

Breaking Rules for Moral Reasons: Development and Validation of the Prosocial and Antisocial Rule-Breaking (PARB) Scale

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Objectives: To determine whether prosocial rule-breaking exists as a separate construct from antisocial rule-breaking and to develop a valid rule-breaking scale with prosocial and antisocial subscales. **Hypotheses:** We hypothesized that (a) rule-breaking would have prosocial and antisocial subfactors; (b) the prosocial rule-breaking subscale would *positively* associate with prosocial intentions, empathy, moral identity, and guilt proneness, whereas the antisocial rule-breaking subscale would *negatively* associate with these same factors; and (c) the two subscales would predict prosocial and antisocial cheating behaviors, respectively. **Method:** We developed the Prosocial and Antisocial Rule-Breaking (PARB) scale using a sample of 497 undergraduates (Study 1) and 257 Amazon Mechanical Turk workers (Study 2). Participants completed all surveys (Studies 1 and 2) and took part in a between-subjects experiment (Study 2) in which cheating behavior was measured in two conditions—when cheating helps others (prosocial) or oneself (antisocial). **Results:** The final PARB scale demonstrated the expected factor structure (comparative fit index = .96, Tucker–Lewis index = .93, root-mean-square error of approximation = .064; $\chi^2 = 177$, $df = 88$, $p < .001$), with the prosocial ($\alpha = .81$) and antisocial ($\alpha = .93$) subscales showing good reliability. Prosocial rule-breaking was positively associated with prosocial intentions, empathy, and guilt proneness, whereas antisocial rule-breaking was negatively associated with these same factors. Each additional point in prosocial rule-breaking PARB score predicted a 37% increased likelihood of participating in protest behavior in an exploratory investigation ($p = .025$) and predicted a 268% increase in actual prosocial cheating behavior ($p < .001$) but did not predict antisocial cheating behavior ($p = .293$). Conversely, each additional point in antisocial rule-breaking PARB score did not predict protest participation ($p = .410$) but did predict a 69% increase in actual antisocial cheating behavior ($p = .025$). **Conclusions:** These findings suggest that our current understanding of rule-breaking is limited, as many types of rule-breaking are prosocially motivated and are not necessarily antisocial.

Public Significance Statement

Defining rule-breaking as antisocial behavior fails to explain rule-breaking that is motivated by prosocial intentions (e.g., clashing with police over racial injustice, whistleblowing, hiding Jewish families during the Holocaust). The PARB scale shows that prosocial rule-breaking differs from antisocial rule-breaking across a variety of moral dimensions. The PARB scale calls into question the idea that all rule breakers are antisocial, giving researchers, forensic investigators, judges, and juries greater clarity in assessing the different motivations underlying rule-breaking.

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Following the death of George Floyd at the hands of law enforcement on May 25, 2020, the United States erupted into a series of protests that spanned more than 140 cities (Taylor, 2021). Protesters of all racial identities banded together in support of the

Black Lives Matter (BLM) movement, with many clashing with the police and engaging in a variety of illegal behaviors. Although some of these crimes were motivated by self-interest (e.g., looting), thousands of peaceful protesters were arrested for nonviolent

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offenses such as refusing to follow curfews and disobeying orders to disperse (Snow, 2020).

Researchers typically conceptualize rule-breaking as a subset of antisocial behavior (e.g., Maneiro et al., 2017; Raine & Yang, 2006), but this classification fails to explain acts such as those carried out in the pursuit of human rights and racial justice. Rule-breaking intended to benefit others appears to be a separate category from purely antisocial rule-breaking but has been largely overlooked by psychologists, criminologists, and legal scholars. This is surprising, considering that history is replete with important examples of prosocially motivated rule-breaking. For example, abolitionists smuggled escaped slaves through the Underground Railroad in violation of the Fugitive Slave Act (Bial, 1999), civil rights activists were frequently arrested in defiance of racial segregation laws (Parks & Haskins, 1992; Theoharis, 2015), and modern whistleblowers risk termination or imprisonment for revealing the questionable practices of their institutions (Touchton et al., 2020). Despite the historical importance and societal impact of such behavior, prosocial rule-breaking remains virtually unstudied.

