactions to profiting from unjust events oneself (Fetchenhauer & Huang, 2004; Schmitt et al., 2010). Past research has documented that justice sensitivity is an important predictor of justice-related emotion and behavior. Studies employing self-report measures suggest that both perceptual and motivational processes are at the core of the construct of justice sensitivity (Schmitt, Gollwitzer, Maes, & Arbach, 2005). In a specific social situation, the concern for justice is assumed to be activated by relevant sensory and cognitive cues to guide information processing, including the monitoring of one's own behavior, and to trigger moral emotions that fuel the motivation to adhere to or to restore justice principles (Blasi, 1999).

One important area that has been less investigated is the relation between empathy, justice sensitivity and moral judgment. Empathy is a multifaceted construct used to account for the capacity to share and understand the thoughts and feelings of others. This construct generally includes several interacting components: 1) Affective sharing (also called emotional contagion), which reflects the capacity to share or become affectively aroused by others' emotional states at least in valence and intensity; 2) empathic concern, which corresponds to the motivation to care for another's welfare; and 3) perspective taking (or cognitive empathy), the ability to consciously put oneself into the mind of another person to

understand what she is thinking or feeling (Batson, 2009; Decety & Jackson, 2004; Decety & Svetlova, 2012; Decety, 2015; Derntl et al., 2010; Shamay-Tsoory, 2009). Individual differences in dispositional empathy has previously been linked to gray matter differences in distinct regions (Banissy, Kanai, Walsh, & Rees, 2012), which is not surprising, since each of these emotional, motivational, and cognitive components of empathy emerge from specific neurobiological mechanisms and reflect evolved functions that allow humans to thrive by detecting and responding to significant social events necessary for surviving, reproducing, and maintaining well-being (Decety, Norman, Berntson, & Cacioppo, 2012; Decety, 2011).

Decades of psychological research has clearly demonstrated that empathic concern plays a primary role in eliciting prosocial behavior (Batson, 2012), particularly when other-oriented concern develops in concert with understanding others' internal states (Davidov, Zahn-Waxler, Roth-Hanania, & Knafo, 2013; Patil & Silani, 2014; Smith et al., 2014; Svetlova, Nichols, & Brownell, 2010; Williams, O'Driscoll, & Moore, 2014). Even before children develop theory of mind abilities, early signs of empathic concern can be observed before the second year of life and are distinct from personal distress (Decety & Michalska, 2012; Jensen, Vaish, & Schmidt, 2014; Zahn-Waxler & Radke-Yarrow, 1990). A recent functional MRI study reported that trait empathic concern – and not trait personal distress – motivated costly altruism, and this relationship is supported by activity in regions critical for promoting social attachment and caregiving (FeldmanHall et al., 2015). Since each component of empathy has a different relation with moral cognition (Decety & Cowell, 2014a), examining each of these facets in relation with individual differences in justice sensitivity and psychopathic traits can cast light on the psychological mechanisms underlying motivation for justice. For instance, whether individuals' affective reactivity shapes their sensitivity to justice has produced inconsistent findings (Baumert & Schmitt, 2009). It is thus not clear whether motivation for justice is primarily guided by emotional contagion/personal distress, empathic concern, or by more controlled cognitive processes such cognitive empathy/perspective taking.

Justice and empathy are often viewed as interacting, but not always in a complementary fashion. Notably, John Rawls places justice behind a "veil of ignorance" to defend against the motivational force of empathy for oneself or others (Rawls, 1971). Thus, principles of justice serve to stabilize our empathic reactions toward specific others and to minimize the influence of the emotions on our behavior and policies decisions. Empathic reactions are inherently linked to partiality. This partiality necessitates a framework of justice principles to counter empathy's biasing effects and keep social allocation behaviors in check (Blader & Tyler, 2002). John Stuart Mill (1875), an eminent proponent of utilitarianism, warned us about people who may be amiable to those with whom they sympathize, and grossly unjust and unfeeling to the rest of the world.

Interestingly, burgeoning work in cognitive and social neuroscience does not support a primary role of emotional reactivity in explaining individual dispositions in justice sensitivity. Two neuroimaging studies, one using functional MRI (Yoder & Decety, 2014b) and another one using high-density electroencephalography (EEG) and evoked-related potentials (ERPs) (Yoder & Decety, 2014a), showed that justice sensitivity predicted

behavioral ratings of praise and blame when participants evaluated morally laden behavior. Moreover, during moral decision-making, individual differences in justice sensitivity modulated neural activity across several domain-general systems, particularly in cortical regions of the prefrontal cortex involved in intention understanding and goal representations, and, importantly, did not influence the response in the salience network (insula, anterior cingulate cortex), which is involved in affective appraisal. Further support comes from a new neurodevelopmental study with EEG/ERPs in preschool children showing that while neural computations involved in both early automatic and later controlled processes build to form moral evaluations, only differences in neural computations indexing controlled processes predict actual sharing behavior (Cowell & Decety, 2015).

