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UNDERSTANDING EVERYDAY PSYCHOPATHY: SHARED GROUP IDENTITY LEADS TO INCREASED CONCERN FOR OTHERS AMONG UNDERGRADUATES HIGHER IN PSYCHOPATHY

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Psychopathy can be considered as a dimension anchored on one end by a lack of concern for others. Even in its milder forms, psychopathy can lead to everyday antisocial behavior, such as plagiarism and cheating or getting into fistfights. Although a lack of concern for others is central to the concept of psychopathy, it is unclear whether this stems from differences in ability or motivation. In two studies, participants made decisions for themselves and others simultaneously following a manipulation of shared identity, which is known to increase the motivation for cooperative behavior. When the others were described as in-group members, participants higher in psychopathy showed greater concern for those others. This indicates that the lack of concern for others produced by everyday psychopathy is due to a lack of motivation to care about others, rather than a lack of ability to do so.

Although the term "psychopath" evokes images of serial killers and mass murderers, this is only one behavioral manifestation of a set of antisocial personality characteristics. Every day, those who may not traditionally be considered psychopaths engage in behavior reflecting a lack of concern for the welfare of others. This can range from mundane behaviors, such as damaging another's car and not leaving

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a note, to potentially more serious actions like neglecting one's children. These types of behaviors reflect an "everyday psychopathy" that is committed by people that would be considered in the normal range by most standards. Thus, the critical aspect of psychopathy is not violent or even criminal behavior, but rather a callous attitude and a lack of concern for others. Indeed, this has been one of the central components of most conceptualizations of psychopathy since its inception (Cleckley, 1976; Herve, 2007). Both human nature and social norms encourage people to care for one another, which they largely do (see Warneken & Tomasello, 2009, for a recent overview). However, although most people exhibit some level of concern for the well-being of others, individuals higher in psychopathy are notable for their lack of such concern.[1]

Many assume that this lack of concern arises from an inability to care about others (e.g., Spiecker, 1988), and there is a great deal of neuroimaging evidence showing neural differences in how those high and low in psychopathy process emotional information (e.g., Glenn, Raine, & Schug, 2009; Kiehl et al., 2001; Marsh et al., 2008). However, no research has directly manipulated the motivation to care about others in order to determine whether this deficit stems from a lack of ability or a lack of motivation. In two studies, we wanted to determine if providing those higher in psychopathy with the motivation to care about others would cause them to show behavior consistent with concern toward those others. As an initial test of this, we used a sample of undergraduates high in self-reported psychopathy; although there are likely many differences between incarcerated psychopaths and undergraduates high on a self-report measure of psychopathy, it is important to understand the basis of everyday psychopathy.

That psychopathy is a developmental disorder (e.g., Blair, 2007) associated with differential brain activity (e.g., Gordon, Baird, & End, 2004) might suggest that adults higher in psychopathy are unlikely to ever care about others, and this is largely considered to be the case (Hare, 1993). Early research in this area found that those high in psychopathy failed to demonstrate typical emotional responding on physiological measures (e.g., galvanic skin response) to the distress of others (House & Milligan, 1976). More recent research has found that individuals higher in psychopathy are unable to properly recognize emotions in others (e.g., Blair et al., 2002; Marsh & Blair, 2008), which is an important component of empathy (Marsh, Kozak, & Ambady, 2007). Additionally, there is some evidence that those high in psychopathy become *worse* with treatment aimed at increasing concern for others (Rice, Harris, & Cormier, 1992; but see Salekin, 2002, and Skeem, Monahan, & Mulvey, 2002). One recent review argues that although it is inappropriate to conclude that those higher in psychopathy are completely untreatable, the existing evidence suggests that treatment of adults with psychopathy is not particularly successful (Salekin, Worley, & Grimes, 2010). Current suggestions for how to treat individuals higher in psychopathy include working around their deficits, such as highlighting the low status of criminal behavior (Hemphill & Hart, 2002) or otherwise convincing them that their antisocial behavior goes against their own

1. Psychopathy, sociopathy, and antisocial personality disorder are overlapping constructs whose relations are still being debated (e.g., Walsh & Wu, 2008). We are focusing on psychopathy here because it is a well-defined construct with clear specifications of how it relates to concern for others.

self-interest (Hare, 1993). Also, offenders high in psychopathy have higher rates of recidivism than offenders lower in psychopathy (e.g., Harris, Rice, & Cormier, 1991), suggesting that change is less likely for these individuals.

