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The Interpersonal Costs of Dishonesty: How Dishonest Behavior Reduces Individuals' Ability to Read Others' Emotions

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In this research, we examine the unintended consequences of dishonest behavior for one's interpersonal abilities and subsequent ethical behavior. Specifically, we unpack how dishonest conduct can reduce one's generalized empathic accuracy—the ability to accurately read other people's emotional states. In the process, we distinguish these 2 constructs from one another and demonstrate a causal relationship. The effects of dishonesty on empathic accuracy that we found were significant, but modest in size. Across 8 studies ($n = 2{,}588$), we find support for (a) a correlational and causal account of dishonest behavior reducing empathic accuracy; (b) an underlying mechanism of reduced relational self-construal (i.e., the tendency to define the self in terms of close relationships); (c) negative downstream consequences of impaired empathic accuracy, in terms of dehumanization and subsequent dishonesty; and (d) a physiological trait (i.e., vagal reactivity) that serves as a boundary condition for the relationship between dishonest behavior and empathic accuracy.

Keywords: dishonesty, empathic accuracy, relational self-construal, vagal reactivity

Imagine a consultant who inflates her hours to be paid more. Would such dishonest behavior influence her ability to read her client's emotions and his interpersonal cognition more broadly? Although these questions remain unanswered, researchers have extensively documented how dishonest behavior incurs significant affective and cognitive costs for the unethical actor, even if the behavior is undetected by others. For example, given the widespread human need to view oneself as honest (Mazar, Amir, & Ariely, 2008) and to maintain a moral self-image (Monin & Jordan, 2009), ethically questionable behavior can create significant discomfort by highlighting discrepancies between one's moral self-concept and one's actual behavior (Aronson, 1969; Higgins, 1987). After behaving dishonestly, a person may experience reduced self-esteem or increased moral emotions, such as guilt or shame (Klass, 1978). Further, scholars have begun to explore the downstream implications of dishonest behaviors for unethical actors' cognition (see Wiltermuth, Newman, & Raj, 2015, for a review). For example, people attempting to justify their dishonest conduct may engage in motivated cognition, such as moral disengagement (Moore & Gino, 2013) and motivated forgetting (Barkan, Ayal, Gino, & Ariely, 2012; Kouchaki & Gino, 2016; Shu & Gino, 2012).

Despite providing these key insights into the personal consequences of unethical actors, research to date has not explicitly explored the potential consequences of dishonest behavior for *interpersonal cognition*: specifically, the generalized ability to be empathically accurate across different social targets. In general, given the rise of group work in organizations, there has been a heightened awareness of the importance of understanding interpersonal cognition (Ashford, George, & Blatt, 2007). Additionally, the ability to accurately read the emotions of others has been found to be a critical dimension of interpersonal cognition when negoti-

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ating (Van Boven, Dunning, & Loewenstein, 2000), responding to conflict (Côté & Miners, 2006), and building strong relationships (Zaki, Bolger, & Ochsner, 2008). Empathic accuracy (i.e., the ability to read others' thoughts and feelings; Smither, 1977; Stinson & Ickes, 1992) is particularly important in these relationships because of its impact on prosocial behavior, compassion, and responsiveness (Dutton, Workman, & Hardin, 2014; Kilpatrick, Bissonnette, & Rusbult, 2002).

Empathic accuracy can result in actions that alleviate the target's distress. It is a critical ability that underlies responsive behavior because it allows one to gain insight about another's inner state, which is necessary for interactions that can fulfill the other's needs, wishes, and goals (Reis & Patrick, 1996). Empathic accuracy and responsive behavior are connected in two specific ways: First, given that individuals can be hesitant to seek support from others, empathic accuracy allows others to anticipate this need without being sought out (Barbee, Rowatt, & Cunningham, 1998). Second, empathic accuracy allows one to assess the needs of others as well as others' personal resources for meeting challenges, resulting in a better assessment of what type of support may be the most effective (Pierce, Lakey, Sarason, Sarason, & Joseph, 1997; Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008).

Given the clear importance of understanding interpersonal cognition, there is a critical need to determine whether dishonest behavior has unexplored implications for one's ability to interact with others. In examining interpersonal cognition, past research has focused on target-specific regulation of empathic processes; that is, individuals may be more or less motivated to understand their specific targets' internal states. For example, individuals tend to dehumanize victims and outgroups by failing to consider these target groups' emotions (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Castano & Giner-Sorolla, 2006). In this paper, we focus on a phenomenon previously overlooked in this space: the effects of dishonesty on the generalized ability to accurately detect and empathize with others' emotions, even when those others are not the victims of one's wrongdoing. We posit that dishonest behavior can be costly for interpersonal relationships because those who behave dishonestly may also be less able to detect others' emotions. Over six studies and an additional two in the Appendix, we first establish the causal relationship between dishonesty and empathic accuracy and then test a theoretical model that articulates when and why dishonest behavior can lead to impaired empathic accuracy. In doing so, we aim to further the study of ethics as an inherently social phenomenon rather than a solely individual cognitive occurrence.

The Relationship Between Dishonest Behavior and Empathic Accuracy

Although we aim to investigate the impact of dishonest conduct on empathic accuracy, we are not the first to conceptually link morality and empathy (for a meta-analysis, see Eisenberg & Miller, 1987). In particular, scholars focusing on psychopathology have established a correlation between the two, characterizing a psychopathic personality as lacking guilt about harmful actions and exhibiting low levels of empathy toward others (Ali, Amorim, & Chamorro-Premuzic, 2009). Psychopathic tendencies are typically associated with antisocial, risk-taking, and dishonest behaviors (for a review, see Cima, Tonnaer, & Hauser, 2010), with psychopaths being more likely to engage in deception, cheating (Hare, Forth, & Hart, 1989; Nathanson, Paulhus, & Williams, 2006; Williams, Nathanson, & Paulhus, 2010), and moral disengagement in organizational settings (Stevens, Deuling, & Armenakis, 2012). Having psychopathic tendencies is also associated with having less empathy resulting from a failure to recognize emotions in others (Bartels & Pizarro, 2011; Blair, 2005; Mahmut, Homewood, & Stevenson, 2008; Marsh & Blair, 2008). Specifically, these individuals have been found to have deficits in facial recognition that go beyond task-specific motivation or attention (Marsh & Blair, 2008). However, although a lack of morality and a lack of empathy coexist in psychopathic individuals, this co-occurrence does not shed light on how one construct influences the other.

Investigations into the causal relationship between empathic abilities and morality have typically examined the former as an antecedent of the latter. Specifically, the ability to feel empathy (i.e., either seeing or anticipating another's emotional display and experiencing it with them; Stiff, Dillard, Somera, Kim, & Sleight, 1988) is considered an emotional cornerstone of moral judgment and behavior (Goetz, Keltner, & Simon-Thomas, 2010; Pizarro, 2000) and a hallmark of moral maturity (Hogan, 1973, 1975). Despite the established influence of empathic abilities on morality,[1] to our knowledge, no study has examined the reverse relationship with a specific focus on the cognitive aspect of empathic accuracy. In this investigation, we posit that the reverse is also possible: an individual's dishonest behavior may influence his or her ability to accurately understand others' emotions.

The Case for How and Why Dishonest Behavior Reduces Generalized Empathic Accuracy

We argue that an individual who behaves unethically will be less empathically accurate because of a distancing between the self and others. A person's dishonest actions may make it more difficult for him or her to accurately perceive others' mental states because (a) the individual may consequently pay less attention to others and (b) even when the individual is paying attention to others, that individual's perceptions of others may be distorted by his or her self-focused mental state and by his or her own goals, thoughts, and motivations (Greene, 2013). Dishonest actions can trigger motivated moral disengagement (e.g., Shu, Gino, & Bazerman, 2011), which creates a separation between the self and others (Bandura, 1999; Margolis & Molinsky, 2008). People who behave dishonestly will expend cognitive resources on rationalizing their own behavior to reduce cognitive dissonance, which may make it more difficult for them to notice or accurately sense others' emotions (Lane & Wegner, 1995; Van't Veer, Stel, & Van Beest, 2014). By suggesting that engaging in moral misconduct may distance the perpetrator from those around him or her, these findings lead to the proposition that dishonest behavior can reduce empathic accuracy.

[1] To confirm the correlational relationship between dishonest behavior and empathic accuracy, we conducted two studies examining this possibility (see Appendix: Studies S1a and S1b). In Study S1a, we established a negative relationship between self-reported dishonest behavior in the workplace context and empathic accuracy. In Study S1b, we replicated and extended these findings by establishing a relationship between a behavioral measure of dishonest behavior and empathic accuracy.

Specifically, we argue that moral disengagement triggered by dishonest behavior could manifest in decreased relational self-construal—the tendency to define the self in terms of close relationships (e.g., as a sister, as a mentor), a signal that one is focused on maintaining relationships (Cross & Morris, 2003)—which would reduce empathic accuracy. Moral disengagement is associated with reduced relational self-control because this disengagement is characterized by a focus on the self and on personal goals and reduction in attention to others. Because a main factor hypothesized to affect empathic accuracy is an interest in maintaining relationships (Hodges, Lewis, & Ickes, 2015), when a person defines the self as relational and interpersonally sensitive, that person is more attentive to the thoughts of others, which results in increased empathic accuracy (Hodges, Laurent, & Lewis, 2011; Ickes, 2003). Thus, conversely, we theorize that the weakened relational self-construal that results from motivated moral disengagement will decrease the unethical actor's empathic accuracy.

In light of the reasoning above, we further hypothesize a negative spiral following an initial transgression. Specifically, we theorize that reduced empathic accuracy following dishonest behavior can open the door to an increased tendency to perceive others as less human (dehumanization) and to future dishonest behavior. Following the logic of how motivated moral disengagement reduces one's relational self-construal and empathic accuracy, we propose that one important downstream consequence would be to reduce a person's moral concerns for others due to the dehumanization of others. Although previous research on dehumanization and moral disengagement has focused largely on how these phenomena help justify a potential harm that could be inflicted on outgroup members (Bandura, 1990; Bandura et al., 1996), we argue that they would carry over to any social target. In the same vein, we argue that people who have reduced empathic accuracy following dishonesty would be more likely to behave dishonestly in the future by failing to be attuned to others who could be harmed as a result of their actions. We thus predict that dishonesty-induced impairment in empathic accuracy is likely to catalyze a cycle of increased dehumanization and dishonesty.

Limits on the Relationship Between Dishonest Behavior and Generalized Empathic Accuracy

Like many interpersonal phenomena, the strength of the relationship between dishonest behavior and empathic accuracy is likely influenced by individual differences. Drawing from the theoretical perspectives that view morality as a result of both person and situation (Lee & Gino, 2018; Trevino, 1986), we predict that the effect of dishonest behavior induced by an experimental manipulation may be moderated by one's disposition. One individual difference in particular that may be critical in this relationship is one's tendency toward social sensitivity—attunement to subtle social-emotional cues in the environment—as measured physiologically by vagal reactivity. A measure of dynamic modulation of cardiac vagal control, vagal reactivity has been found to be associated with social sensitivity (Muhtadie, Koslov, Akinola, & Mendes, 2015). The vagus nerve, which is part of the parasympathetic branch of the autonomic nervous system (Beauchaine, 2001), supports social behavior by promoting communication, prosocial engagement with others, and the use of social support to cope with negative emotions (Porges, 2001). Vagal reactivity, which is measured based on the changing amplitude of respiratory sinus arrhythmia (RSA), has also been related broadly to social behavior and specifically to experiences of empathy and social connection (Kok & Fredrickson, 2010; Muhtadie et al., 2015; Stellar, 2013; Stellar, Manzo, Kraus, & Keltner, 2012).