Breaking rules with an intent to help others also seems to occur on smaller, everyday scales. People lie to their bosses to cover for coworkers, steal to feed their families, illegally share medication with friends who need it, and lie to insurance companies to ensure their children get coverage. These acts seem to contrast with purely antisocial behaviors such as lying to cover for oneself, stealing items for one's own use, or committing tax fraud for personal gain. In light of such observations, a new conceptual framework that distinguishes prosocial rule-breaking from antisocial rule-breaking may prove useful for researchers. Legal scholars, researchers, forensic investigators, judges, and juries who wish to understand the motivations and causes of crime may be making an error by failing to distinguish between breaking rules to help others and breaking rules for personal gain.

Two Types of Rule-Breaking

Antisocial behavior is defined as any hostile or aggressive act that harms others (Coie & Dodge, 1998; Walker et al., 2004), whereas prosocial behavior is defined as any helpful act intended to benefit others (Batson & Powell, 2003; Dovidio et al., 2017). Researchers regularly operate under the assumption that rule-breaking falls under antisocial behavior (e.g., Hardy et al., 2015; Niv et al., 2013). Rule-breaking, in this sense, is considered to be hostile and harmful to others—such as authority figures and those whom the rules are designed to protect. However, cases in which people break rules to help others seem to defy such categorization. Because these acts simultaneously help others and cause institutional harm, it is unclear whether they are truly prosocially motivated.

Much like typical antisocial behavior, prosocial rule-breaking appears to involve taking personal risks to achieve a desired goal. Unlike antisocial behavior, however, the desired goal is not to benefit oneself, but to help others. During the Nazi occupation of Europe, for example, many non-Jewish individuals directly disobeyed the law and put their lives at risk to hide and protect Jewish families during the Holocaust (Oliner, 1992). When later asked in interviews why they took these risks, these rule breakers responded that they were motivated by their moral values and feelings of empathy (Fogelman & Wiener, 1985).

These statements are supported by research showing that prosociality is associated with a strong moral identity (Aquino & Reed, 2002; Aquino et al., 2011; Hertz & Krettenauer, 2016), high levels of empathy (Batson, 2011; Batson et al., 1981; Morelli et al., 2015), and proneness to feel moral emotions such as guilt (Caprara et al., 2001; Malti & Krettenauer, 2013; Quiles & Bybee, 1997). Those with a strong moral identity have internalized their moral values to the point where it has become an important part of their self-concept (Aquino & Reed, 2002). Empathy allows one to feel what others are feeling, and highly empathic individuals engage in prosocial behavior to reduce shared distress and promote shared positive affect (Morelli et al., 2015). Guilt-prone individuals are likely to anticipate the aversive feelings of guilt associated with antisocial behavior, so they avoid acting antisocially and engage in prosocial behavior to avoid feeling this way (Cole et al., 2021; Tangney et al., 2007b).

Although these traits have been shown to positively predict a wide variety of prosocial behaviors, it is currently unknown if they also predict prosocial *rule-breaking* in the same way. Most researchers have instead focused exclusively on antisocial rule-breaking and have found that these traits *negatively* predict rule-violating behavior. For example, higher levels of delinquency and typical criminal behavior are associated with a weaker moral identity (Glenn et al., 2010; Hardy et al., 2015), lower levels of empathy (Jolliffe & Farrington, 2004; Miller & Eisenberg, 1988), and lower feelings of guilt (Cole et al., 2014; Stuewig et al., 2015).