EVERYDAY PSYCHOPATHY

Historically, the description psychopathy has suggested that it is a taxon—that is, that there are a small subset of people who are psychopaths, and that those people are categorically different from non-psychopaths; initial taxometric analyses supported this view (Harris, Rice, & Quinsey, 1994; but see Edens, Marcus, Lilienfeld, & Poythress, 2006). Also consistent with this view is the fact that research on psychopathy has typically involved classifying individuals into two groups (i.e., "psychopathic" and "non-psychopathic"), often using a version of a structured clinical interview, the Hare Psychopathy Checklist–Revised (PCL-R). On the PCL-R, interviewees are given a score between 0–40, with those who meet a cutoff (typically 30) being designated psychopaths (Hare, 2003; Herve, 2007). Further, this research has often been done drawing from prison samples (see Salekin, Rogers, & Sewall, 1996), again suggesting that only a small percentage of people are truly psychopaths. Indeed, it has been estimated that approximately 1% of the population could meet criteria to be considered "psychopathic" (Hare, 1993), but there are likely many who do not meet these criteria that still occasionally engage in behavior that could be considered psychopathic, such as negligent parents. Furthermore, the view of psychopathy as a categorical construct is beginning to change, as recent theory and data support the view of psychopathy as a dimensional construct in both children (Murrie, Marcus, Douglas, Lee, Salekin, & Vincent, 2007) and adults (Edens et al., 2006; Guay, Ruscio, Knight, & Hare, 2007). Higher levels of psychopathy in non-incarcerated samples has been positively related to self-reported antisocial behavior (e.g., Lynam, Whiteside, & Jones, 1999; Mullins-Nelson, Salekin, & Leistico, 2006), self-reported violence and alcohol use (Neumann & Hare, 2008), self-reported indirect aggression (Warren & Clarbour, 2009), behaving selfishly in social dilemmas (Mokros, Menner, Eisenbarth, Alpers, Lange, & Osterheider, 2008; Rilling et al., 2007; Koenigs, Kruepke, & Newman, 2010), hypercompetitive achievement orientations (Ross & Rausch, 2001), greater self-reported willingness to violate moral standards for money (Glenn, Koleva, Iyer, Graham, & Haidt, 2009), and self-reported and behavioral measures of cheating in college (Nathanson, Paulhus, & Williams, 2006; Williams, Nathanson, & Paulhus, 2010). Furthermore, antisocial dispositions, rather than criminal behaviors *per se*, are widely considered to be the defining feature of psychopathy (cf. Hare & Neumann, 2010; Skeem & Cooke, 2010).

In addition to the many studies that have explored the individual differences in dispositions and behavior produced by subclinical psychopathy (see LeBreton, Binning, & Adorno, 2005), a number of studies have begun to explore the neural and cognitive differences in brain activity thought to underlie these differences. Undergraduates higher in psychopathy as measured by the Levenson Self-Reported Psychopathy scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995) show deficiencies in passive avoidance and response modulation (Lynam et al.,

1999), reduced heart rate reactivity (Osumi, Shimazaki, Imai, Sugiura, & Ohira, 2007), and perform worse on the Iowa Gambling Task (Mahmut, Homewood, & Stevenson, 2008), which is a measure thought to assess orbitofrontal cortex (OFC) functioning (Bechara, Damasio, Damasio, & Anderson, 1994). However, research with other non-incarcerated populations (i.e., community samples), often using other measures of psychopathy such as the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) or the PCL-R, has been less consistent in detecting similar patterns of cognitive deficits as seen in incarcerated populations (see Gao & Raine, 2010).

Much of the aforementioned research on differential brain activity produced by psychopathy has relied on those in non-incarcerated populations, although it has also tended to involve those considered psychopathic on the PCL-R (e.g., Blair et al., 2006), a measure that is administered by a clinician that treats psychopathy as discrete rather than dimensional (Hare, 2003). However, other research on the neuroscience of psychopathy has also found deficits in those higher in self-reported psychopathy in non-incarcerated samples. For instance, participants higher in self-reported psychopathy showed less amygdala and OFC activation when playing a prisoner's dilemma game than those lower in psychopathy (Rilling et al., 2007). Other research has found reduced OFC activity among those higher in self-reported psychopathy while they are deceiving others (Fullam, McKie, & Dolan, 2009), and reduced amygdala activity among those high in self-reported psychopathy when interpreting others' emotional states (Gordon et al., 2004). Additionally, when engaged in competitive interaction with others, those higher in psychopathy showed less OFC activity (Lotze, Veit, Anders, & Birbaumer, 2007). Together, these results indicate that those higher in self-reported psychopathy in a non-incarcerated population do show some similar neural deficiencies in brain activation as those higher in psychopathy in incarcerated populations.

PSYCHOPATHY: DISORDER OF ABILITY OR MOTIVATION?

Although psychopathy clearly produces a lack of concern for others, is it really the case that this is due to a lack of ability to care about others? Classic descriptions of psychopaths seem to suggest otherwise, as these individuals are often described as charming, indicating some ability to function socially. For instance, in Cleckley's influential work, *The Mask of Sanity* (1976), he describes psychopaths as possessing " . . . general suavity and social charms" (p. 363), and says that " . . . the typical psychopath will seem particularly agreeable and make a distinctly positive impression when he is first encountered" (p. 339). This image of psychopaths as charming manipulators seems at odds with the view that they are afflicted with the inability to understand social and emotional cues. Further, empirical research on the malleability of other psychopathy-related deficits suggests that these are not fixed. For instance, children with tendencies toward psychopathy can overcome the inability to recognize the emotional expressions of others when being directed to attend to the eyes of other individuals (Dadds et al., 2006). This suggests that there may be circumstances under which those high in psychopathy can demonstrate concern for others, although thus far no research has examined this empirically.