Based on this conceptualization of vagal reactivity as a physiological correlate of social sensitivity, we predict that the relationship between dishonest behavior and empathic accuracy may be more pronounced for people who have lower levels of vagal reactivity than for those who have higher levels of vagal reactivity. Muhtadie et al.'s (2015) research has demonstrated that individuals with greater vagal reactivity responded to their social context with greater sensitivity than those with lower vagal reactivity. Following this logic, when a person's physiological capacity for social sensitivity is already high, as evidenced by vagal reactivity, it is less likely that his or her dishonest behavior will significantly dampen his or her ability to be empathically accurate. In contrast, when individuals are lacking their physiological capacity for social sensitivity, they may be more susceptible to the social distancing effects of engaging in dishonest behavior and become less likely to achieve the same level of empathic accuracy.

The Current Research

Our research investigates the unexplored yet important possibility that dishonest behavior can lead to decreased empathic accuracy. Studies 1a and 1b establish a causal relationship between dishonest behavior and generalized empathic accuracy by manipulating dishonest behavior and explores downstream consequences of the linkage between dishonesty and empathic accuracy, such as dehumanization and subsequent cheating. Study 1c improves and replicates the findings from Studies1a and 1b through a larger, preregistered data collection effort. Study 2 identifies a possible psychological mechanism: that is, relational self-construal. In addition, we conduct a meta-analysis of these four experimental studies. Study 3 uses a different experimental paradigm to conceptually replicate the findings from Studies 1–2. Finally, Study 4 identifies a critical physiological moderator by measuring vagal reactivity. In addition to these experimental studies, we include two correlational studies in the Appendix. Across all studies, we also examined post hoc the potential impact of gender, which has been found to impact empathic accuracy due to women's greater motivation, relative to men, to perform well in judging the emotions of others (Graham & Ickes, 1997; Ickes, Gesn, & Graham, 2000).

Study 1

This experiment was intended to demonstrate the causal relationship between dishonest behavior and generalized empathic accuracy by directly manipulating dishonest behavior. Across two studies (Studies 1a and 1b), we predicted that participants who were tempted to engage in dishonest behavior (*likely cheating* condition) were more likely to have an impaired ability to read others' mental states than participants in a control condition that did not allow dishonest behavior (*no-cheating* condition). Study 1a attempted to first establish the causal relationship between (likely) dishonest behavior and generalized empathic accuracy and to then examine the downstream consequences of this relationship in the laboratory setting. We also ran two additional preregistered studies with nonoverlapping online samples: Study 1b improved the study design, and Study 1c replicated our core hypothesis.

Method for Study 1a

Participants and procedure. We aimed to recruit 200 adults for this study; a total of 183 adults (M_{age} = 31.98, *SD* = 14.66; 49% male) from a behavioral laboratory in the northeastern United States signed up and participated in the 30-min experiment and received $10 for their participation. Participants were given the opportunity to earn up to a $6 bonus based on their reported performance in a die-throwing task and up to a $2 bonus based on their decision in a subsequent cheating task. There were no data exclusions.

Participants were first randomly assigned to one of two conditions (*likely cheating* vs. *no-cheating*) and were then asked to complete a video task designed to measure empathic accuracy. To explore the downstream consequences of reduced empathic accuracy stemming from dishonesty, we also measured participants' tendency to dehumanize and to behave dishonestly when given an opportunity to do so. In addition, we asked standard demographic questions (about age and gender).

Manipulations and measures.

Cheating manipulation. Using a die-throwing game adapted from Jiang (2013), we asked participants to throw a virtual six-sided die five times to earn points that could be converted into real bonus payments, with each point translating to $0.20 in bonus payment. Before virtually rolling the die, participants had to choose whether to take the point total from the top or the bottom of the die. The visible side of the die, facing up, was called "U," and the opposite side, facing down, was called "D." In each round, the number of points that participants scored depended on the number on the die (randomly ranging from 1 to 6) and on the side that they chose before each throw. For example, if a participant chose "D" and rolled a five, she would earn two points for that throw; if she chose "U," she would receive five points (see Method and Materials document on our Open Science Framework page for the example provided to participants).

Participants in the *opaque, likely cheating* condition chose a side of the die ("U" or "D") in their minds before each throw. In this condition, however, they were not told to formally indicate the side that they had chosen before making the throw. Because participants in this condition could change their minds and choose the side corresponding to the maximum number of points after the throw, this experimental condition allowed cheating. Participants in the *transparent, no-cheating* condition, by contrast, could not cheat because they were asked to choose a side of the die and report it before each throw.

Although this task did not allow us to differentiate the trials that participants actively lied about from the trials that they did not lie about, we chose this particular task for our manipulation for the following reasons: First, this task placed participants in a situation in which they could lie ("I actually wanted to pick U, not D!") and report the counterfactual that offered a greater financial outcome. Second, this task ensured that participants made a private decision to lie without subjecting them to the fear of getting caught or social desirability concerns.

Empathic accuracy. We used a performance-based test designed to measure individual differences in the ability to recognize others' emotions in their face, voice, and body language (a short version of the Geneva Emotion Recognition Test; Schlegel & Scherer, 2016). This task involved watching 42 short video clips in which 10 actors (five male, five female) expressed a wide range of positive and negative emotions. After each clip, participants were instructed to choose which one of the 14 specific emotions was present (e.g., pride, relief, anxiety, despair, irritation). On average, participants correctly identified the discrete affective state of the actors in 23.34 of 42 videos (*SD* = 5.88).

Dehumanization. We adapted a measure of blatant dehumanization developed by Kteily, Bruneau, Waytz, and Cotterill (2015). After participants estimated the emotion expressed by the actor in a video clip, they were presented with a graphical description of the "Ascent of Man," in which five silhouettes describe the evolution of humans over time. We then asked the participants to indicate how evolved and human-like they considered the actor to be using a continuous slider (0 to 100) for each of the 42 video clips. On average, participants rated the actors' evolution as 90.38 of 100 (*SD* = 14.22).

Subsequent dishonesty. Last, we asked participants to play a social game in which they could earn a $2.00 bonus by telling a lie to a fictitious participant or only a $0.50 bonus for telling the truth (Gneezy, 2005). All participants were told that they were paired with an anonymous player (Player 2). Participants (Player 1s) learned about two possible monetary payoffs that Player 2 would not be aware of: (a) Option A, which would give $2.00 to Player 1 and $0.50 to Player 2, and (b) Option B, which would give $0.50 to Player 1 and $2.00 to Player 2. Participants (Player 1s) were under the impression that after seeing these options, they would choose a message to be sent to Player 2, and Player 2 would then opt for Option A or B and thus determine each participant's actual payout. Participants (Player 1s) were asked to send one of two messages to Player 2: a truthful message ("Option B will earn Player 2 more money than Option A") or a lie ("Option A will earn Player 2 more money than Option B"). We used this decision as a measure of participants' willingness to engage in dishonesty to benefit themselves; 67.58% chose to lie.

Results and Discussion for Study 1a

In the initial die-throwing task, participants in the *likely cheating* condition (*M* = $4.26, *SD* = 0.77) reported higher earnings than did those in the *no-cheating* condition (*M* = $3.55, *SD* = 0.67), $t(181) = 6.69$, $p < .001$, $d = .99$, suggesting that dishonest behavior was likely in the *likely cheating* condition.

Our dependent variable violates the assumption of homoscedastic, normally distributed errors. Thus, in all our analyses with this measure of empathic accuracy as a dependent variable, we conducted Poisson regressions to account for the fact that participants' scores are a count variable that is negatively skewed and only takes non-negative integer values (Cameron & Trivedi, 1998). Supporting our main hypothesis, our Poisson regression analysis revealed that participants in the *likely cheating* condition (*M* = 22.46, *SD* = 5.87) were less accurate in detecting others' affective states in an empathic accuracy task (GERT-S) than those in the *no-cheating* condition (*M* = 24.22, *SD* = 5.79), $b = -0.07$, $SE = 0.03$, $p = .014$.[2] We then used the standardized mean difference

[2] Poisson regression models a count outcome as a nonlinear, exponential function: $\hat{Y} = e(b_0 + b_1X_1 + b_2X_2 + \ldots + b_pX_p)$, where the *bs* are the regression coefficients and the *Xs* are the predictor variables.

measure of effect size for the Poisson regression (Coxe, 2018) to approximate Cohen's d.[3] The average empathic accuracy level of the participants in the *likely cheating* condition was 0.357 standard deviations *lower* than the level of those in the *no-cheating* condition.

Although we did not specifically hypothesize the potential effect of gender in this research, we explored the role of gender as a moderator in the post hoc analysis. In the Poisson regression analysis with condition and gender as well as its interaction term (Condition × Gender) as predictors, we found a main effect of being female, $b = 0.14$, $SE = 0.04$, $p = .001$, and a marginally significant effect of condition, $b = –.08$, $SE = 0.05$, $p = .072$, but no significant interaction was found, $b = 0.08$, $SE = 0.06$, $p = .192$. This finding indicates that the effect of condition on empathic accuracy did not depend on the perceiver's gender and that females tend to outperform males on this empathic accuracy task.

To examine the downstream consequences of the link between dishonesty and empathic accuracy, we ran mediation analyses with cheating condition as an independent variable (1 = *likely cheating*, 0 = *no-cheating*) and participants' ability to read others' emotions as a mediating variable. In the first model, we examined the indirect effect of initial dishonesty on the continuous measure of dehumanization of the target through empathic accuracy. We found a significant indirect effect; a bootstrap analysis with 1,000 bias-corrected samples showed that the 95% confidence interval for the indirect effect of initial dishonesty on dehumanization (via empathic accuracy) did not include zero (*estimate* = −1.22, *boot SE* = 0.72, 95% CI [−3.275, −0.153]). While there was no direct effect of initial cheating on dehumanization, $t(181) = 0.23$, $p = .81$, we did find evidence of an indirect effect through empathic accuracy, which significantly predicted dehumanization ($b = 0.69$, $SE = 0.17$, $p < .001$).

In the second model, with a binary measure of subsequent dishonesty as a dependent variable, we also found a significant indirect effect of initial dishonesty on subsequent dishonesty through reduced empathic accuracy (*estimate* = 0.02, *boot SE* = 0.02, 95% CI [0.001, 0.078]). No direct effect of initial cheating on subsequent cheating was found, $t(180) = -0.47$, $p = .63$, but empathic accuracy predicted subsequent cheating at the 10% significance level ($b = -0.05$, $SE = 0.03$, $p = .078$). This finding suggests that the relationship between initial cheating (as induced by *likely cheating* condition) and subsequent cheating is partially explained by a reduction in empathic accuracy. To summarize, despite the absence of a significant relationship between initial dishonesty and two dependent measures (see Rucker, Preacher, Tormala, & Petty, 2011, for cases of a nonsignificant direct effect), our results suggest that the effect of initial dishonesty on the aforementioned measures is transmitted through impaired empathic accuracy.

Study 1a confirmed the causal relationship between dishonesty and empathic accuracy as well as the downstream consequences of this relationship for interpersonal relationships: increased dehumanization of others and increased willingness to lie to another participant to benefit oneself. This raises the interesting possibility that the link between dishonest behavior and empathic accuracy may create a vicious cycle in which an individual who engages in dishonest acts becomes increasingly more socially isolated and unsupported, thus making it easier to rationalize future dehumanization and dishonest behavior (Kouchaki & Wareham, 2015).

Method for Study 1b

Study 1b attempted to replicate the relationship between likely dishonest behavior and generalized empathic accuracy found in Study 1a, while also addressing a limitation in our initial study design—namely, the possibility that participants in the two conditions were differentially motivated to complete the empathic accuracy task (e.g., participants in the *likely cheating* condition made more money by cheating and therefore may have been less interested in the subsequent task, which was not incentivized). In the design of Study 1b, we provided monetary incentives (albeit small ones) to rule out the possibility that participants who were in the *likely cheating* condition were less motivated to complete the subsequent empathic accuracy task than those in the *no-cheating* condition. In addition, we measured the time taken to complete each trial as a proxy to examine the effort and motivation participants devoted to the empathic accuracy task.