Another important piece of the puzzle comes from research into psychopathy. Psychopathic personality traits vary along a continuum which extends into the general population, and include a lack of empathy, callous disregard for the wellbeing of others, and lack of concern about moral wrongdoing (Maibom, 2009; Seara-Cardoso & Viding, 2014; Skeem, Polaschek, Patrick, & Lilienfeld, 2011). These traits can be clustered into three high-level factors (Benning, Patrick, Blonigen, Hicks, & Iacono, 2005), which differentially influence behavior, attention, and cognition (Larson et al., 2013; Sadeh & Verona, 2008; Schulreich, Pfabigan, Derntl, & Sailer, 2013). In particular, results from behavioral and neuroimaging studies demonstrate that psychopaths, from forensic and non-forensic samples, are impaired in their capacity to experience empathic concern (Decety, Chen, Harenski, & Kiehl, 2013, 2015; Rosas & Koenigs, 2014; Sobhani & Bechara, 2011; Yoder, Porges, & Decety, 2015), and this lack of concern for others affects their decision-making and moral behavior (Decety & Cowell, 2014b). For instance, criminal psychopaths tested on social dilemmas show a markedly higher proneness to competitive (i.e., non-cooperative) behavior than healthy controls (Mokros et al., 2008). Moreover, recent work has provided links between components of empathy and two aspects of psychopathic personality (Skeem et al., 2011; Stanley, Wygant, & Sellbom, 2013). While empathic concern refers to a motivation to care for another person and value that person's well-being, coldheartedness (i.e., a callous disregard for others) is just the opposite (Lilienfeld & Andrews, 1996). In one behavioral study with a non-forensic sample, lower dispositional empathic concern predicted utilitarian moral judgments (Gleichgerrcht & Young, 2013). Patients with damage of the ventromedial prefrontal cortex, a region critically involved in integrating the characteristics of sensory objects with their affective value so as to establish their motivational significance (Bechara and Damasio 2005), consistently endorse utilitarian responses in direct dilemmas at higher rates than healthy controls and patients with damage to other brain regions. Similarly, low-anxious/primary psychopathic inmates also endorse significantly more utilitarian options in direct-conflict dilemmas compared to high-anxious/secondary psychopaths (Koenigs, Kruepke, & Newman, 2010). On the other hand, personal distress captures an automatic apprehension and resulting discomfort about someone else's misfortune, and has been linked to enhanced cortisol response to social stress (Ho, Konrath, Brown, & Swain, 2014), whereas fearless dominance is characterized by remaining calm and focused during stressful or threatening situations (Davis, 1983; Skeem et al., 2011). Thus, including assessments of psychopathic traits in a non-forensic population may provide unique insights into partially

overlapping aspects of individual differences in different facets of empathy or the lack thereof, which are likely to contribute to variation in dispositions for justice motivation.

The current study examined how individual dispositions in components of empathy (affective, motivational, and cognitive) and psychopathic traits (especially the lack of empathic concern) relate to differences in justice motivation. We predicted that if sensitivity to the injustice of others is primarily driven by rapid, automatic affective responses, then individual dispositions in emotional empathy should be associated with higher other-oriented dispositional justice sensitivity. On the other hand, if other-oriented justice sensitivity is primarily driven by the motivational and cognitive components of empathy, then variation on measures of empathic concern and perspective taking should predict variation in justice sensitivity scores. Moreover, these predictions should distinguish between sensitivity to injustice directed at oneself or another person.

Finally, to characterize the influence of these individual dispositions on empathy and psychopathy on moral decision-making, participants were asked to evaluate the permissibility of a series of everyday moral dilemmas taken from Sommer and colleagues (2010). These scenarios describe situations in which a decision between the fulfillment of a moral obligation towards another person (e.g., helping someone in distress) clashes with personal-oriented hedonistic behavior that would explicitly not cause serious bodily harm. Such measures of everyday moral decisions strengthen the ecological validity of the current study by bringing together personality factors and situational variables.

Methods

Two hundred and sixty-five adults in the United States (127 males, 138 females) participated in a single online survey through Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011) in exchange for $2.00. Collection was closed after at least one hundred and twenty individuals of each gender were enrolled in the study. First, participants provided information about their age, gender, education, and income. Gender was dummy-coded (0=male, 1=female). Education and Income were each scaled and then summed to create a single 10-point scale for socioeconomic status (SES). Following the demographics, participants completed questionnaires to assess specific dispositions of interest and a series of short moral dilemmas.

Empathy

Empathic dispositions were measured using three subscales (empathic concern, personal distress, and perspective-taking) from the Interpersonal Reactivity Index (IRI; Davis, 1983). For each subscale, participants indicated how well a given statement describes them using a scale from 1 (Does not describe me well) to 5 (Describes me very well). Personal distress (IRI-PD) represents the emotional component of empathy and indexes the extent to which an individual experiences feelings of discomfort or anxiety when observing another person's negative experiences. There is solid evidence from cognitive and social neuroscience showing that personal distress is associated with the process of emotional contagion. For example, trait levels of personal distress have been shown to positively correlate with the level of neural activity in regions involved in emotional contagion such as the anterior

cingulate cortex, anterior insula and sensorimotor cortices (Cheetham, Pedroni, Antley, Slater, & Jäncke, 2009; Cheng, Yang, Lin, Lee, & Decety, 2008; Hadjikhani et al., 2014). The motivational component of empathy was measured with the empathic concern scale (IRI-EC), which captures an individual's concern for others. Finally, perspective taking (IRI-PT) measures an individual's ability and propensity to adopt the perspective of another person, and thus assesses cognitive empathy.