THE PRESENT RESEARCH

In two studies, we tested the role of shared group membership in increasing motivation to care about others in those with psychopathy by having participants make decisions under uncertainty for themselves and for others. Because psychopathy is thought to be dimensional rather than categorical (e.g., Edens et al., 2006), as suggested by correlations between self-report measures of psychopathy and antisocial behavior in non-incarcerated populations (e.g., Lynam et al., 1999), we examined individual differences in relative psychopathy using an undergraduate sample to allow for an understanding of the processes of everyday psychopathy.

To address these questions, we developed a new paradigm that allows for the examination of separate components of self and other concern. In this paradigm, participants decide to take or pass a series of paired gambles, with one gamble being for oneself and one gamble being for others (see Figure 1). This task offers advantages over other social dilemma tasks by orthogonalizing the potential outcomes for self and other. In most tasks that assess concerns for self and others, such as the dictator game (Forsythe, Horowitz, Savin, & Sefton, 1994), giving more to others necessarily requires giving less to the self, thereby confounding the processes associated with the desire to acquire for the self and the lack of concern for another. It is possible that selfish behavior can occur because the impulse for self gain is so strong that it overpowers the concern for others, or alternatively, because there is no concern for others that needs to be overcome.

By orthogonalizing the outcomes for self and others, independent effects of concerns for self and others can be estimated and examined. For instance, if someone only cares about him- or herself and not at all about others, then only the quality of the self gambles (i.e., the expected value of the self gamble) will predict the likelihood of taking a pair of gambles, and the quality of the others' gambles (i.e., the expected value of the others' gambles) will be irrelevant in predicting taking behavior. However, if someone does care about others, then the quality of both the self and others' gambles will predict taking behavior. Finally, if a person is deliberately trying to hurt others (such as those with a competitive social value orientation; see Van Lange, 2004), then the quality of the others' gambles will be negatively related to taking a pair of gambles. This final example also demonstrates that this cannot solely be a measure of attention to others, as someone who is trying to hurt others would need to attend to the others' gambles, but would use the information very differently than someone who is concerned for others. Although attention to others is a necessary component of concern for others, it is not sufficient.

To examine the effects of motivated concern for others for those higher or lower in psychopathy, half of the participants played for people with whom they shared an arbitrary group identity, and half of the participants played for unknown others—that is, strangers. Prior research has found that shared group membership leads to greater liking for (Brewer, 1979), cooperation with (Kramer & Brewer, 1984), and helping of other in-group members (Dovidio, Gaertner, Validzic, Matoka, Johnson, & Frazier, 1997), even when the in-group is arbitrary (Tajfel, Billig, Bundy, & Flament, 1971). Additionally, research has demonstrated that the increased cooperation that comes from sharing a group membership with others is

FIGURE 1: Example trial of decision task.

due to an increase in concern for the in-group and its members (De Cremer & Van Vugt, 1999).

In the present studies, participants made decisions to take or pass pairs of gambles, with one gamble for the self and one gamble for others. In the *groups* condition, those others for whom one was making decisions were other members of an explicitly arbitrary in-group, and in the *strangers* condition, those others were other people from the study. In the *strangers* condition, the others are not out-group members, but rather, unknown others—essentially strangers. In the *groups* condition, the others are also strangers, but strangers with whom one shares a (meaningless) group identity. In neither condition is any participant interacting with someone who might be described as an out-group member. Thus, although research on the minimal group paradigm (Tajfel et al., 1971) has informed the present research, this is not a minimal group paradigm, as that involves tradeoffs between in-group and out-group, whereas the present research involves tradeoffs between self and in-group (groups condition) or self and strangers (strangers condition). Importantly, the interdependence between self and others did not vary across conditions, so any difference between conditions is due solely to differences in how one perceives the others with whom they are playing.

In line with prior research on shared group membership, we hypothesized that providing participants with an arbitrary in-group would lead to greater concern for in-group others in the form of making better decisions for those others. Furthermore, if the lack of concern for others seen in those higher in psychopathy is due to a lack of ability, then this manipulation of shared group membership should have no effect for these individuals. However, if these deficits seen in those higher in psychopathy are due to a lack of motivation, then those individuals higher in psychopathy should demonstrate increased concern for others when those others are described as in-group members.

STUDY 1

The first study tested our hypothesis that individuals higher in psychopathy can show increased concern for others, if they are provided with sufficient motivation. Motivation to be concerned for others was provided by manipulating how these others were described: either as members of an arbitrary in-group, or as subset of other people who were also participating in the study—in essence, total strangers. To assess concern for others, participants made decisions that impacted both self and others simultaneously.

METHOD

Participants and Design

Participants were 79 Ohio State University undergraduates (43 females) who successfully completed the study for partial course credit. Participants were randomly assigned to one of two between-participants conditions (identity of others: in-group members or strangers).

Procedure

Decision-Making Task. Participants were given approximately 10 minutes of verbal instruction on the nature of the decision task, which included two practice trials that were directed by the experimenter. Specifically, participants were informed that they would be making decisions under uncertainty for themselves and for others. In the *groups* condition, they were informed that these others were other in-group members, and that they would be assigned to a group, either the "lions" or the "tigers," after receiving instructions but before doing the task. In the *strangers* condition, the word "group" was never used, and participants were informed that the others they were making decisions for were a subset of the other people taking part in the study. Because we were interested in increasing rather than decreasing concern for others, no out-groups were used in any condition. All participants were informed that they would not know who the others were that they were matched up with, nor would they know how many people they were matched up with. After describing the identity of the others, all participants were informed that they would take or pass pairs of gambles, with one gamble for others, and one gamble for the self. Participants were informed that taking meant that both the self and others' gambles are taken, and passing meant that both self and others' gambles are passed.