Because these moral traits are associated with prosocial and antisocial behaviors in opposite directions, it may seem as though prosocial and antisocial behaviors are opposite ends of the same dimension. However, recent research indicates that this is likely untrue. For example, rather than demonstrating differences in activation of the same neural markers, prosocial and antisocial behaviors activate very different neural markers, indicating that prosocial and antisocial behaviors are driven by unrelated neural processes (Wang et al., 2022). Furthermore, recent studies investigating real-world behavior have shown that prosocial and antisocial behaviors often coexist in the same individual and sometimes work in tandem to achieve a singular goal (Basurto et al., 2016; Bodin et al., 2020). Furthermore, laboratory studies have revealed a coexistence of cooperative and competitive behaviors (Prediger et al., 2014; Savikhin & Sheremeta, 2013). For example, Prediger et al. (2014) showed that 30% of individuals engaged in both prosocial cooperation and antisocial spite rather than one or the other. These studies imply that someone could have high rates of both prosocial and antisocial behaviors, low rates of both, or a mismatch between the two. This suggests that prosocial and antisocial behaviors exist on separate dimensions rather than a singular dimension.

It remains unclear if prosocial rule-breaking should follow a profile more consistent with prosocial behavior, such that it is *positively* associated with moral traits, or if it should instead resemble antisocial behavior, such that it is *negatively* associated with these same characteristics. If we find a positive association between prosocial rule-breaking and these moral traits, then this would strengthen the argument that prosocial rule-breaking is morally motivated and perhaps better understood as a subset of prosocial behavior. Conversely, if we find a negative association, then the current assumption that all rule-breaking is best understood strictly as antisocial behavior would be supported.

To test this, it is first necessary to adopt operational definitions that clearly distinguish prosocial rule-breaking from antisocial

rule-breaking. Although both involve breaking an institutional rule, we propose that the primary difference is that the intended goal of prosocial rule-breaking is to help others without regard to oneself. Conversely, the intended goal of antisocial rule-breaking is to benefit oneself without regard for others. This perspective is consistent with research showing that self-serving cognition is a significant component of antisocial behavior (Barriga & Gibbs, 1996; van Leeuwen et al., 2014; Wallinius et al., 2011).

We chose goal-oriented definitions to address the long-standing philosophical debate that all behaviors (including prosocial acts) are ultimately driven by self-interest, even when one's conscious desire is to help others (Batson, 1987; Wallach & Wallach, 1983). For example, prosocial behavior does come with its own personal rewards, such as reduced empathic distress, improved social standing, feeling good about one's self via moral pride, and receiving future reciprocation (Tangney et al., 2007a). However, we adopt the view proposed by Batson (2018) that true prosocial behavior is motivated by the end goal of increasing another's welfare, with any potential self-benefits (whether they are anticipated or not) being unintended consequences of this first-order goal (Batson et al., 1988).

In this view, unintended self-benefits may still implicitly drive prosocial behavior but are not at the forefront of deliberate conscious motivation (Batson, 2018; Batson et al., 1981). Instead, prosocial behavior is largely driven by automatic moral intuitions whereby people feel compelled to help others for its own sake (Greene, 2013; Greene et al., 2001). This idea has support from research showing that prosocial concern is a first-order automatic process that is diminished in people who rely on more deliberative cognitive processes when making moral judgments (Bartels & Pizarro, 2011; Rand, 2016). In situations where institutional rules conflict with these first-order prosocial intuitions, impulsive risk-taking may allow prosocial concern to manifest as prosocial rule-breaking.

Self-Control and Impulsive Risk-Taking

Impulsive risk-taking can be conceived as existing on the opposite end of the same dimension as self-control (Baumeister & Vohs, 2003; Tangney et al., 2004). Conversely, self-control can be operationalized as two separate but opposing factors of impulsivity and restraint (Maloney et al., 2012). In this view, someone can have very high impulsivity, but this will not result in impulsive action if that person also has very high restraint to match. Scales attempting to measure self-control often target impulsivity and restraint under the assumption that they are a single factor (e.g., Tangney et al., 2004). This has led to some factor analytic studies of the widely popular Brief Self-Control Scale seeking to determine if self-control is unidimensional or multidimensional (e.g., Lindner et al., 2015; Tangney et al., 2004). In general, there is some support for a two-factor model of impulsivity and restraint, but it is weak. Researchers generally disagree on whether to implement a unidimensional or two-factor model because the results are often too close to call (Lindner et al., 2015; Manapat et al., 2021). Regardless, the ability to suppress one's own impulsive risk-taking via self-control is integral to understanding rule-breaking (Gottfredson & Hirschi, 1990).