Psychopathy

Dispositions related to psychopathy were assessed using the short form of the Psychopathic Personality Inventory (PPI-SF; Lilienfeld & Hess, 2001), a personality test that does not assume any particular links to antisocial or criminal behaviors. The PPI-SF consists of seven-item scales which measure eight components of psychopathic personality traits. Three high-level factors were then calculated from the subscores (Benning et al., 2005; Patrick, Fowles, & Krueger, 2009; Skeem et al., 2011). The first factor (PPI-FD), Fearless Dominance, includes social influence, fearlessness, and stress immunity. The second factor (PPI-SI), Self-Centered Impulsivity, is comprised of Machiavellian egocentricity, rebellious nonconformity, blame externalization, and carefree nonplanfulness. Finally, Coldheartedness (PPI-Cold), which does not load on either of the first two factors (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003), stands alone as a third factor.

Sensitivity to justice

As discussed above, justice sensitivity is a personality trait that influence reactions to injustice (Schmitt et al., 1995). Importantly, measures of justice sensitivity distinguish other-oriented from self-oriented, with the former generally associated with prosocial behavior and later associated with antisocial behavior (Gollwitzer, Schmitt, Schalke, Maes, & Baer, 2005). In the current study, these perspectives on justice were assessed with three subscales from the Justice Sensitivity Inventory (Schmitt et al., 2010, 2005). Scores on JS-Victim were used to assess self-oriented sensitivity (JSSelf), while scores for JS-Beneficiary and JS-Observer were combined to form a single measure of other-oriented sensitivity (JSOther).

Moral judgments

A set of eight moral scenarios was developed based on previously used everyday moral conflict situations (Koenigs et al., 2007; Sommer et al., 2010). Each scenario consists of three sentences written in the second person which present participants with a situation in which they must decide how permissible it would be for them to behave in a particular way. For example:

> "You are running to catch the bus which only leaves every hour. In front of you a woman carrying a small child drops her purse and the contents spill all over the sidewalk. Besides you no one else is around to help the woman. How permissible is it to catch the bus without helping the woman?"

> "You are one of several people applying for a job. Several of the other applicants have better work experience than you. However, you could put inaccurate information on your resume and increase your chances of getting fired. How permissible is it to put inaccurate information on your resume?"

Responses were given on 7-point scale from 1 (not at all permissible) to 7 (completely permissible). These ratings were averaged together to create a single permissibility score. The moral scenarios were presented in random order.

Data analysis

To assess pairwise relationships, Pearson correlations were calculated for each sub-component of empathy, psychopathy, and justice sensitivity score. Next, a series of hierarchical multiple linear regressions were used, with JSOther, JSSelf, and average moral permissibility ratings at dependent variables. Independent variables were then standardized. As expected, IRI-EC and PPI-Cold were strongly negatively correlated ($r = -.69$), so a composite Concern score was created by averaging each participant's IRI-EC score and inverted PPI-Cold score. IRI-PD and PPI-FD scores ($r = -.50$) were similarly combined to create a composite Distress score. The first block for each model was demographic information (age, gender, and SES). Scores for cognitive empathy (IRI-PT) and Concern were added in the second and third block, respectively. PPI-SI was added in the fourth block, and the fifth block consisted of the affective component of empathy (Emotional distress). As a last step, we performed a separate series of hierarchical multiple linear regressions for permissibility ratings with standardized JSOther and JSSelf scores entered as two separate blocks.

Results

None of the dispositional measures of empathy, psychopathy, and justice sensitivity were influenced by SES or age. Welch two sample tests revealed that male participants scored higher than females on PPI-FD ($t(256.36) = 4.54$, $p < .001$, $d = 0.56$), PPI-SI ($t(262.04) = 3.84$, $p < .001$, $d = 0.47$), and PPI-Cold ($t(244.61) = 3.61$, $p < .001$, $d = 0.45$). Males also gave higher permissibility ratings than females ($t(261.81) = 3.23$, $p = .001$, $d = 0.40$). Conversely, female participants scored higher than males on IRI-EC ($t(243.84) = 6.54$, $p < .001$, $d = 0.81$), IRI-PD ($t(258.02) = 3.89$, $p < .001$, $d = 0.47$), composite Concern scores ($t(242.37) = 5.50$, $p < .001$, $d = 0.68$), composite Distress scores ($t(257.92) = 4.65$, $p < .001$, $d = 0.60$), and other-oriented sensitivity ($t(251.67) = 2.78$, $p = .006$, $d = 0.34$). There was also a trend for males to report higher self-oriented sensitivity ($t(253.00) = 1.91$, $p = .057$).