Following the instructions, participants in the *groups* condition were assigned to a group and were reminded that their decisions impacted other members of their in-group, and that other members of their in-group impacted their final outcomes. Participants in the *strangers* condition were reminded that their decisions impacted other people that they were matched with, and that the other people they were matched with impacted their final outcomes. Participants then made decisions to take or pass pairs of gambles. Each participant was presented with 80 pairs of gambles, presented in 4 blocks of 20 pairs of gambles each. The sides of the display that self and other gambles were on were counterbalanced and orthogonal to condition. For every trial, the participant was provided with information about

the probability and value for both the self and other gambles. The self and other gambles were orthogonal, so probabilities, values, and outcomes were randomly assigned to each. The probability of winning a gamble varied on each trial between 80%, 60%, 40%, or 20%, and the values for each gamble varied on each trial between +10, +7, +4, +1, -1, -4, -7, and -10[2] (see Figure 1 for example trial of task).

Psychopathy Assessment. All participants filled out a questionnaire packet, which included a question about concern for the others that one was matched with, as well as the Levenson Self-Report Psychopathy scale (LSRP; Levenson et al., 1995). The LSRP was designed to be a measure of psychopathy in non-incarcerated samples. Participants respond to 26 items on a four-point scale that contains "disagree strongly," "disagree somewhat," "agree somewhat," and "agree strongly." Sample items include "for me, what's right is whatever I can get away with," and "people who are stupid enough to get ripped off usually deserve it." The LSRP can also be split into primary and secondary psychopathy, with primary psychopathy reflecting a lack of empathy, and secondary psychopathy reflecting an inability to control one's impulses (Levenson et al., 1995).[3] This measure does not assess antisocial behavior (as the PCL-R does; Hare, 2003), but rather, the beliefs and traits that underlie such behavior. Prior research using this measure has found that it is positively correlated with the PCL-R in incarcerated samples (Brinkley, Schmitt, Smith, & Newman, 2001), and in large studies, the means and standard deviations of undergraduate samples (N = 487; primary psychopathy, M = 1.79, SD = 0.43; secondary psychopathy, M = 2.11, SD = 0.41; Levenson et al., 1995) are similar to those in incarcerated samples (N = 1972; primary psychopathy, M = 1.82, SD = 0.48; secondary psychopathy, M = 1.93, SD = 0.56; Walters, Brinkley, Magaletta, & Diamond, 2008). Higher scores on the LSRP indicate more agreement with the items, and thus higher levels of psychopathy. Participants' overall levels of psychopathy were obtained by averaging the 26 items (M = 2.34, SD = 0.56). The reliability of the scale was reasonably high (α = .79).

RESULTS

Manipulation Check

To ensure that the manipulation of group membership increased motivation to care about the others with whom people were matched, this was measured with a single item, "I care about what happens to those that I was matched with," rated from 1 (strongly disagree) to 7 (strongly agree). Those in the *groups* condition (M = 4.65, SD = 1.61) reported higher levels of caring for those they were matched with than those in the *strangers* condition (M = 3.15, SD = 1.84), $t(77) = 3.85$, $p < .001$,

2. Values were presented in points that were converted to dollars when participants were paid out; participants did not know the conversion rates when they were playing, but were informed that more points meant more money.

3. All patterns of significance are identical in both studies when analyzing the data using primary psychopathy rather than overall psychopathy as the primary measure of psychopathy. When using secondary psychopathy, some of the same patterns of significance emerge, but others do not. This suggests that these effects are driven by primary psychopathy, which is to be expected given that this dimension captures the lack of empathy for others.

providing evidence that this is a successful manipulation of motivation to care about others.[4]

Primary Results

Of primary importance for this study were the factors that led participants to choose to select or reject a pair of gambles. Specifically, participants could base their decisions on the value of the self gamble, the value of the others' gamble, or some interaction of the two. Of course, we expected that not all participants would use this information in the same way. For example, it was expected that participants high in psychopathy would be less likely to consider the value of the gamble for others. To examine these questions, we modeled choice behavior (take or pass) using multilevel logistic regression (PROC GLIMMIX; Schabenberger, 2005). Choice behavior was modeled at the 1st level as a function of (a) the expected value for self (b) the expected value for others, and (c) the interaction of self and other expected values. To model how group membership and psychopathy moderated these effects, these variables were modeled at the 2nd level (standardized psychopathy scores were used for all analyses). All interactions effects between 1st and 2nd level variables were explicitly modeled. All estimates are provided in Table 1.