The idea that prosocial concern is the default thought process and is reduced through deliberate reasoning seems to conflict with classical theories in criminology and psychology, which claim that people are innately self-serving and require self-control and a capacity for moral reasoning to suppress these natural antisocial

impulses (Gottfredson & Hirschi, 1990; Kohlberg, 1971). Indeed, a history of research shows that self-control is negatively associated with antisocial rule-breaking in both legal and nonlegal contexts (Vazsonyi et al., 2017), including juvenile delinquency (Fine, Steinberg, et al., 2016; Rebellon et al., 2008), adult criminal tendencies (Gibbs & Giever, 1995), and aggression toward both strangers and intimate partners (Cauffman et al., 2017; De Wall et al., 2011; Finkel et al., 2009).

These findings appear to conflict with many other studies showing the opposite effect: That impulsivity and lower self-control *positively* predict prosocial behavior. For example, in a trust game where participants were given the opportunity to return money to a highly trusting investor, those who had their cognitive-control sources depleted offered back more money than those who maintained high self-control (Halali et al., 2014). Similarly, people in relationships are more likely to suffer a personal cost to benefit their partners if they have low self-control compared to high self-control (Righetti et al., 2013). Another study showed that impulsive risk-taking is associated with a willingness to incur personal costs to deter non-cooperators (Crockett et al., 2010). Furthermore, applying strict time constraints to force impulsive choices and prevent deliberate reasoning causes people to cooperate more in a variety of economic games (Rand et al., 2012). Adding to this, a meta-analysis of 67 further studies indicated that promoting impulsive choice over deliberate reasoning increases prosocial cooperation by 17.3% (Rand, 2016).

When considered together, these findings show that self-control can suppress both antisocial *and* prosocial behavior. It seems that self-control restricts potentially costly behavior in general, regardless of whether that behavior is intended to benefit others or oneself. It is possible that a lack of self-control may simply allow one's unconstrained nature to manifest as actual behavior. If that nature consists of strong moral characteristics, prosocial rule-breaking should manifest when self-control is low. Similarly, those lacking in these moral characteristics should engage in antisocial rule-breaking when self-control is low. To investigate the plausibility of the low self-control/prosocial rule-breaking hypothesis, a secondary goal of the present set of studies was to determine if self-control negatively predicts prosocial rule-breaking in addition to antisocial rule-breaking.

Obligation to Obey the Law

Another common factor that should be shared between prosocial and antisocial rule-breaking is the felt obligation to obey the law (Tyler, 2006; van Rooij & Fine, 2021). Tyler (2006) argued that this felt obligation depends on an individual's personal morality and the perception that the law is just. In this sense, if an individual perceives the law to be unjust, then they perceive the authorities that enforce that law to be less legitimate and become less likely to follow the rules of authority as a result (Trinkner & Cohn, 2014; Tyler & Trinkner, 2017). This would appear to be a likely avenue toward prosocial rule-breaking when one's personal morality is at odds with the law. If people feel that laws are out of step with their moral beliefs, then they should not feel obligated to obey these laws and should be willing to break them to help others.

Importantly, one does not necessarily need to perceive an authority as illegitimate to feel less obligated to obey (Fine & van Rooij, 2021). This becomes apparent when obligation to obey is recognized as a separate and distinct factor from perceived legitimacy of authority (Tyler, 2006). In this sense, an individual can perceive an

authority to be legitimate, with the right to enforce the laws, but still choose to ignore the law if it does not represent their self-interests (Fine, van Rooij, et al., 2016; Tyler, 2006). This would provide a likely avenue toward antisocial rule-breaking.

As expected, studies have shown that obligation to obey is negatively associated with rule-breaking (Fine, van Rooij, et al., 2016; Tyler, 2006). Interestingly, the obligation to obey the law is negatively associated with breaking formal legal and nonformal rules. For example, the felt obligation to obey the law is associated with following COVID-19 guidelines (Kooistra et al., 2020; van Rooij et al., 2020) and with cheating behavior (Fine & van Rooij, 2017). In addition to self-control, the felt obligation to obey the law should negatively predict prosocial and antisocial rule-breaking in a variety of legal and nonlegal contexts.