The zero-order correlations, means, and standard deviations for the independent and dependent variables, included the constructed empathic concern and emotional distress scores are listed in Table 1.

The results from the hierarchical regressions for justice sensitivity are shown in Table 2. The first model (demographics alone) was a significant predictor of JSOther (F(3, 261) = 3.01, $p = .031$). The addition of IRI-PT (adjusted $R^2 = .08$, $p < .001$) and Concern composite scores (adjusted $R^2 = .18$, $p < .001$) each increased the explained variance. The model with Block 4 (PPI-SI) was significantly more explanatory than Model 3 (adjusted $R^2 = .04$, $p < .001$). In this model, the beta weights for Concern and PPI-SI were both significant, indicating that individuals who scored higher on either of these traits also scored higher on JSOther. The final model was a significant predictor of JSOther scores (F(7, 256) = 18.77, $p < .001$), but the change in model fit was not significant (adjusted $R^2 = .00$, $p > .3$).

For JSSelf, the first block did not produce a significant model fit of JSSelf. Inclusion of the second and third blocks did not significantly increase model fit, nor were the models themselves significant predictors of JSSelf ($p > .1$). Adding PPI-SI did produce a significant model ($F_{(6, 258)} = 5.57$, $p < .001$), and this model was significantly more explanatory than Model 3 (adjusted $R^2 = .08$, $p < .001$). Adding composite Distress scores further increased model fit (adjusted $R^2 = .06$, $p < .001$), and gender, SES, PPI-SI, and Distress were each individually significant predictors of JSSelf.

Permissibility scores were first modeled using the same five blocks as justice sensitivity (Table 3). The first model was a significant predictor of permissibility scores ($F_{(3, 261)} = 0.02$, $p < .001$). Block 2 (adjusted $R^2 = .03$, $p = .007$), Block 3 (adjusted $R^2 = .04$, $p < .001$), and Block 4 (adjusted $R^2 = .11$, $p < .001$), each significantly improved model fit. Adding Distress composite scores did not increase the fit of the model (adjusted $R^2 = .00$, $p > .7$). Age, Concern, and PPI-SI were each individually significant predictors (all $p < .001$).

Finally, a second hierarchical regression was used to predict permissibility ratings with JSOther and JSSelf as the second and third blocks, respectively (Table 2). Adding JSOther significantly improved model fit (adjusted $R^2 = .04$, $p = .001$), and JSSelf scores increased model fit further (adjusted $R^2 = .09$, $p < .001$). In the final model, age, JSOther, and JSSelf were each individually significant predictors of permissibility ratings.

Discussion

Justice sensitivity is a concept that has been proposed to reflect individuals differences with regards to perceptions of injustice (Schmitt et al., 2005). Evidence for the predictive value of justice sensitivity for individual differences in justice-related cognition and behavior indicates that this construct involves a close link between perceived injustice and moral motivation. Apparently, for individuals high in justice sensitivity, perceiving injustice provides a strong motivation to act in order to avoid injustice or restore justice. It is not clear, however, whether motivation for justice is guided/elicited by fast and automatic affective reactivity, by empathic concern, or more controlled cognitive processes such as perspective taking and reasoning. Some studies have indicated that affective processes are one primary component of justice sensitivity and shape strong emotional reactions to perceptions of violations of justice principles (Baumert et al., 2013).

Empathy thus seems an obvious candidate in playing a critical role in justice motivation. Yet, since this construct encompasses affective, motivational and cognitive components (Decety & Jackson, 2004; Decety, 2015), and each seems to uniquely influence moral cognition and behavior (Decety & Cowell, 2014b), it is important to examine the contribution of each of these facets to sensitivity to justice. In addition, as mentioned in the introduction, the influence that empathy and justice exert on one another is complex, and empathy can induce partiality and threaten justice principles (Decety & Cowell, 2014a). Moreover, by assessing trait psychopathy in non-forensic populations, the current study brings additional information on which personality aspects make people more motivated to uphold principles of justice.

As expected, participants with higher composite Concern scores (i.e., individuals high on empathic concern and low on the psychopathy coldheartedness scale) were more likely to be sensitive to others' injustice (Table 2). This is in keeping with studies that documented a functional link between empathic concern and the motivation to help others and care for their wellbeing (Batson, 2012; Gleichgerrcht & Young, 2013). Further, a large body of research has demonstrated that empathic concern is associated with prosocial behavior in both children (Davidov et al., 2013; Williams et al., 2014) and adults (Batson, 2009; Miller, Kahle, Lopez, & Hastings, 2014). This finding is also in line with clinical diagnostic criteria for psychopathy in both forensic and community samples, as well as theories of psychopathy, that emphasize the lack of concern and callous disregard for others' feelings as a hallmark of the disorder (Hare, 1999; Kiehl, 2014; Malterer et al., 2010).