Participants were 7.7% more likely to take a gamble for each 1 point increase in expected value for the self (as seen in the significant main effect of SelfEV, $F[1, 75] = 649.56$, $p < .001$; see Table 1 for all estimates and p values).[5] Providing support for the hypothesis that people, on average, consider the consequences for others as well as the self, participants were also 3.7% more likely to take a gamble for each 1 point increase in the expected value for the other (as seen in the significant main effect of OtherEV, $F[1, 75] = 296.39$, $p < .0001$). Consistent with previous work demonstrating that those high in psychopathy do not care about others (e.g., Mokros et al., 2008), participants higher in psychopathy were more likely than those lower in psychopathy to base decisions about whether to accept or reject a pair of gambles on information about potential gains and losses for the self ($\beta_{highPsycho} = 8.3\%$, $\beta_{lowPsycho} = 6.9\%$; significant interaction between SelfEV × Psychopathy, $F[1, 75] = 4.38$, $p < .05$), and less likely to base these decisions on information about potential gains and losses for others ($\beta_{highPsycho} = 2.0\%$, $\beta_{lowPsycho} = 3.7\%$; significant interaction between OtherEV × Psychopathy, $F[1, 75] = 7.75$, $p < .01$).

Central to this article is the question of how those higher in psychopathy would respond to an increase in motivation to care about others. If participants higher in psychopathy are unable to take others into consideration, then the way that

4. This measure of caring about others was collected at the end of the session, so it is inappropriate to use as a mediator. Additionally, there were no significant differences on this measure by level of psychopathy. This may have been significant for the manipulation but not for level of psychopathy because of social desirability, which we believe speaks to the utility of a behavioral measure of concern for others.

5. Although PROC GLIMMIX was used for all analyses, for increased interpretability parameter estimates were calculated in PROC MIXED. PROC MIXED treats the DV as continuous, whereas PROC GLIMMIX treats the DV as logistic. PROC MIXED effects were not used for statistical testing, only for graphing the results (similar to plotting raw response latencies when analyses are based on log RTs).

TABLE 1. Estimates and *p* Values, Study 1

	Overall	Stranger			Group			Difference	
Effect	**Estimate**	**Estimate**	***t***	***p***	**Estimate**	***t***	***p***	***F***	***p***
Intercept	-0.3832	-0.3843	-2.26	<.05	-0.2451	-1.64	ns	0.37	ns
SelfEV	0.5117	0.5139	18.2	<.001	0.4289	17.93	<.001	4.96	<.05
OtherEV	0.2538	0.2542	11.5	<.001	0.2531	12.98	<.001	0	ns
SEV*OEV	-0.0001	-0.0001	-0.01	ns	0.0020	0.31	ns	0.05	ns
Psycho	0.0529	0.0531	0.31	ns	0.0583	0.39	ns	0	ns
SEV*Psy	0.0823	0.0821	2.58	<.01	0.0018	0.08	ns	4.12	<.05
OEV*Psy	-0.0732	-0.0732	-3.38	<.001	-0.0076	-0.39	ns	5.05	<.05
SEV*OEV*Psy	0.0049	0.0049	0.57	ns	0.0005	0.08	ns	0.16	ns

those others are described (in-group members or strangers) should not influence how these individuals make decisions that impact others. That is, people higher in psychopathy should take the others into consideration less than those lower in psychopathy regardless of the identity of those others. However, if the lack of concern for others produced by psychopathy is motivational in nature, then increasing the motivation to care about others by describing them as in-group members should lead those high in psychopathy to make better decisions for those others. Consistent with the motivational hypothesis, we found that participants higher in psychopathy took worse gambles for themselves (as seen in the significant interaction of SelfEV × Condition × Psychopathy, $F[1, 75] = 4.12$, $p < .05$), and better gambles for others (OtherEV × Condition × Psychopathy, $F[1, 75] = 5.05$, $p < .05$), when the others were described as other in-group members. In contrast to participants lower in psychopathy, who considered the others equally (or even slightly with a preference toward considering the strangers' outcomes more so than the in-group members') whether described as an in-group member or stranger, participants higher in psychopathy demonstrated greater concern for those described as in-group members than those described as strangers (see Figure 2).

The inability to control one's impulses is a key component of most conceptualizations of psychopathy (e.g., Cleckley, 1976; Hare, 1993; Levenson et al., 1995). This feature plays a central role in the response modulation theory of psychopathy, which argues that the deficits produced by psychopathy are due to the inability to direct one's attention to peripheral information when goal-relevant information is present (e.g., Newman & Lorenz, 2003). If this is the case, then people should be less able to consider what happens to others as the expected value for the self increases. Alternatively, if the lack of concern for others is due to a lack of motivation to care about other people, then the value for the self gambles should be unrelated to how they evaluate the value of the others' gambles. Consistent with the latter hypothesis, neither the three-way interaction between SelfEV × OtherEV × Psychopathy, $F(1, 75) = 0.24$, $p = 0.62$, nor the four-way interaction between SelfEV × OtherEV × Condition × Psychopathy, $F(1, 75) = 0.16$, $p = 0.69$, were significant. In other words, participants were equally likely to consider (or not consider) the outcomes for the other player when the potential outcomes for the self were high or low.