Measuring Prosocial Rule-Breaking

To study prosocial rule-breaking as outlined above, researchers need a way to measure it. The most accessible option would be utilizing a self-report scale that distinguishes between other-serving prosocial rule-breaking and self-serving antisocial rule-breaking across a range of rule-violating behaviors. Unfortunately, such a scale does not currently exist. Although there are numerous measures of general prosociality (e.g., Baumsteiger & Siegel, 2019; Carlo & Randall, 2002), none capture the construct of prosocial rule-breaking as we have described above.

Some organizational researchers have attempted to develop measures of prosocial rule-breaking, but their interpretation of the construct is limited to workplace violations that benefit one's professional organization (Dahling et al., 2012; Morrison, 2006). Such a definition does not account for rule-breaking that is intended to help those outside of the professional organization or that intentionally undermines the professional organization (e.g., whistleblowing), and it fails to account for rules that exist outside of a professional organization, such as legal rules. Another issue with these measures is that they fail to clearly distinguish between rule-breaking that exclusively helps the organization and rule-breaking that exclusively helps oneself. For example, an employee who breaks a rule to boost sales could be motivated to help the company, to use these sales for the self-serving goal of receiving a promotion, or both. In such mixed-motive scenarios, it is difficult to determine if one is entirely motivated by self-serving reasons, even if such a behavior coincidentally benefits others (Feltz, 2007; Knobe, 2003), or if they are truly motivated to help others. Further doubt is cast on the validity of these mixed-motive measures when considering research showing that self-serving goals are the primary motivation of employee behavior (Kovach, 1987; Wiley, 1997). Researchers need a new scale in which the motivations for both types of behavior are clearly demarcated.

As an alternative to self-report measures, actual prosocial rule-breaking behavior can be measured and compared to antisocial rule-breaking using experimental designs. In one experimental study, Gino et al. (2013) clearly distinguished mixed-motive scenarios from purely other-serving and purely self-serving scenarios using a behavioral cheating task. In two conditions, they investigated whether participants would be more likely to cheat when it exclusively benefited oneself or when it exclusively helped others. In a third condition, cheating simultaneously benefited both oneself and others (a mixed-motive scenario). They found that people cheated more in the mixed-motive scenario than in the other two conditions. However,

there was no difference in the amount of cheating between participants exclusively helping others and those exclusively helping themselves. At first glance, this suggests that there is no difference between prosocial and antisocial rule-breaking. However, this study focused only on differences in the *amount* of cheating and did not consider differences in the moral motivations that might underlie each behavior. Even if the frequency of prosocial rule-breaking is similar to that of antisocial rule-breaking, these two constructs may still be driven by completely different internal processes (Wang et al., 2022).

The Present Studies

The primary goals of the two studies presented in this article were to determine if prosocial and antisocial rule-breaking exist as separate subfactors under the overall general rule-breaking factor and to develop a self-report scale capable of measuring and distinguishing between these two subfactors. Study 1 involved the initial development of the Prosocial and Antisocial Rule-Breaking (PARB) scale; tested the hypothesized hierarchical structure (Figure 1) using exploratory factor analyses and structural equation modeling (SEM); and examined each construct's relationship with a variety of scales measuring prosocial intentions, moral identity, empathy, guilt proneness, self-control, and rule orientation. Study 2 aimed to replicate the construct validity and factor structure established in Study 1 in a different population and show that the prosocial rule-breaking construct predicts actual prosocial (but not antisocial) rule-breaking behavior, adapting an experimental paradigm designed to elicit cheating from previous studies (e.g., Fine & van Rooij, 2017; Gino et al., 2013). In short, we took an exploratory approach in Study 1 (using both exploratory factor analysis [EFA] and SEM) for model identification and then confirmed these SEM models using a second sample (Study 2).