Participants who scored high on the Coldheartedness factor of the PPI reported lower sensitivity to the injustice of others. Coldheartedness also predicted reduced perspective-taking and empathic concern individual dispositional scores, as well as higher permissibility ratings on the moral scenarios. Similar links between empathic concern and moral cognition have been found in studies with forensic psychopaths. Psychopaths are characterized by a profound lack of empathic concern for the well-being of other, low sense of guilt and remorse, and little appreciation for moral wrongdoing. They know right from wrong but don't care (Maibom, 2009). Neuroimaging studies consistently show abnormal anatomical connectivity between the amygdala and the ventromedial prefrontal cortex (vmPFC), and a reduced response in that latter region to the emotional and physical distress of others, as well as low or absence of activation when processing moral judgment tasks (Decety, Chen, Harenski, & Kiehl, 2015; Harenski et al., 2010; Motzkin, Newman, Kiehl, & Koenigs, 2011; Remmel & Glenn, 2015). For instance, when criminals with high levels of psychopathy were asked to imagine how another person would feel in harmful situations, compared with criminals with low level of psychopathy, they exhibited an atypical pattern of brain activation and effective connectivity between the amygdala, insula and the vmPFC (Decety, Chen, et al., 2013; Decety, Skelly, & Kiehl, 2013). The vmPFC plays a pivotal role in caregiving behaviors, empathic concern and moral decision-making (Decety & Cowell, 2014a; Parsons, Stark, Young, Stein, & Kringelbach, 2013). Early neurological damage (before 5 years of age) of this region leads later in life patients to endorse significantly more self-serving judgments that break moral rules or inflict harm on other. This suggests that the vmPFC is a critical neural substrate for the acquisition and maturation of moral competency that goes beyond self-interest to consider the welfare of others (Taber-Thomas et al., 2014). High coldheartedness scores in community samples predict reduced amygdala response to social stimuli (Han, Alders, Greening, Neufeld, & Mitchell, 2012), as well as decreased connectivity between the central subnucleus of the amygdala and anterior cingulate cortex (Yoder, Porges & Decety, 2015). Overall, high coldheartedness scores, which describes a propensity towards callousness, guiltlessness and unsentimentality as well failure to sympathize with the plight of others (Lilienfeld & Andrews, 1996), reflect the lack of empathic concern that is the hallmark of psychopathy.

Individual dispositions in cognitive empathy (or perspective taking), the capacity to put oneself into the mental shoes of another person to understand what she feels and thinks, predicted scores on the other-oriented sensitivity scale (Table 1), and explained more

variance in justice sensitivity for the other than basic demographic information (Table 2). Concern composite scores correlated with justice sensitivity for others (Figure 1a), and made the model for other-oriented sensitivity more explanatory (Table 2). There is a large body of empirical studies showing the perspective taking is a social competence that can increase empathic concern and expand the circle of care to unfamiliar others (Batson, 2012; Underwood & Moore, 1982). Perspective taking and cognitive reasoning provide the push to widen empathy, and this may be enacted by various means such as reading fiction, plays and movies (Pinker, 2011). Conscious attempts to adopt another person's perspective may prompt perceivers to consider that person via cognitive processes typically reserved for introspection about the self, leading to greater overlap between self and other in cognitive representations and neural computations subserving such representations (Ames et al., 2008; Galinsky et al., 2005;Ruby & Decety, 2001, 2003, 2004).

Interestingly, and counter intuitively, the emotional facet of empathy (emotional contagion, measured by the personal distress subscale of the IRI) was not significantly correlated with justice either for oneself or for the other (Figure 1b). Personal distress also did not improve the model for other-oriented justice sensitivity (Table 2). Furthermore, results from the moral judgment task indicate that individuals who were high on justice sensitivity for the other rated the immoral behaviors as less permissible, while the opposite was true for participants who were high on self-oriented justice sensitivity (Figure 2; Table 3). Personal distress be detrimental to empathic concern. Behavioral and neuroscience studies have shown that people who experience their emotions intensely, especially negative emotions, are more prone to personal distress, an aversive emotional reaction (e.g., anxiety or discomfort) based on the recognition of another's emotional state or condition (Lamm, Batson & Decety, 2007). Personal distress may result in an egoistic motivation to reduce it, by withdrawing from the stressor, for example, thereby decreasing the likelihood of prosocial behavior (Decety & Lamm, 2009). The opposing influences of justice sensitivity orientations fit neatly with previous personality studies which suggest that individuals high on other-oriented sensitivity traits are generally more prosocial, while those high on self-oriented sensitivity traits are more egocentric (Gollwitzer et al., 2005). Thus, whereas externally directed justice sensitivity is associated with greater contribution to public goods, heightened sensitivity towards one's own injustice leads individuals to contribute fewer resources to the common good (Gollwitzer, Rothmund, Pfeiffer, & Ensenbach, 2009). Interestingly, one recent study suggested that behavior in economic decision-making tasks differ based on whether one is the victim or the observer of injustice, such that third-party unfair offers are punished more than unfair offers made to oneself (FeldmanHall, Sokol-Hessner, Van Bavel, & Phelps, 2014).