In this study, we aimed to recruit a total of 600 participants, as preregistered; 617 workers from the online labor market (Amazon Mechanical Turk) participated. In total, 575 participants ($M_{age} = 38.97$, $SD = 11.94$; 46% male) completed all the tasks.[4] A priori, we planned to exclude participants for whom English was not their first language ($n = 13$),[5] leaving a total of 562 participants ($M_{age} = 39.10$, $SD = 11.97$; 45% male) for the analysis.

Participants were asked to complete a 25-min experiment and were paid $1.00 for their participation. They were also given the opportunity to earn up to a $0.60 bonus based on their performance in the die-throwing task and up to an $0.84 bonus based on their actual performance in the emotion recognition task. Participants were first randomly assigned to either the *likely cheating* or the *no-cheating* condition (Jiang, 2013), after which they completed the die-throwing exercise and then were instructed to complete the video task to measure empathic accuracy, as in Study 1a, to assess participants' ability to recognize others' affective states ($M = 23.37$, $SD = 5.84$; Schlegel & Scherer, 2016).

Results and Discussion for Study 1b

On average, participants in the *likely cheating* condition (M = \$0.40, $SD = 0.08$) reported higher scores on the die-throwing task than did those in the *no-cheating* condition (M = \$0.36, $SD = 0.08$), $t(560) = 5.88$, $p < .001$, $d = .50$, suggesting that participants in the *likely cheating* condition behaved dishonestly. Importantly, participants in the *likely cheating* condition ($M = 22.76$, $SD = 6.11$) were significantly less accurate at detecting others' mental and affective states than those in the *no-cheating* condition ($M = 23.97$, $SD = 5.51$), $b = -0.05$, $SE = 0.02$, $p = .005$, suggesting that dishonest behavior resulted in lowered empathic accuracy. In particular, the average empathic accuracy level of the

[3] This estimate for our effect size should not be taken at its face value. For example, the effect size for the Poisson regression models is based on the nonlinear effect of the independent variable on the count variable as a dependent measure, which would not be entirely comparable with linear models.

[4] This replication study was preregistered at www.aspredicted.org.

[5] We repeated our analysis while including the 13 participants for whom English was not their first language. Participants in the *likely-cheating* condition ($M = 22.43$, $SD = 6.56$) were outperformed by those in the *no-cheating* condition ($M = 23.42$, $SD = 6.33$), $b = -0.04$, $SE = 0.02$, $p = .019$, in their empathic accuracy.

participants in the *likely cheating* condition was 0.233 standard deviations *lower* than the level of those in the *no-cheating* condition.

Similar to Study 1a, we also explored the possible role of gender as a moderating variable in the Poisson regression model; mirroring the results in Study 1a, we found a significant main effects for the condition, $b = 0.08$, $SE = 0.03$, $p = .002$, and for being female, $b = 0.12$, $SE = 0.02$, $p < .001$, but no significant interaction was found, $b = -0.05$, $SE = 0.03$, $p = .119$.

In addition, to rule out differences in motivation, we tested if our effect was a result of participants in the *likely cheating* condition spending less time on the empathic accuracy task than those in the *no-cheating* condition. However, we found no difference in time spent (in seconds) between the two conditions (likely cheating, $M = 1101$, $SD = 690$ vs. no cheating, $M = 1197$, $SD = 930$), $t(560) = 1.39$, $p = .16$, which reduces the possibility that lower performance on this task is driven by lower motivation to perform well and/or less focus on performing well.

Study 1b thus confirmed that the negative relationship between dishonest behavior and empathic accuracy held when the empathic accuracy task was incentivized, and this was not driven by participants' varying motivation or mental focus on the task.

Method for Study 1c

Study 1c was preregistered to replicate the basic relationship between likely dishonest behavior and generalized empathic accuracy with a larger sample. Following the recommendations of Signorini (1991) for sample size calculation for Poisson regression, we estimated that this study would require $n = 944$ to reach 95% power (one-tailed). Unlike in Study 1b, we did not include monetary incentives for the empathic accuracy task. A total of 1,000 workers were recruited from the online labor market (Amazon Mechanical Turk); 966 participants ($M_{\text{age}} = 37.76$, $SD = 11.76$; 39% male) completed all the tasks. In the preregistration, we also planned to exclude participants for whom English was not their first language ($n = 29$),[6] leaving a total of 937 participants ($M_{\text{age}} = 37.89$, $SD = 11.81$; 39% male) for the analysis.

Participants were asked to complete a 25-min experiment and were paid $1.00 for their participation. As before, they were also given the opportunity to earn up to a $0.60 bonus based on their performance in the die-throwing task. Participants were first randomly assigned to either the *likely cheating* or the *no-cheating* condition in the die-throwing exercise (Jiang, 2013) and then were instructed to complete the video task for measuring empathic accuracy, as in Study 1a, to assess participants' ability to recognize others' affective states ($M = 23.35$, $SD = 5.58$; Schlegel & Scherer, 2016).

Results and Discussion for Study 1c

On average, participants in the *likely cheating* condition ($M = \$0.39$, $SD = 0.07$) reported higher scores on the die-throwing task than did those in the *no-cheating* condition ($M = \$0.35$, $SD = 0.08$), $t(935) = 7.50$, $p < .001$, $d = 0.49$, suggesting that participants in the *likely cheating* condition behaved dishonestly. Importantly, participants in the *likely cheating* condition ($M = 23.01$, $SD = 5.67$) were significantly less accurate at detecting others' mental and affective states than those in the *no-cheating* condition ($M = 23.68$, $SD = 5.47$), $b = -0.03$, $SE = 0.01$, $p = .035$, suggesting that dishonest behavior resulted in lowered empathic accuracy. In particular, the average empathic accuracy level of the participants in the *likely cheating* condition was 0.143 standard deviations *lower* than the level of those in the *no-cheating* condition.

We also explored the role of gender as a moderator in the Poisson regression model. As in the two previous studies, we found that condition had a marginally significant effect on empathic accuracy at the 10% significance level, $b = -.04$, $SE = .02$, $p = .078$, and being female also had a positive effect, $b = 0.05$, $SE = 0.06$, $p = .004$. However, no significant interaction between the two terms was found, $b = 0.02$, $SE = 0.03$, $p = .444$.

Consistent with our hypothesis and main results from Studies 1a and 1b, this study replicated the causal relationship between dishonest behavior and generalized empathic accuracy.

Study 2

Study 2 was designed to identify a possible mechanism to explain the relationship between dishonesty and empathic accuracy. In particular, we tested whether the relationship between dishonest behavior and empathic accuracy is explained in part by relational self-construal.

Method

We planned to recruit 200 adults, as in Study 1a; a total of 197 adults ($M_{\text{age}} = 24.51$, $SD = 3.86$; 35% male) from a behavioral laboratory in the Midwestern United States signed up and participated. They engaged in a 30-min experiment and were each paid $5.00 total for their participation in three purportedly unrelated studies. Participants earned up to a $6.00 bonus in the form of an Amazon.com gift card based on their reported performance in the die-throwing task. There were no data exclusions.

As in Studies 1a–1c, participants were first randomly assigned to one of two conditions for the die-throwing task (*likely cheating* vs. *no-cheating*; Jiang, 2013). Next, they were instructed to complete the Twenty Statements Test (Gordon, 1968; Kuhn & McPartland, 1954) to measure their self-construal. Specifically, to measure the extent to which participants had relational self-construal, we asked them to provide 20 answers to the simple question "Who am I?" (Gordon, 1968; Kuhn & McPartland, 1954). Using the coding scheme from Brewer and Gardner (1996), we asked two independent judges, who were blind to the experimental conditions, to count the number of times *self in relation to others* was mentioned in this test (Cohen's $\kappa = 0.78$). For example, "I am a sister" and "I am in a relationship" qualified as relational self-construal. Finally, participants engaged in the same video task as in our prior studies to measure empathic accuracy (GERT-S; $M = 24.82$, $SD = 4.86$; Schlegel & Scherer, 2016).

[6] We repeated our analysis while including the 29 participants for whom English was not their first language. Participants in the *likely-cheating* condition ($M = 22.94$, $SD = 5.69$) were outperformed by those in the *no-cheating* condition ($M = 23.56$, $SD = 5.50$), $b = -0.03$, $SE = 0.01$, $p = .045$, in their empathic accuracy.

Results and Discussion

As before, participants in the *likely cheating* condition (M = \$4.13, SD = 0.71) reported higher earnings than did those in the *no-cheating* condition (M = \$3.43, SD = 0.72), $t(195) = 6.82$, $p < .001$, $d = .98$, suggesting that the former behaved dishonestly. Although the result was not statistically significant at the 5% significance level, participants in the *likely cheating* condition ($M = 24.22$, $SD = 5.15$) were marginally less accurate at detecting others' affective states than those in the *no-cheating* condition ($M = 25.4$, $SD = 4.52$), $b = -0.05$, $SE = 0.03$, $p = .097$. In particular, the average empathic accuracy level of the participants in the *likely cheating* condition was 0.234 standard deviations *lower* than the level of those in the *no-cheating* condition.

We have also explored the possible role of gender as a moderator in the Poisson regression model. Contrary to Studies 1a–1c, no main effect of gender was found, $b = 0.05$, $SE = 0.04$, $p = .253$. However, there was a significant main effect of condition, $b = -0.14$, $SE = 0.05$, $p = .007$, and a marginally significant interaction, $b = 0.12$, $SE = 0.06$, $p = .055$, indicating that the relationship between condition and empathic accuracy is marginally stronger for males, $p = .078$, than females, $p = .309$.

Despite the lack of a significant direct effect of cheating condition on empathic accuracy, we were still able to assess whether there was an indirect effect through our proposed mediator (Rucker et al., 2011). We specifically tested whether our manipulation affected participants' relational self-construal. Participants in the *likely cheating* condition were significantly less likely to offer a relational construal of themselves ($M = 0.79$, $SD = 1.39$) than were those in the *no-cheating* condition ($M = 1.23$, $SD = 1.63$), $b = -0.45$, $SE = 0.14$, $p = .002$. In particular, the average frequency of relational construal in the *likely cheating* condition was 0.402 standard deviations *lower* than the frequency in the *no-cheating* condition.

We then tested a mediation model in which we proposed that cheating condition has an indirect effect on empathic accuracy through a decrease in relational self-construal. We found a significant indirect effect of dishonesty (inferred from being in the *likely cheating* condition) on impaired empathic accuracy through reduced relational self-construal. A bootstrap analysis with 1,000 bias-corrected samples showed that the 95% confidence interval for the indirect effect of dishonesty on empathic accuracy (via relational self-construal) did not include zero (*estimate* $= -0.21$, *boot SE* $= 0.13$, 95% CI [-0.577, -0.026]). Our results suggest that dishonest behavior makes individuals less relational, such that the behavior negatively influences their subsequent ability to read others' affective states.

Study 2 supported our hypothesis that the negative relationship between dishonesty and empathic accuracy is driven by a reduction in relational self-construal: It was the lack of relational self-construal associated with dishonesty that impaired participants' ability to infer others' affective states.

Meta-Analysis for Studies 1 and 2

We present meta-analytic results across our four experimental studies (total $n = 1{,}879$) using effect sizes (Cohen's d) estimated from Poisson regressions (Coxe, 2018). We tested our core hypothesis that dishonest behavior reduces empathic accuracy. The overall effect was consistent, significant, and small-to-modest in size, $z = 4.32$, $p < .001$, combined Cohen's $d = .20$, suggesting that empathic accuracy was higher for the *no-cheating* condition than for the *likely cheating* condition (Table 1).

Despite the relatively small effect size found in our experimental studies, our results shed light on how a seemingly subtle manipulation that provided participants the opportunity to justify their dishonest behavior may have influenced their empathic accuracy. It should be noted that our experimental design did not allow us to identify dishonest participants or to measure the extent to which participants behaved dishonestly. Although the average, aggregated outcomes from the die-rolling task were significantly higher for the *likely cheating* condition than for the *no-cheating* condition in all studies, it is possible that some participants in the *likely cheating* condition did not cheat on this task. Additionally, not all trials would have elicited dishonest behavior; specifically, participants could have initially predicted the higher side of the die roll, eliminating the benefit of dishonesty. Thus, we believe that our small effect size may be a function of our manipulation.