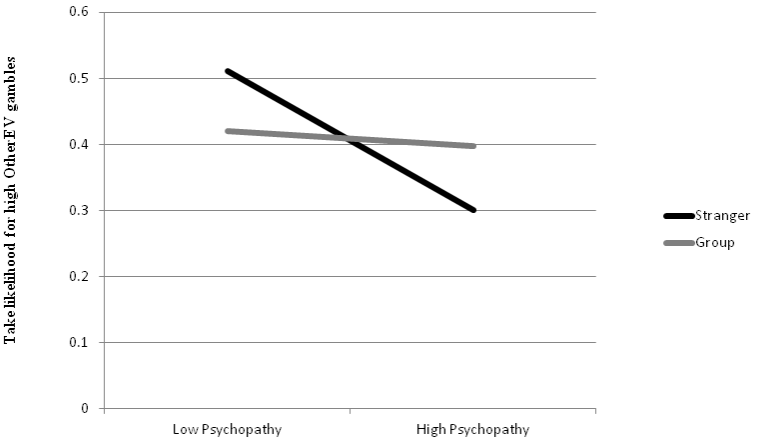

FIGURE 2: The interaction of psychopathy and other identity on concern for others, Study 1.

DISCUSSION

As predicted, we found that individuals higher in psychopathy showed increased concern for others when those others were described as other in-group members. This occurred even though the level of interdependence did not differ between conditions. Furthermore, there is some evidence that this is due to increased motivation to care about others, rather than increased ability to do so, since the significant three-way interaction between OtherEV, condition, and psychopathy did not further interact with SelfEV. That is, an impulse control or response modulation explanation of psychopathy would suggest that participants higher in psychopathy would be better able to control their impulses and attend to others' outcomes when there was no distraction from a good gamble for oneself. However, the self gambles and others' gambles were independently evaluated, suggesting that those higher in psychopathy focus primarily on the self gambles and give little weight to others' gambles when they are unmotivated to care about the others they are matched with, but that they take both into account (independently) when they are motivated to care about the others.

STUDY 2

Although Study 1 allowed us to examine the extent to which individuals higher in psychopathy are capable of showing increased concern for others if given sufficient motivation to do so, it may be the case that some participants expected to get some share of their group's money (since they are part of the group). That is, participants were instructed that they would receive money based on the outcomes of the self gambles, and that those they were matched with would receive an equal portion of money based on the outcomes of the others' gambles. Because of ambiguous instructions, some participants may have believed that they would get an equal share of the outcomes from their others' gamble. If this was the case,

it may be that Study 1 only demonstrates increased cooperation with others, rather than increased concern for others. To fully separate concern for the self from concern for others, in Study 2 we modified the task instructions by making salient to the participants that the others' gamble was shared equally among all others *except the self.*

METHOD

Participants and Design

Participants were 67 Ohio State University undergraduates (28 females) who successfully completed the study for partial course credit. Participants were randomly assigned to one of two between-participants conditions (identity of others: ingroup members or strangers).

Procedure

Study 2 was identical to Study 1, with two exceptions. First, the instructions were changed such that participants were explicitly informed that self outcomes and others' outcomes were completely separate. Second, in Study 1 participants were paid immediately after completing the study, so they were only affected by those who had previously completed the study, and only affected those who would be in the study in the future. In Study 2, all participants were paid approximately one week after completing the study in order to allow everyone to finish. This way, each participant would affect or be affected by all others with whom they were matched.

Psychopathy Assessment. As in Study 1, all participants filled out a questionnaire packet, which included a question about concern for others, as well as the LSRP (Levenson et al., 1995). As before, we scored this measure by averaging the 26 items ($M = 1.99$, $SD = 0.40$). The reliability of the scale was high ($\alpha = .84$).

RESULTS

Manipulation Check

Those in the *groups* condition ($M = 4.41$, $SD = 1.97$) again reported higher levels of caring about those they were matched with than those in the *strangers* condition ($M = 3.24$, $SD = 1.73$), $t(65) = 2.58$, $p = .01$, providing further evidence that the manipulation was successful.

Primary Analyses

As in Study 1, we modeled choice behavior (take or pass) using multilevel logistic regression (PROC GLIMMIX; Schabenberger, 2005). Choice behavior was modeled at the 1st level as a function of (a) the expected value for the self, (b) the expected value for others, and (c) the interaction of self and other EVs. To model how group membership and psychopathy (standardized psychopathy scores were used for all

TABLE 2. Estimates and *p* Values, Study 2

	Overall	Stranger			Group			Difference	
Effect	**Estimate**	**Estimate**	***t***	***p***	**Estimate**	***t***	***p***	***F***	***p***
Intercept	-0.1291	-0.1289	-1.38	*ns*	-0.3166	-2.83	< .01	1.63	*ns*
SelfEV	0.4357	0.4341	21.46	< .001	0.4709	22.82	< .001	1.32	*ns*
OtherEV	0.1526	0.1521	10.07	< .001	0.1703	11.17	< .001	0.63	*ns*
SEV*OEV	-0.0066	-0.0065	-1.18	*ns*	-0.0078	-1.38	*ns*	0.02	*ns*
Psycho	0.0768	0.0733	0.83	*ns*	0.1793	1.53	*ns*	0.49	*ns*
SEV*Psy	0.0238	0.0238	1.21	*ns*	-0.1028	-5.05	< .001	19.85	< .001
OEV*Psy	-0.0488	-0.0486	-3.24	< .01	-0.0046	-0.29	*ns*	3.99	< .05
SEV*OEV*Psy	0.0016	0.0017	0.3	*ns*	-0.0047	-0.8	*ns*	0.59	*ns*

analyses) moderated these effects, these variables were modeled at the 2nd level. All interaction effects between 1st and 2nd level variables were explicitly modeled. All parameter estimates are reported in Table 2.