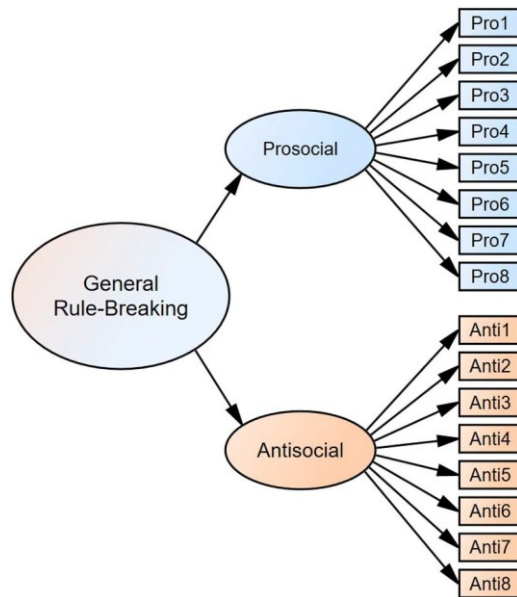
Study 1

The primary purpose of Study 1 was to develop and then examine the psychometric properties of the PARB scale—a new scale designed to capture the two constructs of self-reported prosocial rule-breaking likelihood and antisocial rule-breaking likelihood. This study details our development of items designed to capture the two rule-breaking constructs and selection of items for removal based on EFA and SEM. We expected these analyses to support a hierarchical model in which the prosocial and antisocial rule-breaking factors were separate subsets of the general rule-breaking factor (Figure 1).

The main goals of Study 1 were to identify the underlying factor structure of the prosocial and antisocial rule-breaking items, retain items that strongly loaded onto their intended construct, show that prosocial rule-breaking is a separate construct from antisocial rule-breaking, and establish convergent and discriminant validity between each rule-breaking construct and other theoretically related constructs. The hypotheses were as follows:

1. The general rule-breaking factor would have separate and identifiable prosocial and antisocial subfactors (Figure 1).
2. The prosocial rule-breaking subscale would *positively* associate with prosocial intentions, empathy, guilt proneness, and moral identity, whereas the antisocial rule-breaking subscale would significantly differ by *negatively* associating with these same factors.

Figure 1
Hypothesized Factor Structure of Rule-Breaking With Prosocial and Antisocial Subtypes



Note. We expected factor analyses of PARB items to demonstrate a hierarchical factor structure where the general rule-breaking factor is better explained as having prosocial and antisocial subfactors. PARB = Prosocial and Antisocial Rule-Breaking. See the online article for the color version of this figure.

3. Prosocial and antisocial rule-breaking would both be negatively associated with self-control and felt obligation to obey the law.
4. (*Exploratory*) Prosocial rule-breaking would predict an increased likelihood of participating in actual protests, but antisocial rule-breaking would not.

Method

Participants

We recruited 515 college undergraduates through the University of New Hampshire's online subject pool (SONA). We removed 18 individuals who completed the entire study in < 10 min. Of the 497 remaining participants, 397 identified as female (79.9%), 95 as male (19.1%), and five as other (1%); 459 primarily identified as White (92.4%), 15 as Asian (3%), seven as Black (1.4%), 11 as Hispanic (2.2%), and five as other (1%). The average age was 19.1 ($SD = 1.63$), with ages ranging from 18 to 31. Each participant received one credit toward course completion for participating.

Materials

Scale Development Items. The initial 38 items developed for the PARB scale targeted the two factors of perceived prosocial and antisocial rule-breaking likelihood. The 20 items targeting the prosocial rule-breaking construct each described a hypothetical

scenario in which an opportunity arises to help another person by breaking a rule. Each item asked the participant how likely they would be to break that rule on a scale from 1 (*very unlikely*) to 7 (*very likely*). For example, one item reads:

You are running late driving your friend to their job interview when you miss your turn. You realize you can still get them there on time if you pull an illegal U-turn at the next light. How likely are you to take the illegal U-turn so your friend can get to their interview on time?

The 18 items targeting the antisocial rule-breaking construct were similar except that the reason for breaking the rule was entirely self-serving. For example, one antisocial item reads:

You are working alone as a cashier and realize that your cash drawer is over after counting it at the end of the night. You could easily pocket the extra money and no one would ever know, but company policy says this is stealing. How likely are you to take the money for yourself?