Study 3

Given the relatively small effect size in the meta-analysis, we designed Study 3 to conceptually replicate our previous findings by altering our design in two important ways. First, we use a different manipulation of dishonesty by asking participants to tell either a made-up story (dishonest) or a story based on a real experience (honest). This manipulation is closer to the type of day-to-day deception people engage in regularly and also demonstrates that our findings extend beyond the die-roll task. Second, we test empathic accuracy based on face-to-face interaction with another individual in the lab, increasing the ecological validity of our design and measure beyond that of recognizing the emotions of online actors.

Method

Participants and procedure. We planned to recruit 500 adults (250 dyads) to participate in the laboratory experiment. Because of the limited size of subject pools at our respective institutions, participants were recruited through subject pools from two schools and then went through the same procedures in a 30-min study session. Institution A recruited 200 adults to participate for course credit, and Institution B recruited 311 adults to participate for payment of \$15.[7] In 11 sessions, an odd number of individuals showed up; thus, 11 individuals did not participate; this resulted in a total of 250 pairs, as planned.

Upon entering the laboratory, each participant was handed a sticker with a number that matched them to their partner, as well as a letter that denoted whether they were partner A or B (partner As were the focal subjects, and partner Bs were the confederates). Unbeknown to them, half of the participants were randomly assigned to be confederates; the other half, referred to as our focal subjects, were assigned to one of two conditions: dishonest or honest. Participants were seated at a computer open to a survey hosted on Qualtrics, consented to participate, and then entered their sticker letter and number into their survey. The entering of

[7] These differences in reward were attributable to differences in the structure of the respective subject pools.

Table 1
Studies 1 and 2: Group Characteristics in Each Experimental Condition

Study	Sample size		% Female		*M* age	
	Likely cheating	No cheating	Likely cheating	No cheating	Likely cheating	No cheating
Study 1a	91	92	41%	61%	32.82 (*SD* = 15.09)	31.15 (*SD* = 14.26)
Study 1b	279	283	54%	55%	38.56 (*SD* = 12.23)	39.67 (*SD* = 11.73)
Study 1c	462	475	59%	62%	38.30 (*SD* = 11.80)	37.50 (*SD* = 11.82)
Study 2	96	101	66%	62%	24.36 (*SD* = 3.27)	24.64 (*SD* = 4.36)

Note. All studies listed here used the same die-roll paradigm to induce dishonest behavior.

their letter triggered the proper instructions, and the entering of their number allowed us to match pairs of participants.

Those in the dishonest condition were asked to think of a made-up story about trying to get a job. Those in the honest condition, as well as all confederates, were asked to think of a story based on their lived experience about trying to get a job. All individuals then recorded this story in an open response textbox. After writing their stories, participants met their partner in a breakout room, also labeled with their same pairing number, to share these stories with one another. Pairs were instructed that Partner A, the focal subject, should tell their story first, which ensured the dishonesty would occur at the start of the interaction. Consistent with prior work, after sharing their stories, participants returned to their original computer so that we could assess empathic accuracy (Côté et al., 2011; Kumar & Epley, 2018). Partner A, the focal subject, reported the emotions they believe Partner B experienced when telling their story. Partner B reported their own emotions when telling their story.

Of our recruited 250 pairs of participants (M_{age} = 27.55, *SD* = 11.82; 55% male for focal subjects; M_{age} = 27.67, *SD* = 12.32; 55% male for confederates), 39 pairs were excluded, resulting in 211 pairs (M_{age} = 27.28, *SD* = 12.01; 56% male for focal subjects; M_{age} = 26.94, *SD* = 11.20; 54% male for confederates). As determined by research assistants monitoring each session, pairs were excluded for the following reasons: the wrong partner told their story first; they asked so many questions during the session that it became apparent they were not actually reading their survey instructions or questions (e.g., "What story am I supposed to be telling?"); or they were actively on their phone during the storytelling portion of the session. Exclusions were due to the actions of either individual in the pair; thus, of the 500 individuals, 39 did not follow instructions. This resulted in 106 pairs in the dishonest condition and 105 pairs in the honest condition.

Measures. Each individual rated the extent to which each of the following emotions were felt (focal subjects rated their confederates' emotions; confederates rated their own emotions): achieved, amazed, angry, anxious, appreciative, ashamed, awe, compassion, concerned, contempt, courage, disgusted, distressed, disturbed, embarrassed, empowered, grateful, guilt, happy, hopeful, inspired, moved, pain, pity, powerful, proud, relieved, sad, sympathy, touched, troubled, uplifted, upset, warm, weak, and worried (1 = *did not feel at all*; 7 = *felt very strongly*). To generate empathic accuracy scores, we calculated the absolute deviation scores (Côté et al., 2011). We first calculated the absolute values of the differences between the focal subject's rating and the confederate's rating of each emotion and then generated one empathic accuracy score by taking the average across the 36 emotions (α = .86; *M* = 1.49, *SD* = 0.59). The scores in this sample ranged from 0.22 (reflecting higher accuracy) to 3.81 (reflecting lower accuracy).

Results and Discussion

Consistent with our previous studies, participants in the *dishonest* condition (*M* = 1.58, *SD* = 0.63) were significantly less accurate at detecting others' mental and affective states than those in the *honest* condition (*M* = 1.39, *SD* = 0.54), $t(209) = 2.37$, $p = .019$, $d = .33$, suggesting that dishonest behavior resulted in lowered empathic accuracy.

Additionally, we explored whether gender moderated the relationship between condition and empathic accuracy. We ran an analysis of covariance test (ANCOVA) including both condition and gender as fixed effects. The significant main effect of condition remained, $F(1, 206) = 4.65$, $p = .03$, whereas gender, $F(2, 206) = 0.57$, $p = .56$, and the interaction effect of condition and gender, $F(1, 206) = 0.36$, $p = .55$, were not significant. This suggests gender did not play a critical role in modulating the level of empathic accuracy of participants.

Consistent with our hypothesis and main results from Studies 1 and 2, this study replicated the causal relationship between dishonest behavior and empathic accuracy. To increase the realism in our design, in this study, we demonstrated this effect using face-to-face interactions between two lab participants. Additionally, we did not find evidence that the gender of the focal individual impacts how unethical behavior influences empathic accuracy.

Study 4

In Study 4, we sought to further improve our study design and test boundary conditions of our proposed relationship. Although our study design for the *likely cheating* condition in Studies 1 and 2 did not allow us to observe whether all participants were actually dishonest, our results suggest that—as compared with the control condition, which did not allow dishonesty—many were likely to have inflated their score to benefit themselves financially. It is thus plausible that the presence of the temptation to change their mind post hoc increased their dishonest behavior, which may have led to an impaired ability to read others' mental and affective states. For that reason, in Study 4, we directly measured the frequency of dishonest behavior, as opposed to manipulating it (see also the Appendix for Studies S1a and S1b).

Crucially, Study 4 tested a boundary condition: that individual differences in vagal reactivity (a commonly used physiological marker for social sensitivity; Kok & Fredrickson, 2010; Muhtadie et al., 2015; Stellar, 2013; Stellar et al., 2012) moderate the relationship between dishonest behavior and empathic accuracy. In this study, we used a new measure of dishonesty (Peer, Acquisti, & Shalvi, 2014) while measuring individual vagal reactivity to examine our hypothesis that people who have higher levels of vagal reactivity would not have reduced empathic accuracy as a result of their dishonest behavior, whereas the relationship between dishonesty and empathic accuracy would be more pronounced for people who have lower levels of vagal reactivity.

Method

Participants and procedure. We planned to recruit 100 adults for a physiological study; 102 adults signed up and participated in our 30-min laboratory session ($M_{\text{age}} = 23.35$, $SD = 3.01$; 45% male). Two participants were excluded from further analyses because an equipment malfunction prevented us from obtaining their levels of heart rate variability. Thus, our analysis included 100 participants ($M_{\text{age}} = 23.33$, $SD = 2.99$; 45% male). All participants received a $10 show-up fee and up to a $5 bonus based on their performance.

To make it difficult for participants to guess the study's true hypothesis, we framed it as a study about predicting the future. After participants arrived at the laboratory, research assistants attached three electrodes to participants' torsos to obtain cardiac responses over time. Participants were then escorted to a room with two computers (Computer A and Computer B). They were told that they would be asked to use both computers during the study. After the experimenters ensured that participants' physiological signals were normal, the participants were told to take a deep breath and to watch a 5-min neutral video on Computer A, which obtained baseline measures of RSA. A large body of research has used RSA as a proxy for activation of the parasympathetic nervous system, which is the part of the nervous system responsible for regulating heart rate (Geisler, Kubiak, Siewert, & Weber, 2013; Porges, 1995). Participants were given three seemingly unrelated tasks in the following order: a coin-toss task (to measure dishonest behavior), the Friend or Foe task (to track changes in the measure of RSA), and the Reading the Mind in the Eyes task (to measure empathic accuracy).

Measures.

Vagal reactivity. We showed a neutral video clip that shows a fish tank to capture the participants' resting RSA. To observe changes in RSA, we then showed five video clips from the TV show "Friend or Foe?" that represent a one-shot, modified prisoner's-dilemma situation with high-stakes monetary outcomes. We specifically chose a context that required participants to pay close attention to the contestants who appeared in the game show and to estimate the veracity of their statements.[8] We measured vagal reactivity by taking RSA amplitudes while participants were watching the game show video clips and then subtracted the cardiac vagal tone at rest, measured while they were watching the neutral video (Task Force of the European Society of Cardiology and the North American Society of Pacing & Electrophysiology, 1996).[9] The greater the decrease in RSA, which tracked cardiac vagal withdrawal, the greater the vagal reactivity.

Coin-toss task. Following Peer et al. (2014), we told participants that they would be asked to predict the future outcomes of five coin tosses (after one trial period) and that they would be paid $1 for each time that their prediction matched the outcome. An envelope filled with ten $1 bills was placed on each participant's desk. On Computer A, participants predicted the outcome of the coin toss first and then were directed to open an online coin-tossing website on Computer B. Computer switching was employed to reduce participants' suspicion that their coin-toss outcomes were being tracked. After they tossed the coin using the online tool, participants returned to Computer A and reported whether the toss matched their prediction or not. Participants were instructed to take a $1 bill from the envelope if they had predicted correctly. The same procedure was repeated for five rounds.

To track participants, we appended their unique ID numbers to the link to the coin-flipping website, which was built to track the actual outcome of each coin toss along with the unique Participant IDs. These IDs did not appear on the website; participants believed that this was an independent website that was not linked to themselves or to their actual coin toss outcomes. Using this information from the website, we determined whether each participant truthfully reported the coin toss outcome or not. On average, participants cheated in 0.35 of the 5 trials ($SD = 0.78$; range $= 0{\sim}4$); 79% of the participants did not cheat on this task.

Empathic accuracy. To measure empathic accuracy, we chose the Reading the Mind in the Eyes test (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), which measures an employee's ability to recognize the complex affective states of others. In particular, this ability-based measure of empathic accuracy has been shown to reduce the likelihood of social desirability bias (Randall & Fernandes, 1991). The Reading the Mind in the Eyes test is both widely accepted as a robust measure of individual brain function and well validated, with adequate test–retest reliability, and thus is used frequently in clinical settings (Baron-Cohen et al., 2001; Hallerbäck, Lugnegård, Hjärthag, & Gillberg, 2009; Pinkham et al., 2014). Participants viewed the muscle configurations surrounding the eye region of an actor or actress and were asked which of four words best described the mental state that the person was experiencing. Participants completed 36 trials, each consisting of a complex mental-state inference (e.g., hostile,

[8] The contestants, who were strangers before they appeared in the TV studio, were paired and then answered a series of trivia questions for joint winnings. Next, the pair advanced to the "Trust Box," where they would determine how to split their earnings. Each contestant secretly chose to be either a "friend" or a "foe." If they both chose to be a "friend," they split the winnings in half; if both chose to be a "foe," neither received any winnings. If one person chose to be a "friend" but the other chose to be a "foe," then the "foe" got all the winnings and left nothing for the "friend." Their decisions were revealed simultaneously, so no one could know for certain what the other party would do, but before making the decision, they could make brief statements to explain why the other party should trust them. The video clips did not reveal the pair's decisions but showed these statements made by the pairs, such that participants could try to predict who was going to be a truth teller or a liar.