The results of Study 2 replicated the results of Study 1. Participants were 7.5% more likely to take a gamble for each 1 point increase in expected value for the self (significant main effect of SelfEV, $F[1, 64] = 980.53$, $p < .001$; see Table 2 for all estimates and p values), and were 2.7% more likely to take a gamble for each 1 point increase in the expected value for the other (significant main effect of OtherEV, $F[1, 64] = 225.56$, $p < .001$). Again, when making decisions to take or pass the paired gambles, participants higher in psychopathy used information about potential gains and losses for the self more so ($\beta_{highPsycho} = 7.1\%$, $\beta_{lowPsycho} = 5.9\%$; significant interaction between SelfEV × Psychopathy, $F[1, 64] = 7.69$, $p < .01$), and potential gains and losses for others less so than those lower in psychopathy ($\beta_{highPsycho} = 2.1\%$, $\beta_{lowPsycho} = 3.2\%$; significant interaction between OtherEV × Psychopathy, $F[1, 64] = 6.03$, $p < .05$).

Critically, we again found that in the groups condition, participants higher in psychopathy took worse gambles for themselves (significant interaction of SelfEV × Condition × Psychopathy, $F[1, 64] = 19.85$, $p < .001$), and better gambles for others (significant interaction of OtherEV × Condition × Psychopathy, $F[1, 64] = 3.99$, $p < .05$). In contrast to participants lower in psychopathy, who considered the others equally whether they were described as in-group members or as strangers, participants higher in psychopathy demonstrated greater concern for those described as in-group members than those described as strangers (see Figure 3). Again, the three-way interaction of SelfEV × OtherEV × Psychopathy was not significant, $F(1, 64) = 0.16$, $p = 0.69$, nor was the four-way interaction of SelfEV × OtherEV × Condition × Psychopathy, $F(1, 64) = 0.55$, $p = 0.46$. These results again indicate that individuals higher in psychopathy show less concern for themselves and increased concern for others when those others are described as other in-group members, and that this increase in concern for others is independent from concerns for oneself.

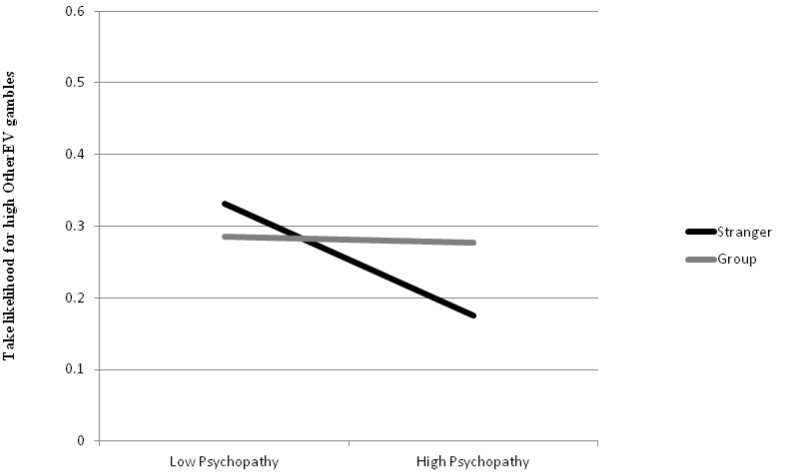

FIGURE 3: The interaction of psychopathy and other identity on concern for others, Study 2.

DISCUSSION

As predicted, we again found that individuals higher in psychopathy show less concern for themselves and more concern for others when others that they were making decisions for were described as other in-group members. Furthermore, this occurred even though it was made salient to the participants that there was no material benefit to them for showing concern for others.

GENERAL DISCUSSION

Previous research has shown dramatic deficits in certain individuals to feel concern for others (e.g., Blair, 2005). In the case of individuals higher in psychopathy, there is a lack of concern for others coupled with unmitigated self-interest. Even those higher in psychopathy in non-incarcerated populations show a variety of antisocial behaviors consistent with a lack of concern for others, such as violence, cheating, and selfishness. In the present studies, we demonstrate that the lack of concern for others produced by psychopathy may result from people being unmotivated to help others rather than a cognitive inability to do so, at least in a non-incarcerated, non-diagnosed population. This is consistent with theory on corporate psychopathy, which has suggested that individuals higher in psychopathy can be successful in some settings, although this research has typically been descriptive rather than experimental in nature (Babiak, 2007).

Additionally, although those higher in psychopathy showed greater concern for in-group others than unknown others, the ultimate motivations for those concerns are still unknown. That is, it could be the case that individuals higher in psychopathy have learned to show concern for potential allies (such as in-group members)

because of the benefits such behavior usually provides, such as increased status within a group, despite the fact that it provides none here. Another possibility is that the greater concern for others of those higher in psychopathy *is* a form of self-interest, such that in-group members are seen as part of the self. Self-categorization theory suggests that when individuals are in a group and think of themselves as part of a group, self-interest becomes group-interest (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Yet another possibility is that in group settings, people see more competition than is really there (e.g., Wildschut, Pinter, Vevea, Insko, & Schopler, 2003), so perhaps individuals higher in psychopathy wanted their group to do better than the other group, even though there was no mention of competition. Even if this manipulation is producing increased competitiveness in some participants, they still are demonstrating increased concern for others with their behavior, so in this instance, increased competitiveness would be a reason for increased concern, rather than an alternative explanation. These different possibilities are not mutually exclusive, and again, the point is that individuals higher in psychopathy *can* show concern for others if given sufficient motivation, which is provided in this instance by a shared group identity.