Individuals who scored high on personal distress (high personal distress and low fearless dominance) were more sensitive to injustices to themselves (Table 1), even after taking into account differences in the other explanatory variables (Table 2). Individuals high in personal distress (e.g., prone to emotion contagion and reduced emotional resilience to the misfortune of others) may be more responsive to self-directed injustice because they are sensitive to the negative affective consequences of suffering injustice. The influence of personal distress on JSSelf also seems consistent with the work in personality psychology indicating that individuals scoring high on fearless dominance exhibit low trait anxiety, as well as aspects

of positive adjustment, such as sociability and well-being (Benning et al., 2005). Fearless dominance, which encompasses the emotional-interpersonal aspects of psychopathy and is related to an arrogant interpersonal style, lack of empathy and reduced fear reactivity, is associated with alteration in feedback processing, including feedback-related negativity amplitudes measures with EEG, whose sources originate in the anterior cingulate cortex (Schulreich et al., 2013). Such a deficiency in processing feedback may contribute to reduced sensitivity to justice when the recipient if the self, perhaps because these individuals are relatively immune to the anxiety and fear associated with the experience injustice.

Conversely, scores on PPI-SI positively predicted justice sensitivity for both oneself and the other. PPI-SI is associated with maladaptive dispositions, such as impulsivity, distrust, and self-centeredness, and is related to aggression, especially reactive aggression (Skeem et al., 2011). Importantly, PPI-SI is also marked by the blame externalization subscore of the PPI-SF, suggesting that individuals high on PPI-SI may be more sensitive to justice in general because they are "always on the lookout" for potential threats from others.

Moreover, the results from the current study support and extend the findings from two recent functional neuroimaging studies that examined how individual differences in justice sensitivity and facets of empathy are expressed in the neural response elicited by the online evaluation of morally-laden visual scenarios depicting interpersonal harm and interpersonal assistance. In one functional MRI study, individuals scoring high on other-oriented justice sensitivity assigned more blame for harmful actions and exhibited enhanced activation in the posterior temporal sulcus/temporoparietal junction and prefrontal cortex that are involved in mental state understanding and in service of moral decision-making (Yoder & Decety, 2014b). Brain circuits commonly linked with emotional and salience processing were not affected by individual differences in justice sensitivity. In another study, which employed high-density EEG/ERPs, moral judgments of the same scenarios were reflected in differential amplitudes for spatiotemporal components associated with cognitive appraisal, the late positive potential (LPP), as well as early components associated with emotional salience. Importantly, scores on cognitive empathy, but not emotional empathy were significantly correlated with differential LPP amplitudes (Yoder & Decety, 2014a).

Though not a central focus of this study, there were gender differences in many of the variables assessed. Males had higher scores on all three factors of the PPI. This adds to previous studies indicating that psychopathy has a higher prevalence in males than females (Cale & Lilienfeld, 2002). Females, on the other hand, scored higher on empathic concern and personal distress (and thus had higher composite Concern and Distress scores), a well-documented effect across development (Michalska, Kinzler & Decety, 2013). When only examining demographic variables, gender was a significant predictor of other-oriented sensitivity, with females showing greater justice motivation. However, the individual contribution of gender to other-oriented justice sensitivity became insignificant when empathic and psychopathic variables were added to the model. In contrast, gender remained a significant predictor of sensitivity to injustices for the self in the best fit model.

Gender differences extended to the moral evaluations, where females provided lower permissibility ratings, indicating that they found it less acceptable to benefit oneself at the

expense of others or withhold inconvenient assistance. Empirical evidence regarding gender differences in moral reasoning and empathy is a contentious issue. Some authors have argued that empathy is a critical psychological difference between females and males (Baron-Cohen & Wheelwright, 2004). Such a disparity in empathy levels between males and females would be consistent with a biological disparity in parental investment, which would make it particularly advantageous for females to have a high level of empathy to protect and care for their young and to affiliate with kin (Decety & Svetlova, 2012). However, many studies find inconsistent gender differences in empathy. For instance, one functional MRI study reported that female participants scored higher than males on self-reported dispositional empathy, a difference that increased with age (Michalska, Kinzler, & Decety, 2013). However, no sex-related differential changes were detected in neural responses or in pupil dilation, with no interaction between sex and age. Thus, the results from that latter study indicate a sort of dissociation between self-reports and neurophysiological responses elicited by empathic arousal. In the moral domain, some work suggests that males and females process moral information differently (Harenski, Antonenko, Shane, & Kiehl, 2008), but most meta-analyses find little evidence to support the idea that males and females differ in moral reasoning (Galotti, 1989), or differences exist they are consistently associated with extremely small effect sizes (Banerjee, Huebner, & Hauser, 2010). Finally, some authors have argued that these differences are mediated by differences in emotional and empathic responses to moral information (Fumagalli et al., 2010; Gleichgerrcht & Young, 2013). The current findings are consistent with this latter interpretation, since gender no longer a significant predictor of permissibility judgments once either empathic or justice dispositions were added to the models (Table 3).