[9] We used electrocardiogram (ECG) recordings sampled at 1000 Hz from electrodes placed on the participants' torso to measure their heart rate variability. RSA was calculated as heart rate variability based on spectral analysis of RR intervals (Lahiri, Kannankeril, & Goldberger, 2008). To represent parasympathetic activity (Berntson et al., 1997), we used the high-frequency (respiratory) band of the R-wave-to-R-wave sequence (0.14~0.40 Hz). All data were filtered for artifacts using software (HR/HRV scoring module 2.6) from MindWare Technologies, Inc.

ashamed, playful, nervous) and, on average, correctly identified the affective state in 25.56 ($SD = 5.28$) of 36 trials.

Demographics. As before, we collected standard demographic information (age and gender).

Results and Discussion

Table 2 provides the descriptive summary statistics for and zero-order correlations between key variables. To test our hypotheses, we ran a hierarchical multivariate regression analysis (with Poisson regression models) in which we entered empathic accuracy as a dependent measure and demographics as control variables (Model 1), dishonest behavior as our main independent variable of interest (Model 2), and vagal reactivity (measured by changes in RSA from Time 1 to Time 2; representing greater vagal withdrawal) and the interaction term between dishonest behavior and vagal reactivity (Model 3) as predictor variables, as reported in Table 3.

In Model 1, our results suggest that females tend to perform better on the empathic accuracy test at the 10% significance level, $b = 0.07$, $SE = 0.04$, $p = .079$, and age was not significantly correlated with empathic accuracy, $b = —0.01$, $SE = 0.01$, $p = .138$. In Model 2, we found support for our main hypothesis. Dishonest behavior was significantly negatively correlated with empathic accuracy, $b = -0.08$, $SE = 0.03$, $p = .005$, controlling for demographic variables.[10] In Model 3, consistent with our moderation hypothesis, we found a significant interaction between vagal reactivity and dishonest behavior, $b = 0.07$, $SE = 0.02$, $p = .005$. Simple slopes analysis revealed that for those with low levels of vagal reactivity (1 standard deviation below the mean), dishonest behavior was significantly negatively correlated with empathic accuracy, $b = -4.76$, $SE = 1.10$, $p < .001$. For those with high levels of vagal reactivity (1 standard deviation above the mean), we found no such relationship, $b = 0.45$, $SE = 0.97$, $p = .64$. Figure 1 depicts the relationship.[11]

We repeated our post hoc analysis on the moderating role of gender. Although we found a significant main effect of dishonesty, $b = -0.13$, $SE = 0.05$, $p = 0.015$, and a marginally significant effect of gender, $b = 0.07$, $SE = 0.04$, $p = 0.065$, we did not find a significant interaction, $b = 0.08$, $SE = 0.06$, $p = .184$.

In Study 4, we showed that the relationship between dishonest behavior and empathic accuracy is moderated by an individual's level of vagal reactivity, a physiological correlate of social sensitivity (Muhtadie et al., 2015). To summarize, dishonest behavior predicted lower levels of empathic accuracy for participants who had lower as compared with higher vagal reactivity.

Table 2
Study 4: Means, Standard Deviations, and Zero-Order Correlations for Key Variables

Variable	*M* (*SD*)	1	2	3	4	5
1. Dishonest behavior	0.35 (0.78)					
2. Empathic accuracy	25.56 (5.28)	−.23*				
3. RSA at T1	6.35 (1.52)	.02	−.03			
4. RSA at T2	6.17 (1.58)	.04	.02	.42***		
5. Age	23.33 (2.99)	−.10	−.07	−.25*	.10	
6. Female	0.54 (0.50)	.07	.16	−.25*	−.10	.16

Note. RSA is respiratory sinus arrhythmia, measured at T1 (baseline average) and T2 (average while participants watched Friend or Foe videos).
$^{*} p < .05$. $^{***} p < .001$.

General Discussion

In this paper, we documented an important and previously overlooked consequence of dishonest behavior: difficulty accurately inferring others' affective states. Across eight studies, our results demonstrate that dishonest behavior can impair a person's general ability to accurately detect another's mental state via a reduction in relational self-construal. This relationship can have negative downstream consequences, in terms of dehumanization and repeated dishonest behavior. Further, we found that the relationship between dishonesty and empathic accuracy is moderated by vagal reactivity; that is, the relationship was no longer significant for participants with high levels of vagal reactivity. Below, we discuss theoretical contributions to the literature on behavioral ethics and interpersonal cognition as well as limitations of our work and future directions.

Theoretical Contributions

First, we advance the behavioral ethics literature by showing the impact of dishonest behavior on the ability to engage in accurate interpersonal cognition. A growing body of research depicts morality as fundamental to facilitating and coordinating interpersonal relationships and group living (Greene, 2013; Janoff-Bulman & Carnes, 2013; Rai & Fiske, 2011). Under this view, harmful behavior hinders—and helpful behavior facilitates—cooperation and group functioning (Cohen, Panter, Turan, Morse, & Kim, 2014). However, researchers have not yet explored how a person's decisions in one domain, such as behaving dishonestly, could alter their empathic accuracy in a subsequent situation. Through this research, we have begun to elucidate the important consequences individual behavior can have for interpersonal treatment. Given that empathic accuracy is considered an antecedent of several generative interpersonal processes—pro-social behavior, compassionate responding, and responsiveness—our research presents early evidence that the impact of dishonest conduct on empathic accuracy may have implications for interpersonal relationships more broadly.

Second, responding to the call for an understanding of ethics as an inherently social phenomenon (Lee & Gino, 2016), our research fundamentally challenges views that combine morality and empathy into a single construct. Although social psychology research has commonly argued that empathy is a moral sentiment that triggers pro-social behavior (Davis, 1994), empathy toward others can also lead employees to cross ethical boundaries (Gino & Pierce, 2009). For

[10] Given the low variance in the frequency of dishonest behavior in this study, we have created a dummy variable (1 if cheated at all, 0 if not cheated), and ran a t test of empathic accuracy. Those who cheated ($M = 21.64$, $SD = 6.64$) had lower levels of empathic accuracy than those who did not cheat ($M = 25.94$, $SD = 4.88$), $t(99) = 2.65$, $p = .009$, $d = .85$.

[11] As a robustness check, we also used RSA at Time 2 (during the Friend or Foe videos) as a moderating variable and controlled for RSA at Time 1 (during the neutral baseline video). The interaction term between RSA in a social situation (during the Friend or Foe videos) and dishonest behavior was significant at the 10% significant level, $b = 0.03$, $SE = 0.19$, $p = .084$, whereas the baseline RSA in a neutral situation (during the fish tank video) was not a statistically significant predictor of empathic accuracy, $b = -0.01$, $SE = 0.01$, $p = .582$.

Table 3
Study 4: Hierarchical Multivariate Regression Analysis

	Empathic accuracy								
	Step 1			Step 2			Step 3		
Predictor variables	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
1. Age	−.01	.01	.138	−.01	.01	.07	−.01	.01	.035
Female	.07	.04	.079	.08	.04	.045	.08	.04	.047
2. Dishonest behavior				−.08	.03	.005	−.09	.03	.001
3. Vagal reactivity							.02	.01	.082
4. Interaction (Dishonest Behavior × Vagal Reactivity)							.07	.02	.005
N		99			99			99	
LR χ^2		4.55			7.99^{**}			8.73^{*}	
Pseudo R^2		.007			.021			.036	

Note. Interaction denotes Dishonest Behavior × Vagal Reactivity (both variables were centered at their means before computing the interaction term). This analysis only included $n = 99$, because of one participant who did not report gender.
$^{*} p < .05$. $^{**} p < .01$.

example, in the context of vehicle emissions testing, employees helped customers with standard vehicles (as compared with those with luxury cars) by illegally passing the cars on emissions tests (Gino & Pierce, 2010); this suggests that empathy toward others who have a similar economic status can motivate dishonest behavior, thus highlighting the importance of social context in ethical decision-making. Our work adds to this dynamic tension between dishonesty and empathy by showing not only that dishonest behavior is influenced by the specific context that creates empathy but also that one's empathic accuracy can be affected by the specific psychological state produced by one's dishonest behavior.

Limitations and Future Directions

Despite its strengths, our research has a number of limitations that leave room for future research. For example, we do not yet understand the duration of the effect that we found. If one's past transgression is not specifically made salient, would one's ability to read others' emotions be largely unaffected? In other words, to what extent does one's dishonest behavior influence one's empathic accuracy and harm one's social relationships during interactions that are removed from the unethical act? Individuals may differ in how much motivated cognition they need to rationalize a dishonest act; therefore, they may reduce their empathic accuracy for different durations. Future research could use a longitudinal study design to better explore how the association between engaging in dishonest behavior and reduced empathic accuracy may fluctuate over time.

Recent psychological research has demonstrated that for individuals with high levels of empathic accuracy to respond compassionately to others, they must also have a prosocial motivation (Winczewski, Bowen, & Collins, 2016). Our research findings suggest that an individual's vagal reactivity (as measured physiologically based on RSA) may also attenuate the negative effect of engaging in dishonest behavior on empathetic accuracy. Whereas vagal reactivity was used as a physiological proxy for social sensitivity, there may be other related moderators that have theoretical import, such as prosocial and antisocial motivations. Future research could thus explore the dynamic nature of these motivations via direct observation of the pull and push of holding different motivations and their moderating effect on the relationship between dishonesty and empathic accuracy.

Lastly, we conducted post hoc analysis of gender as a moderator to test whether the relationship between dishonesty and empathic accuracy depends on the perceiver's gender, and found no evidence for the interaction between gender and dishonesty.[12] A meta-analysis of

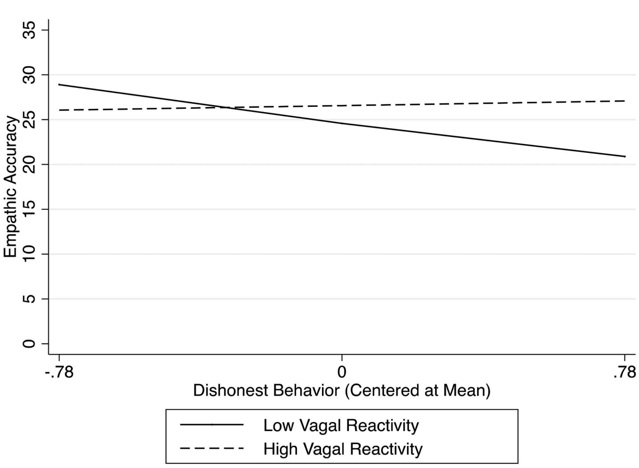

Figure 1. Study 4: Empathic accuracy as a function of vagal reactivity and dishonesty.