Although the conclusions that can be drawn from this research are limited to people with everyday forms of psychopathy, the results are suggestive of the underlying structure of psychopathy in general. Many of the same social, cognitive, and neural deficits have been found in both incarcerated and non-incarcerated populations (although these tend to be stronger in the incarcerated populations; see Gao & Raine, 2010; LeBreton et al., 2005). On the other hand, it could be the case that incarcerated psychopaths are different from those higher in psychopathy in non-incarcerated populations in meaningful ways, and the very fact that these individuals have been caught and incarcerated does suggest an inability to behave in line with societal norms. Nonetheless, the present research at least suggests that conclusions should not be drawn about the ability of incarcerated psychopaths to care about others on the basis of performance on cognitive and neurological tasks, and that this needs to be directly tested by giving these individuals sufficient motivation to care about others.

The present research also provides some insight into the relationship between negative aspects of personality and in-group attachment. In the present studies, those higher in psychopathy did show increased concern for other in-group members, and this is consistent with prior research demonstrating that dispositionally selfish people (i.e., "proselfs" as measured by SVO) do care about others if those others are in-group members (De Cremer & Van Vugt, 1999). This is also consistent with evidence that aggression in narcissists is reduced if others share some characteristics with the narcissist (Konrath, Bushman, & Campbell, 2006). Together, these studies suggest that personality traits that might seem antithetical to group cooperation, such as selfishness or lack of concern for others, do not necessarily disrupt social identity.

The present results do raise an interesting question about in-group attachment and positive aspects of personality: in the present studies, those lower in psychopathy did *not* show increased concern for in-group members, and there was even some indication that they preferred strangers to in-group members. This may initially seem puzzling, given that in-group biases in the minimal group paradigm are the default (Brewer, 1979; Tajfel et al., 1971), and this might seem to suggest that only those high in psychopathy show minimal group effects. However, we

believe that this conclusion is unwarranted for a number of reasons. First, other research in our lab has found high negative correlations between psychopathy and trait compassion. Thus, those low in psychopathy may be high in concern for any others, regardless of identity. It is interesting to consider that those high in compassion may be resistant to the idea of tribalism or teams, although future research is needed to explore whether those high in positive aspects of personality (such as trait compassion) are resistant to group attachment. Second, it is important to point out that although the current task manipulates mere group membership, it is very different from the classic minimal group paradigm. The present task uses explicitly arbitrary in-groups, and although prior research has found in-group bias in the minimal group paradigm with explicitly arbitrary in-groups (e.g., Billig & Tajfel, 1973), that is not part of the typical design. Further, minimal group paradigm studies typically involve making tradeoffs between allocations to in-group members and out-group members, rather than between in-group members and the self, thus demonstrating that discrimination can arise for arbitrary reasons (Tajfel et al., 1971). The current studies explore the willingness of people to engage in self-sacrifice, rather than the willingness to discriminate against others, which is why we did not use the minimal group paradigm. Although future studies may explore discrimination in those higher in psychopathy by providing an out-group condition to this paradigm, it would not be surprising if those higher in psychopathy show less concern for out-group members relative to in-group members, since psychopathy produces antisocial behavior. It is more surprising that those high in psychopathy can show prosocial behavior in the form of greater concern for other in-group members relative to the self, which was the focus of the current studies.

Additionally, this research also demonstrates that people are not solely self-interested. That is, although in Study 1 ambiguous instructions may have led some participants to believe that they were getting something for helping others, in Study 2 it was made clear that there was no self-interested reason for participants to care about what happened to the other participants with whom they were matched, and yet most of them did care. This is consistent with research using the dictator game, in which people are given an allotment of money and asked to decide how to split the money between themselves and others (Forsythe et al., 1994). If people were solely self-interested, they would keep all of the money for themselves; however, a significant number of people tend to share money with others when they have no material reason to do so (see Henrich et al., 2001). One potential confound of the dictator game is that norms are created that suggest to the participants that they should share with others. That is, in the typical dictator game, participants are only given the option of giving or not giving to another person. When participants are also given the option of taking from others (in addition to giving or doing nothing), giving to others drops dramatically (Bardsley, 2008; List, 2007). However, the task used in the current studies does not have this as a potential confound, and yet also shows that most people are not solely self-interested.

CONCLUSION

The present research adds to the growing body of literature demonstrating that psychopathy-related deficits can be overcome. Past research has found this for peripheral aspects of psychopathy, such as recognizing emotions in others, but

this research is the first to demonstrate this with concern for others, which is one of the central components of psychopathy. Furthermore, that individuals higher in psychopathy were sufficiently motivated to show greater concern for members of an explicitly arbitrary in-group demonstrates the power of group membership, and it would be interesting to determine if this effect would hold for more extreme forms of psychopathy, such as for those in institutionalized settings. Overall, these studies demonstrate that those higher in everyday forms of psychopathy can care about others if they are sufficiently motivated to do so, and highlight the variability in human motivation.

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