The fact that empathic concern, but not emotional empathy, as measured by scores on the personal distress subscale of the IRI, is associated with justice sensitivity for the other does not mean that negative emotions do not play a role in justice motivation or that they are not necessary precursors for moral values and moral cognition. Rather, as argued by Blasi (1999), emotions become moral when they are inserted into a special perspective, the perspective of moral goodness, which transforms their naturalness and spontaneity into cultivated intentions. It is critical to consider each component of empathy separately to explain why justice and empathy remain separate motives for prosocial behavior, and understand their reciprocal influences between them.

The results from this study, provided that they are replicated, may guide educational interventions designed to promote principles of justice, moral behavior and fairness. It may be more effective to focus on utilizing perspective taking and reasoning to elicit empathic concern for others, rather than emphasizing emotional sharing with the misfortune of others, which can lead to personal distress and not necessarily a motivation for upholding principle of justice for all.

Acknowledgments

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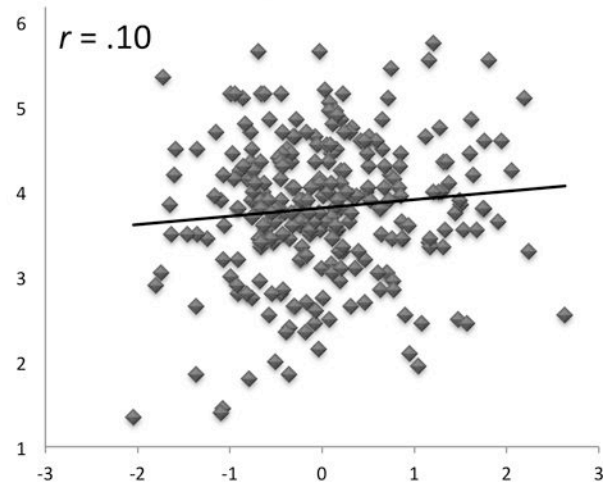
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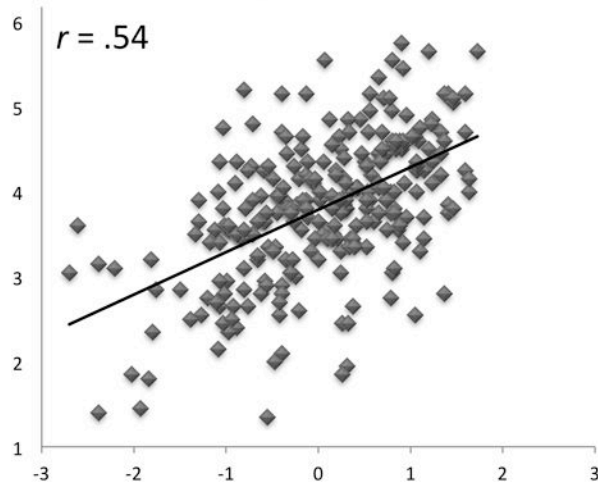
Figure 1.
Sensitivity to the injustice of others. A) Empathic concern scores were significantly correlated with individual scores on other-oriented justice sensitivity (JSOther) (corrected *p* < .05). B) Emotional distress scores did not predict variation in self-oriented sensitivity (JSSelf).
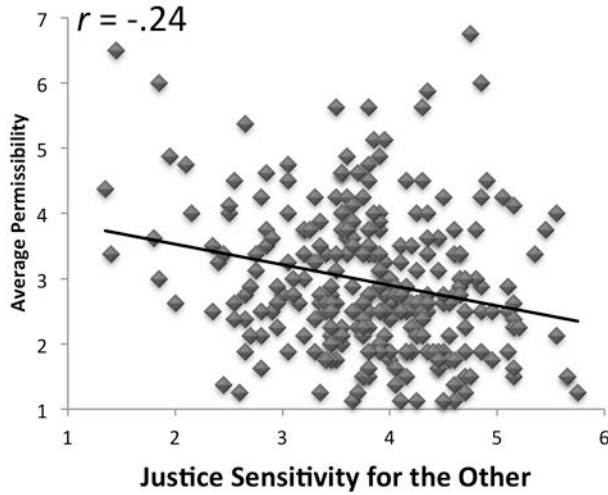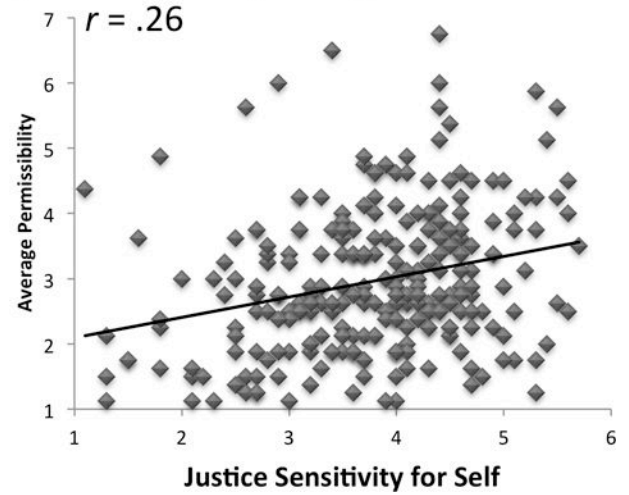
Figure 2.
Justice orientation for other and for self differentially predicted moral decision-making. A) Other-oriented justice sensitivity (JSOther) correlated with lower permissibility ratings (corrected $p < .05$). B) Self-oriented sensitivity (JSSelf) was related to higher permissibility ratings (corrected $p < .05$).