[12] It is important to note that some of our studies found a significant main effect of gender, whereas other studies did not. Past research on the female advantage for empathic accuracy has been somewhat inconclusive. For example, the full Geneva Emotion Recognition Test found evidence for female advantage (Schlegel, Grandjean, & Scherer, 2014), but its short form did not replicate this finding (Schlegel & Scherer, 2016). We used the Geneva Emotion Recognition Test—Short (GERT-S; Schlegel & Scherer, 2016) for Studies 1a, 1b, 1c, and 2. Although we found the main effect of gender without a significant interaction in Studies 1a–1c, the main effect of gender in Study 2 was not significant ($p = .253$). Similarly, past research on the relationship between gender and Reading the Mind in the Eyes (Baron-Cohen et al., 2001) performance has also been inconclusive. For example, Schiffer, Pawliczek, Müller, Gizewski, and Walter (2013) and Rutherford, Troubridge, and Walsh (2012) found a significant gender difference, in which females outperformed males, while recent research (Baron-Cohen et al., 2015) did not find female advantage in the clinical sample. Our three studies (4, S1a, S1b) using the same paradigm did not find evidence for female advantage, and only Study 4 found a marginally significant main effect of gender.

female advantage in empathic accuracy documented that this gender difference is likely driven by differential *motivation* rather than differential *ability* (Graham & Ickes, 1997; Ickes, Gesn, & Graham, 2000); that is, women tend to be more motivated to perform well on empathic accuracy tasks than men, and this motivational difference accounts for their empathic accuracy. Given that we used an ability-based (rather than motivation-based) measure of empathic accuracy, we conjectured that the relationship between dishonesty and empathic accuracy is less likely to be differentially influenced by the perceiver's gender. Future research could explore whether motivation-based empathic accuracy may vary as a function of both gender and dishonest behavior.

Conclusion

Much of moral philosophy and moral psychology is grounded in the idea that empathy is a necessary condition for morality (Hume, 1739), but previous studies have not shown exactly how one's morality can influence one's cognitive ability to infer others' psychological states. In this paper, we proposed and demonstrated that dishonest behavior may have interpersonal costs, not just because it could harm trust and one's reputation if others become aware of it, but also because it impairs individuals' general ability to accurately detect others' emotions. Thus, our research demonstrates that dishonest behavior not only is financially costly (e.g., in the case of stealing from a company or increasing the risk of costly lawsuits) but also can harm interpersonal relationships through a particular channel: individuals' ability to detect others' emotions.

Context of the Research

The core idea for the current research stems from two of the authors' previous research, which showed that dishonest behavior can be motivated by interpersonal factors (such as social comparisons and interpersonal emotions; Lee & Gino, 2016). Puzzled by the relative lack of research that examines the reverse causation—how dishonest behavior in turn can motivate interpersonal cognition, affect, and behavior, we undertook the current research, with a particular focus on the individual's ability to accurately read other people's emotional states. The set of correlational and causal findings showing that dishonesty reduces empathic accuracy (and increases dehumanization of social targets, as shown in Study 1a) fits within a broader research program that explores the social consequences of dishonest behavior. It is our hope that our research continues to deepen understanding of ethicality as an inherently social and relational phenomenon and inspires future research on topics beyond empathic accuracy, such as empathic concern and compassion.

References

Ali, F., Amorim, I. S., & Chamorro-Premuzic, T. (2009). Empathy deficits and trait emotional intelligence in psychopathy and Machiavellianism. *Personality and Individual Differences, 47,* 758–762. http://dx.doi.org/10.1016/j.paid.2009.06.016

Aronson, E. (1969). The theory of cognitive dissonance: A current perspective. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 4, pp. 1–34). New York, NY: Academic Press. http://dx.doi.org/10.1016/S0065-2601(08)60075-1

Ashford, S. J., George, E., & Blatt, R. (2007). 2 old assumptions, new work: The opportunities and challenges of research on nonstandard employment. *The Academy of Management Annals, 1,* 65–117. http://dx.doi.org/10.1080/078559807

Bandura, A. (1990). Mechanisms of moral disengagement in terrorism. In W. Reich (Ed.), *Origins of terrorism: Psychologies, ideologies, states of mind* (pp. 161–191). Washington, DC: Wilson Center.

Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review, 3,* 193–209. http://dx.doi.org/10.1207/s15327957pspr0303_3

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology, 71,* 364–374. http://dx.doi.org/10.1037/0022-3514.71.2.364

Barbee, A. P., Rowatt, T. L., & Cunningham, M. R. (1998). When a friend is in need: Feelings about seeking, giving, and receiving social support. In P. A. Anderson & L. K. Guerrero (Eds.), *Handbook of communication and emotion: Research, theory, applications, and contexts* (pp. 281–301). San Diego, CA: Academic Press.

Barkan, R., Ayal, S., Gino, F., & Ariely, D. (2012). The pot calling the kettle black: Distancing response to ethical dissonance. *Journal of Experimental Psychology: General, 141,* 757–773. http://dx.doi.org/10.1037/a0027588

Baron-Cohen, S., Bowen, D. C., Holt, R. J., Allison, C., Auyeung, B., Lombardo, M. V., . . . Lai, M.-C. (2015). The "Reading the Mind in the Eyes" Test: Complete absence of typical sex difference in ~400 men and women with autism. *PLoS ONE, 10*(8), e0136521.

Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y., & Plumb, I. (2001). The "Reading the Mind in the Eyes" Test revised version: A study with normal adults, and adults with Asperger syndrome or high-functioning autism. *Journal of Child Psychology and Psychiatry, 42,* 241–251. http://dx.doi.org/10.1111/1469-7610.00715

Bartels, D. M., & Pizarro, D. A. (2011). The mismeasure of morals: Antisocial personality traits predict utilitarian responses to moral dilemmas. *Cognition, 121,* 154–161. http://dx.doi.org/10.1016/j.cognition.2011.05.010

Beauchaine, T. (2001). Vagal tone, development, and Gray's motivational theory: Toward an integrated model of autonomic nervous system functioning in psychopathology. *Development and Psychopathology, 13,* 183–214. http://dx.doi.org/10.1017/S0954579401002012

Berntson, G. G., Bigger, J. T., Jr., Eckberg, D. L., Grossman, P., Kaufmann, P. G., Malik, M., . . . van der Molen, M. W. (1997). Heart rate variability: Origins, methods, and interpretive caveats. *Psychophysiology, 34,* 623–648. http://dx.doi.org/10.1111/j.1469-8986.1997.tb02140.x

Blair, R. J. R. (2005). Responding to the emotions of others: Dissociating forms of empathy through the study of typical and psychiatric populations. *Consciousness and Cognition, 14,* 698–718. http://dx.doi.org/10.1016/j.concog.2005.06.004

Brewer, M. B., & Gardner, W. (1996). Who is this "We"? Levels of collective identity and self representations. *Journal of Personality and Social Psychology, 71,* 83–93.

Camerer, C. F. (2015). Cognitive hierarchy process models of strategic thinking in games. In G. Keren & G. Wu (Eds.), *The Wiley Blackwell handbook of judgment and decision making* (pp. 543–567). Malden, MA: Wiley/Blackwell.

Cameron, A. C., & Trivedi, P. K. (1998). *Regression analysis of count data, econometric society*. [Monograph] No. 30. Retrieved from https://assets.cambridge.org/97805216/32010/frontmatter/9780521632010_frontmatter.pdf

Castano, E., & Giner-Sorolla, R. (2006). Not quite human: Infrahumanization in response to collective responsibility for intergroup killing. *Journal of Personality and Social Psychology, 90,* 804–818. http://dx.doi.org/10.1037/0022-3514.90.5.804

Cima, M., Tonnaer, F., & Hauser, M. D. (2010). Psychopaths know right from wrong but don't care. *Social Cognitive and Affective Neuroscience, 5,* 59–67. http://dx.doi.org/10.1093/scan/nsp051

Cohen, T. R., Panter, A. T., Turan, N., Morse, L., & Kim, Y. (2014). Moral character in the workplace. *Journal of Personality and Social Psychology, 107,* 943–963. http://dx.doi.org/10.1037/a0037245

Côté, S., Kraus, M. W., Cheng, B. H., Oveis, C., van der Löwe, I., Lian, H., & Keltner, D. (2011). Social power facilitates the effect of prosocial orientation on empathic accuracy. *Journal of Personality and Social Psychology, 101,* 217–232. http://dx.doi.org/10.1037/a0023171

Côté, S., & Miners, C. T. H. (2006). Emotional intelligence, cognitive intelligence, and job performance. *Administrative Science Quarterly, 51,* 1–28. http://dx.doi.org/10.2189/asqu.51.1.1

Coxe, S. (2018, February). *Effect size measures for nonlinear count regression models*. Poster presented at the American Statistical Association Conference on Statistical Practice, Portland, Oregon.

Cross, S. E., & Morris, M. L. (2003). Getting to know you: The relational self-construal, relational cognition, and well-being. *Personality and Social Psychology Bulletin, 29,* 512–523. http://dx.doi.org/10.1177/0146167202250920

Davis, M. H. (1994). *Empathy: A social psychological approach*. Boulder, CO: Westview Press.

Dutton, J. E., Workman, K. M., & Hardin, A. E. (2014). Compassion at work. *Annual Review of Organizational Psychology and Organizational Behavior, 1,* 277–304. http://dx.doi.org/10.1146/annurev-orgpsych-031413-091221

Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin, 101,* 91–119. http://dx.doi.org/10.1037/0033-2909.101.1.91

Geisler, F. C., Kubiak, T., Siewert, K., & Weber, H. (2013). Cardiac vagal tone is associated with social engagement and self-regulation. *Biological Psychology, 93,* 279–286. http://dx.doi.org/10.1016/j.biopsycho.2013.02.013

Gino, F., & Pierce, L. (2009). Dishonesty in the name of equity. *Psychological Science, 20,* 1153–1160. http://dx.doi.org/10.1111/j.1467-9280.2009.02421.x

Gino, F., & Pierce, L. (2010). Robin Hood under the hood: Wealth-based discrimination in illicit customer help. *Organization Science, 21,* 1176–1194. http://dx.doi.org/10.1287/orsc.1090.0498

Gneezy, U. (2005). Deception: The role of consequences. *American Economic Review, 95,* 384–394.

Goetz, J. L., Keltner, D., & Simon-Thomas, E. (2010). Compassion: An evolutionary analysis and empirical review. *Psychological Bulletin, 136,* 351–374. http://dx.doi.org/10.1037/a0018807

Gordon, C. M. (1968). Self-conceptions: Configurations of content. In C. M. Gordon & K. J. Gergen (Eds.), *The self in social interactions* (Vol. 1, pp. 115–136). New York, NY: Wiley.

Graham, T., & Ickes, W. (1997). When women's intuition isn't greater than men's. In W. J. Ickes (Ed.), *Empathic accuracy* (pp. 117–143). New York, NY: The Guilford Press.

Greene, J. (2013). *Moral tribes: Emotion, reason and the gap between us and them*. New York, NY: The Penguin Press.

Hallerbäck, M. U., Lugnegård, T., Hjärthag, F., & Gillberg, C. (2009). The Reading the Mind in the Eyes Test: Test-retest reliability of a Swedish version. *Cognitive Neuropsychiatry, 14,* 127–143. http://dx.doi.org/10.1080/13546800902901518

Hare, R. D., Forth, A. E., & Hart, S. D. (1989). The psychopath as prototype for pathological lying and deception. *Credibility Assessment* (pp. 25–49). Amsterdam, the Netherlands: Springer.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94,* 319–340. http://dx.doi.org/10.1037/0033-295X.94.3.319

Hodges, S. D., Laurent, S. M., & Lewis, K. L. (2011). Specially motivated, feminine, or just female: Do women have an empathic accuracy advantage. In J. L. Smith, W. Ickes, J. A. Hall, & S. d. Hodges (Eds.), *Managing interpersonal sensitivity: Knowing when—and when not—to understand others* (pp. 59–74). Hauppauge, NY: Nova Science Publishers.

Hodges, S. D., Lewis, K. L., & Ickes, W. (2015). The matter of other minds: Empathic accuracy and the factors that influence it. In M. Mikulincer, P. R. Shaver, J. A. Simpson, & J. F. Dovidio (Eds.), *APA handbook of personality and social psychology: Interpersonal relations* (Vol. 3, pp. 319–348). Washington, DC: American Psychological Association. http://dx.doi.org/10.1037/14344-012

Hogan, R. (1973). Moral conduct and moral character: A psychological perspective. *Psychological Bulletin, 79,* 217–232. http://dx.doi.org/10.1037/h0033956

Hogan, R. (1975). Theoretical egocentrism and the problem of compliance. *American Psychologist, 30,* 533–540. http://dx.doi.org/10.1037/h0076638

Hume, D. (1739). *A treatise of human nature*. Oxford, UK: Oxford University Press.

Ickes, W. (2003). *Everyday mind reading: Understanding what other people think and feel*. Amherst, NY: Prometheus Books.

Ickes, W., Gesn, P. R., & Graham, T. (2000). Gender differences in empathic accuracy: Differential ability or differential motivation? *Personal Relationships, 7,* 95–109.

Janoff-Bulman, R., & Carnes, N. C. (2013). Surveying the moral landscape: Moral motives and group-based moralities. *Personality and Social Psychology Review, 17,* 219–236. http://dx.doi.org/10.1177/1088868313480274

Jiang, T. (2013). Cheating in mind games: The subtlety of rules matters. *Journal of Economic Behavior & Organization, 93,* 328–336. http://dx.doi.org/10.1016/j.jebo.2013.04.003

Kaptein, M. (2008). Developing a measure of unethical behavior in the workplace: A stakeholder perspective. *Journal of Management, 34,* 978–1008. http://dx.doi.org/10.1177/0149206308318614

Kilpatrick, S. D., Bissonnette, V. L., & Rusbult, C. E. (2002). Empathic accuracy and accommodative behavior among newly married couples. *Personal Relationships, 9,* 369–393. http://dx.doi.org/10.1111/1475-6811.09402

Klass, E. T. (1978). Psychological effects of immoral actions: The experimental evidence. *Psychological Bulletin, 85,* 756–771. http://dx.doi.org/10.1037/0033-2909.85.4.756

Kok, B. E., & Fredrickson, B. L. (2010). Upward spirals of the heart: Autonomic flexibility, as indexed by vagal tone, reciprocally and prospectively predicts positive emotions and social connectedness. *Biological Psychology, 85,* 432–436. http://dx.doi.org/10.1016/j.biopsycho.2010.09.005

Kouchaki, M., & Gino, F. (2016). Memories of unethical actions become obfuscated over time. *Proceedings of the National Academy of Sciences of the United States of America, 113,* 6166–6171. http://dx.doi.org/10.1073/pnas.1523586113

Kouchaki, M., & Wareham, J. (2015). Excluded and behaving unethically: Social exclusion, physiological responses, and unethical behavior. *Journal of Applied Psychology, 100,* 547–556. http://dx.doi.org/10.1037/a0038034

Kteily, N., Bruneau, E., Waytz, A., & Cotterill, S. (2015). The ascent of man: Theoretical and empirical evidence for blatant dehumanization. *Journal of Personality and Social Psychology, 109,* 901–931. http://dx.doi.org/10.1037/pspp0000048

Kuhn, M. H., & McPartland, T. S. (1954). An empirical investigation of self-attitudes. *American Sociological Review, 19,* 68–76. http://dx.doi.org/10.2307/2088175

Kumar, A., & Epley, N. (2018). Undervaluing gratitude: Expressers misunderstand the consequences of showing appreciation. *Psychological Science, 29,* 1423–1435. http://dx.doi.org/10.1177/0956797618772506

Lahiri, M. K., Kannankeril, P. J., & Goldberger, J. J. (2008). Assessment of autonomic function in cardiovascular disease: Physiological basis and prognostic implications. *Journal of the American College of Cardiology, 51,* 1725–1733. http://dx.doi.org/10.1016/j.jacc.2008.01.038

Lane, J. D., & Wegner, D. M. (1995). The cognitive consequences of secrecy. *Journal of Personality and Social Psychology, 69,* 237–253. http://dx.doi.org/10.1037/0022-3514.69.2.237

Lee, J. J., & Gino, F. (2016). Envy and interpersonal corruption: Social comparison processes and unethical behavior in organizations. In U. Merlone, M. K. Duffy, M. Perini, & R. Smith (Eds.), *Envy at work and in organizations: Research, theory, and applications* (pp. 347–372). Oxford, UK: Oxford University Press. http://dx.doi.org/10.1093/acprof:oso/9780190228057.003.0015

Lee, J. J., & Gino, F. (2018). In search of moral equilibrium: Person, situation, and their interplay in behavioral ethics. In K. Gray & J. Graham (Eds.), *The atlas of moral psychology: Mapping good and evil in the mind* (pp. 475–484). New York, NY: Guilford Press.

Mahmut, M. K., Homewood, J., & Stevenson, R. J. (2008). The characteristics of non-criminals with high psychopathy traits: Are they similar to criminal psychopaths? *Journal of Research in Personality, 42,* 679–692. http://dx.doi.org/10.1016/j.jrp.2007.09.002

Margolis, J. D., & Molinsky, A. (2008). Navigating the bind of necessary evils: Psychological engagement and the production of interpersonally sensitive behavior. *Academy of Management Journal, 51,* 847–872. http://dx.doi.org/10.5465/amj.2008.34789639

Marsh, A. A., & Blair, R. J. R. (2008). Deficits in facial affect recognition among antisocial populations: A meta-analysis. *Neuroscience and Biobehavioral Reviews, 32,* 454–465. http://dx.doi.org/10.1016/j.neubiorev.2007.08.003

Mazar, N., Amir, O., & Ariely, D. (2008). The dishonesty of honest people: A theory of self-concept maintenance. *Journal of Marketing Research, 45,* 633–644. http://dx.doi.org/10.1509/jmkr.45.6.633

Mednick, S. A. (1968). The Remote Associates Test. *The Journal of Creative Behavior, 2,* 213–214. http://dx.doi.org/10.1002/j.2162-6057.1968.tb00104.x

Monin, B., & Jordan, A. H. (2009). Dynamic moral identity: A social psychological perspective. In D. Navaraez & D. K. Lapsley (Eds.), *Personality, identity, and character: Explorations in moral psychology* (pp. 341–354). New York, NY: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511627125.016

Moore, C., & Gino, F. (2013). Ethically adrift: How others pull our moral compass from true North, and how we can fix it. *Research in Organizational Behavior, 33,* 53–77. http://dx.doi.org/10.1016/j.riob.2013.08.001

Muhtadie, L., Koslov, K., Akinola, M., & Mendes, W. B. (2015). Vagal flexibility: A physiological predictor of social sensitivity. *Journal of Personality and Social Psychology, 109,* 106–120.

Nathanson, C., Paulhus, D. L., & Williams, K. M. (2006). Predictors of a behavioral measure of scholastic cheating: Personality and competence but not demographics. *Contemporary Educational Psychology, 31,* 97–122. http://dx.doi.org/10.1016/j.cedpsych.2005.03.001

Peer, E., Acquisti, A., & Shalvi, S. (2014). "I cheated, but only a little": Partial confessions to unethical behavior. *Journal of Personality and Social Psychology, 106,* 202–217. http://dx.doi.org/10.1037/a0035392

Pierce, G. R., Lakey, B., Sarason, I. G., Sarason, B. R., & Joseph, H. J. (1997). Personality and social support processes: A conceptual overview. In G. R. Pierce, B. Lakey, & B. R. Sarason (Eds.), *Sourcebook of social support and personality* (pp. 3–18). New York, NY: Plenum Press. http://dx.doi.org/10.1007/978-1-4899-1843-7_1

Pinkham, A. E., Penn, D. L., Green, M. F., Buck, B., Healey, K., & Harvey, P. D. (2014). The social cognition psychometric evaluation study: Results of the expert survey and RAND panel. *Schizophrenia Bulletin, 40,* 813–823. http://dx.doi.org/10.1093/schbul/sbt081

Pizarro, D. (2000). Nothing more than feelings? The role of emotions in moral judgment. *Journal for the Theory of Social Behaviour, 30,* 355–375. http://dx.doi.org/10.1111/1468-5914.00135

Porges, S. W. (1995). Orienting in a defensive world: Mammalian modifications of our evolutionary heritage. A polyvagal theory. *Psychophysiology, 32,* 301–318. http://dx.doi.org/10.1111/j.1469-8986.1995.tb01213.x

Porges, S. W. (2001). The polyvagal theory: Phylogenetic substrates of a social nervous system. *International Journal of Psychophysiology, 42,* 123–146. http://dx.doi.org/10.1016/S0167-8760(01)00162-3

Rai, T. S., & Fiske, A. P. (2011). Moral psychology is relationship regulation: Moral motives for unity, hierarchy, equality, and proportionality. *Psychological Review, 118,* 57–75. http://dx.doi.org/10.1037/a0021867

Randall, D. M., & Fernandes, M. F. (1991). The social desirability response bias in ethics research. *Journal of Business Ethics, 10,* 805–817. http://dx.doi.org/10.1007/BF00383696

Reis, H. T., & Patrick, B. C. (1996). Attachment and intimacy: Component processes. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 523–563). New York, NY: Guilford Press.

Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and Personality Psychology Compass, 5,* 359–371. http://dx.doi.org/10.1111/j.1751-9004.2011.00355.x

Rutherford, M. D., Troubridge, E. K., & Walsh, J. (2012). Visual afterimages of emotional faces in high functioning autism. *Journal of Autism and Developmental Disorders, 42,* 221–229.

Schiffer, B., Pawliczek, C., Müller, B. W., Gizewski, E. R., & Walter, H. (2013). Why don't men understand women? Altered neural networks for reading the language of male and female eyes. *PLoS ONE, 8*(4), e60278.

Schlegel, K., Grandjean, D., & Scherer, K. R. (2014). Introducing the Geneva emotion recognition test: An example of Rasch-based test development. *Psychological Assessment, 26,* 666–672.

Schlegel, K., & Scherer, K. R. (2016). Introducing a short version of the Geneva Emotion Recognition Test (GERT-S): Psychometric properties and construct validation. *Behavior Research Methods, 48,* 1383–1392. http://dx.doi.org/10.3758/s13428-015-0646-4

Shu, L. L., & Gino, F. (2012). Sweeping dishonesty under the rug: How unethical actions lead to forgetting of moral rules. *Journal of Personality and Social Psychology, 102,* 1164–1177. http://dx.doi.org/10.1037/a0028381

Shu, L. L., Gino, F., & Bazerman, M. H. (2011). Dishonest deed, clear conscience: When cheating leads to moral disengagement and motivated forgetting. *Personality and Social Psychology Bulletin, 37,* 330–349. http://dx.doi.org/10.1177/0146167211398138

Signorini, D. F. (1991). Sample size for Poisson regression. *Biometrika, 78,* 446–450.

Smither, S. (1977). A reconsideration of the developmental study of empathy. *Human Development, 20,* 253–276. http://dx.doi.org/10.1159/000271561

Stellar, J. E. (2013). *Vagal reactivity and compassionate responses to the suffering of others*. Berkeley, CA: University of California Press.

Stellar, J. E., Manzo, V. M., Kraus, M. W., & Keltner, D. (2012). Class and compassion: Socioeconomic factors predict responses to suffering. *Emotion, 12,* 449–459. http://dx.doi.org/10.1037/a0026508

Stevens, G. W., Deuling, J. K., & Armenakis, A. A. (2012). Successful psychopaths: Are they unethical decision-makers and why? *Journal of Business Ethics, 105,* 139–149. http://dx.doi.org/10.1007/s10551-011-0963-1

Stiff, J. B., Dillard, J. P., Somera, L., Kim, H., & Sleight, C. (1988). Empathy, communication, and prosocial behavior. *Communication Monographs, 55,* 198–213. http://dx.doi.org/10.1080/03637758809376166

Stinson, L., & Ickes, W. (1992). Empathic accuracy in the interactions of male friends versus male strangers. *Journal of Personality and Social Psychology, 62,* 787–797. http://dx.doi.org/10.1037/0022-3514.62.5.787

Task Force of the European Society of Cardiology and the North American society of pacing and Electrophysiology. (1996). Heart rate variability: Standards of measurement, physiological interpretation and clinical use. *Circulation, 93,* 1043–1065.