Table 1

Means, standard deviations, and correlations amongst individual dispositions on empathy, psychopathy, justice sensitivity and permissibility ratings on moral scenarios.

	1	2	3	4	5	6	7	8	9
1 IRI-EC	–								
2 IRI-PT	.44*	–							
3 IRI-PD	.11	–.01	–						
4 PPI-FD	–.17	.05	–.50*	–					
5 PPI-SI	–.28*	–.14	.00	.36*	–				
6 PPI-Cold	–.69*	–.34*	–.16	.17	.15	–			
7 JSSelf	–.12	–.12	.17	–.09	.29*	–.05	–		
8 JSOther	.43*	.29*	.10	–.08	.06	–.56*	.26*	–	
9 Permissibility	–.33*	–.15	.04	.25*	.44*	.30*	.26*	–.24*	–
Concern	–	.44*	–	–	–.23	–	–.05	–.54*	–.34*
Distress	–	–.03	–	–	–.21	–	.15	.10	–.12
Mean	27.40	24.91	17.98	46.61	51.90	14.36	3.77	3.81	2.97
SD	5.21	3.67	5.80	10.09	11.24	3.59	0.92	0.82	1.10

IRI: Interpersonal Reactivity Index; PPI: Psychopathic Personality Inventory; JSSelf: self-oriented justice sensitivity; JSOther: other-oriented justice sensitivity. Concern was constructed from standardized IRI-EC and PPI-Cold scores. Distress was constructed from standardized IRI-PD and PPI-FD scores.

*
Bonferroni-corrected $p < .05$

Table 2

Standardized beta weights and model fits for hierarchical linear regressions of dispositions in justice sensitivity.

Variable	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β
JSOther					
Age	.06	.07	.04	.07	.07
Gender	.16**	.16	.00	.04	.04
SES	−.02	.01	.00	.04	.10
IRI-PT		.28**	.07	.10	.51
Concern			.49***	.52***	.23***
PPI-SI				.22***	.05***
Distress					.39
R^2	.03	.12	.29	.34	.34
$R^2_{Adjusted}$	.02	.10	.28	.32	.32
F for change in R^2	3.01*	24.37***	45.02***	16.208***	.75
JSSelf					
Age	.00	.00	−.01	.03	.04
Gender	−.11	−.11	−.13*	−.07	−.12*
SES	.06	.05	.05	.11	.14*
IRI-PT		−.11	−.14*	−.11	−.07
Concern			.06	.10	.06
PPI-SI				.30***	.35***
Distress					.25***
R^2	.02	.03	.03	.11	.17
$R^2_{Adjusted}$	.01	.02	.01	.09	.15
F for change in R^2	1.54	3.64	.68	23.68***	14.41***

Perspective Taking, Concern composite scores, and Self-Centered Impulsivity each increased the explained variance in justice sensitivity for the other, while only Self-Centered Impulsivity and Distress composite improved the model fit for JSSelf. IRI: Interpersonal Reactivity Index; PPI: Psychopathic Personality Inventory; JSSelf: self-oriented justice sensitivity; JSOther: other-oriented justice sensitivity.

*
$p < .05$.

**
$p < .01.$

***
$p < .001$

Table 3

Standardized beta weights and model fits for hierarchical linear regressions of permissibility ratings.

Variable	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β
Permissibility					
Age	−.26***	−.26***	−.25***	−.21***	−.21***
Gender	−.19**	−.19**	−.10	−.02	−.03
SES	.04	.02	.02	.11	.11
IRI-PT		−.18**	−.05	.00	.00
Concern			−.30***	−.25***	−.25***
PPI-SI				.40***	.41***
Distress					.02
R^2	.09	.12	.17	.29	.29
$R^2_{Adjusted}$	.08	.11	.16	.27	.27
F for change in R^2	9.02***	7.53**	16.74***	42.82***	.09
Permissibility					
Age	−.26***	−.24***	−.24***		
Gender	−.19**	−.16*	−.10		
SES	.04	.03	.01		
Other		−.21**	−.31***		
Self			.36***		
R^2	.09	.13	.23		
$R^2_{Adjusted}$	.08	.12	.21		
F for change in R^2	9.02***	11.52**	31.87***		

Perspective Taking, Concern composite scores, and Self-Centered Impulsivity each improved model fit for Permissibility. Separately, sensitivity to the injustice of others and oneself both increased the explained variance in moral judgment. IRI: Interpersonal Reactivity Index; PPI: Psychopathic Personality Inventory; JSSelf: self-oriented justice sensitivity; JSOther: other-oriented justice sensitivity.

*
p < .05.

**
p < .01.

*** $p < .001$

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