Trevino, L. K. (1986). Ethical decision making in organizations: A person-situation interactionist model. *The Academy of Management Review, 11,* 601–617. http://dx.doi.org/10.5465/amr.1986.4306235

Van Boven, L., Dunning, D., & Loewenstein, G. (2000). Egocentric empathy gaps between owners and buyers: Misperceptions of the endowment effect. *Journal of Personality and Social Psychology, 79,* 66–76. http://dx.doi.org/10.1037/0022-3514.79.1.66

Van't Veer, A., Stel, M., & Van Beest, I. (2014). Limited capacity to lie: Cognitive load interferes with being dishonest. *Judgment and Decision Making, 9,* 199–206.

Verhofstadt, L. L., Buysse, A., Ickes, W., Davis, M., & Devoldre, I. (2008). Support provision in marriage: The role of emotional similarity and empathic accuracy. *Emotion, 8,* 792–802. http://dx.doi.org/10.1037/a0013976

Williams, K. M., Nathanson, C., & Paulhus, D. L. (2010). Identifying and profiling scholastic cheaters: Their personality, cognitive ability, and motivation. *Journal of Experimental Psychology: Applied, 16,* 293–307. http://dx.doi.org/10.1037/a0020773

Wiltermuth, S. S., Newman, D. T., & Raj, M. (2015). The consequences of dishonesty. *Current Opinion in Psychology, 6,* 20–24. http://dx.doi.org/10.1016/j.copsyc.2015.03.016

Winczewski, L. A., Bowen, J. D., & Collins, N. L. (2016). Is empathic accuracy enough to facilitate responsive behavior in dyadic interaction? Distinguishing ability from motivation. *Psychological Science, 27,* 394–404. http://dx.doi.org/10.1177/0956797615624491

Zaki, J., Bolger, N., & Ochsner, K. (2008). It takes two: The interpersonal nature of empathic accuracy. *Psychological Science, 19,* 399–404. http://dx.doi.org/10.1111/j.1467-9280.2008.02099.x

Appendix

Correlational Evidence

In Studies S1a–S1b, we test whether one's dishonest behavior is indeed negatively related to one's ability to read others' emotions. We test this hypothesis in two ways. In Study S1a, we establish a negative relationship between self-reported dishonest behavior in the context of workplace and empathic accuracy. In Study S1b, we replicate and extend these findings by establishing a relationship between a behavioral measure of dishonest behavior and empathic accuracy.

Method for Study S1a

Participants and procedure. A total of 259 full-time employees (M_{age} = 45.48, SD_{age} = 12.33; 47% male) from a panel of employees from Qualtrics.com participated in the 15-min survey and received $10.00.

Measures.

Frequency of dishonest behavior. To measure (a) employees' dishonest behavior and (b) employees' level of perceived dishonest behavior by others at work, we adapted Kaptein's (2008) scale of dishonest behavior in the workplace. We first asked participants to report the frequency of their own behaviors at work (e.g., "There are times when *I* waste, manage, or abuse organizational resources" and "There are times when *I* violate contract terms with customers"). They answered all questions on a 7-point scale (1 = *never*; 2 = rarely, 3 = sometimes, 4 = quite often, 5 = most of the time, 6 = *all of the time, and* 7 = *not applicable at my organization*). We then asked how frequently others in their workplace engage in the same set of behaviors by changing the agent of the behavior (e.g., "There are times when *they* waste, manage, or abuse organizational resources" and "There are times when *they* violate contract terms with customers") using the same 7-point scale. To analyze the scale continuously, we excluded responses indicating that the statement does not apply to their workplace. Responses were then averaged for both variables (α = .98, α = .99).

(*Appendix continues*)

Table A1
Study S1a: Means, Standard Deviations, and Zero-Order Correlations for Key Variables

Variables	Mean (*SD*)	1	2	3	4
1. My dishonest behavior	1.44 (0.99)				
2. Others' dishonest behavior	1.45 (0.83)	0.91***			
3. Empathic accuracy	23.39 (5.41)	−0.48***	−0.42***		
4. Age	45.48 (12.33)	−0.25***	−0.26***	0.14*	
5. Female	0.53 (0.50)	−0.25***	−0.25***	0.34***	−0.08

Note. Female is coded 1 if female, 0 if male.
* $p < .05$. *** $p < .001$.

Empathic accuracy. To measure empathic accuracy, we used the Reading the Mind in the Eyes test (Baron-Cohen et al., 2001) as in Study 4. Participants completed 36 trials, each consisting of a complex mental state inference (e.g., hostile, ashamed, playful, nervous) and, on average, correctly identified the affective states in 23.39 trials ($SD = 5.41$).

Demographics. We collected standard demographic information (age and gender).

Results for Study S1a

In Table A1, we report S1a–S1b the summary statistics and zero-order correlations between the key variables. Female employees scored higher than male employees on empathic accuracy. Age was also positively correlated with empathic accuracy.

We ran a hierarchical multivariate regression analysis (with Poisson regressions) in which we entered empathic accuracy as the dependent measure. We first accounted for the potential influence of demographic variables in Model 1. Then we sequentially entered participants' own dishonest behavior in Model 2 and others' dishonest behavior in Model 3. This hierarchical regression model is reported in Table A2.

Our results suggest that the frequency of one's own dishonest behavior significantly predicts lower empathic accuracy, $b = -0.11$, $SE = 0.02$, $p < .001$, controlling for demographics (age and gender). This result was robust, $b = -0.13$, $SE = 0.04$, $p < .001$, when controlling for demographics and participants' perceptions of others' dishonest behavior, as reported in Model 3. Finally, we ran a post hoc analysis of gender as a moderating variable for the relationship between one's own dishonest behavior and empathic accuracy. Although dishonest behavior was a significant predictor of empathic accuracy, $b = -0.12$, $SE = 0.02$, $p < .001$, neither the main effect of gender, $b = .08$, $SE = .05$, $p = .131$, nor the interaction between dishonesty and gender, $b = .02$, $SE = .04$, $p = .657$, were significant.

Method for Study S1b

In Study S1a, we asked employees to report how frequently they behaved dishonestly at work and, by assessing their ability to infer others' mental state, we established that self-reported dishonest

Table A2
Study S1a: Hierarchical Multivariate Regression Analysis

	Empathic accuracy								
	Step 1			Step 2			Step 3		
Predictor variables	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
1. Age	0.003	0.001	.003	0.001	0.001	.327	0.001	0.001	.306
Female	0.163	0.026	<.001	0.109	0.026	<.001	0.110	0.027	<.001
2. My dishonest behavior				−0.113	0.016	<.001	−0.135	0.036	<.001
3. Others' dishonest behavior							0.029	0.042	.493
N		259			259			259	
LR χ^2		45.74***			98.44***			98.91***	
Pseudo R^2		0.028			0.060			0.060	

Note. Female is coded 1 if female, 0 if male.
*** $p < 0.001$.

(*Appendix continues*)

behavior is negatively related to empathic accuracy. One limitation of this study is that our independent variables in Study 1a are recalled and self-reported, which makes it more likely that they are subject to motivational biases (e.g., underreporting of dishonest behavior due to impression management). We designed Study 1b to address this problem by using a behavioral measure of dishonest behavior. In Study 1b, we directly observed and measured participants' actual dishonest behaviors and ability to read others' mental states, and we corroborated the negative association between the two. This study complements Study S1a by directly measuring willingness to engage in ethically questionable behavior (e.g., accepting undeserved money by taking advantage of a software programming glitch).

Participants and procedure. We recruited 150 adults from the online labor market (Amazon Mechanical Turk) to participate in a 15-min study. All participants received $0.50 completion fees, as well as $0.10 for each five trials that they successfully solved. A total of 139 participants (M_{age} = 33.55, SD_{age} = 10.54; 61% male) were included for the analysis, because 11 participants failed to complete the whole survey. First, participants were given the opportunity to cheat during the Remote Association Task (RAT; Mednick, 1968). We measured their level of cheating and then had them answer a seemingly unrelated survey designed to measure empathic accuracy.

Measures.

Measure of dishonest behavior. We gave participants instructions for completing the RAT, which captures the identification of novel and meaningful connections between seemingly unrelated stimuli. Participants were asked to find a fourth word that is logically related to three words provided. For example, if participants see the three words SORE, SHOULDER, and SWEAT, the related fourth word would be COLD. To induce and measure cheating, we also told participants that our survey was suffering from a programming glitch that would cause the correct answer to be displayed in a box below the three words. The correct answer could only be seen if participants hovered their mouse over the box (Camerer, 2015). We asked participants not to look at the correct answers before providing their own on the next page. Behind the scenes, we counted the number of times participants hovered their mouse over the answer box to cheat by looking at the correct answer before providing their own. Participants answered six similar questions in a fixed order. We counted the number of RAT trials in which participants hovered their mouse over the box to take advantage of the programming glitch as a measure of dishonest behavior. On average, participants cheated on 3.06 out of 5 trials (SD = 1.96) by hovering their mouse to see the answer.

Table A3
Study S1b: Means, Standard Deviations, and Zero-Order Correlations for Key Variables

Variables	Mean (*SD*)	1	2	3	4
1. Dishonest behavior	3.06 (1.96)				
2. Actual performance	1.11 (1.43)	−0.76***			
3. Empathic accuracy	20.14 (6.96)	−0.40***	0.30***		
4. Age	33.55 (10.54)	−0.25**	0.25**	0.25**	
5. Female	1.39 (0.49)	−0.00	0.01	0.00	−0.01

Note. Female is coded 1 if female, 0 if male.
** $p < .01$. *** $p < .001$.

Empathic accuracy. We used the same task as in Study S1a to assess one's ability to recognize others' affective states (Baron-Cohen et al., 2001). On average, participants correctly identified affective states of 20.14 (SD = 6.96) of 36 trials.

Demographics. As before, we collected standard demographic information (age and gender).

Results for Study S1b

Table A3 provides descriptive summary statistics and zero-order correlations between key variables. The frequency of dishonest behavior was positively correlated with reported performance and negatively correlated with our measure of empathic accuracy.

We ran a hierarchical multivariate regression analysis in which we entered empathic accuracy as a dependent measure and demographics (Model 1), dishonest behavior (Model 2), and actual performance (Model 3) as predictor variables, as reported in Table A4. Dishonest behavior (e.g., cheating on the RAT task) was significantly correlated with empathic accuracy, $b = -0.06$, $SE = 0.01$, $p < .001$. In Model 3, we controlled for participants' actual performance (by providing correct answers without cheating) to ensure that any observed influence of dishonest behavior on empathic accuracy was not due to levels of actual performance. Controlling for actual performance did not change the direction or significance of our effect.

Lastly, we tested whether gender moderated the relationship between dishonest behavior and empathic accuracy. Similar to Study S1a, we found the main effect of dishonesty, $b = -0.06$, $SE = 0.01$, $p < .001$, but did not find significant effects of being female, $b = 0.02$, $SE = 0.06$, $p = .747$, or the interaction, $b = -0.01$, $SE = 0.02$, $p = .674$.

(*Appendix continues*)

Table A4
Study S1b: Hierarchical Multivariate Regression Analysis

	Empathic accuracy								
	Step 1			Step 2			Step 3		
Predictor variables	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
1. Age	0.007	0.002	<.001	0.004	0.002	.018	0.004	0.002	.018
Female	0.003	0.04	.941	0.001	0.04	.988	0.001	0.04	.986
2. Dishonest behavior				−0.06	0.01	<.001	−0.06	0.01	<.001
3. Actual performance							−0.002	0.02	.91
N		139			139			139	
LR χ^2		58.96^{***}			58.96^{***}			58.97^{***}	
Pseudo R^2		0.06			0.06			0.06	

Note. Female is coded 1 if female, 0 if male.
$^{***}p < .001$.

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