We chose to measure perceived likelihood to engage in rule-breaking rather than measuring number of past incidences of rule-breaking for several reasons. First, a scale measuring past incidences of rule-breaking is subject to confounding variables, such as each participant having a different number of opportunities to break rules in the past. Furthermore, reporting past incidences of rule-breaking would result in a nonnormally distributed count variable. Models predicting such a skewed count measure would require compatibility with Poisson or negative binomial distributions. Such distributions are incompatible with the most popular analyses, such as Pearson's correlations, ordinary least squares regressions, and maximum likelihood estimation often used in SEM. Fewer researchers are familiar with or have access to software capable of conducting negative binomial and Poisson analyses compared to those which require normal distributions. Because our goal is to create a measure that is accessible to researchers and easy to use, a scale measuring perceived likelihood should result in scores that conform to a more accessible normal distribution.

Before developing items for this scale, we consulted a variety of scale reviews and factor analytic studies to best capture the overall rule-breaking construct (e.g., Burt & Donnellan, 2009; Sweeten, 2012). Antisocial behavior typically falls into either an "overt" or "covert" factor (Frick et al., 1993; Loeber & Schmalting, 1985). Overt behaviors are openly confrontational and physically aggressive, whereas covert behaviors involve obscured and less aggressive rule-breaking. Because the target construct is rule-breaking rather than direct aggression, we wrote each hypothetical scenario to be "covert," such that no one but the subject would be aware of their behavior. Previous research into the factor structure of rule-breaking indicates that stealing, vandalism, and work violations typically load together on a single factor (Burt & Donnellan, 2009). In light of this, we chose to include this variety of behaviors into our items to better capture the overall rule-breaking construct. To ensure that the scale would have broad applications, we chose to create items that focused on more everyday examples of rule violations instead of rare or severe legal violations. These items comprised legal rules, work rules, and informal rules.

Last, we used our proposed theoretical framework that prosocial rule-breaking is other-serving whereas antisocial rule-breaking is strictly self-serving when creating these items. To avoid the potential confounds of mixed-motive scenarios, we ensured that there were no direct gains for the subject in each of the prosocial

rule-breaking scenarios. In contrast, we made sure that the only person who benefited from each antisocial rule-breaking scenario was the subject. Using the above framework, the first author developed 20 items to capture the prosocial rule-breaking construct and another 18 items to capture the antisocial rule-breaking construct, for a total of 38 items (see the [Supplemental Material](#), for full descriptions of the initial items). During the item-development process, these items were regularly reviewed by members of the Legal Socialization Lab, which included a team of three psychology PhD students, four justice studies master's students, and three undergraduate psychology honors students. These review sessions were overseen by the second author, who has decades of experience with scale development relating to legal attitudes, legal reasoning, and rule-breaking (e.g., [Cohn et al., 2012](#); [Martin & Cohn, 2004](#)). These sessions involved identifying potential problem items, such as items that might reflect mixed motives, items that greatly differed from others in terms of rule severity or likelihood, and items with confusing or poor wording. Items were continually refined by the first author until there was agreement between lab members that these items represented everyday rule violations, were absent of mixed-motives, and had clear wording. Although this process did not utilize standardized ratings, the first and second authors ultimately decided which revisions to keep based on the original vision of the scale and the second author's expertise. These decisions were explained to the team and were reevaluated if disagreement persisted until all members agreed that the criteria had been met. The order of the finalized 38 items was randomized for each participant to control for ordering effects.

Prosocial Intentions. We measured prosocial intentions using the Prosocial Behavioral Intentions Scale ([Baumsteiger & Siegel, 2019](#)). Subjects responded to items on a 7-point Likert scale ranging from *definitely would not do* to *definitely would do*. Example items include "Help a stranger find something they lost, like their key or a pet" and "Help care for a sick friend or relative." Prosocial intention was calculated as the mean score of these four items ($M = 6.05$, $SD = 0.81$; $\alpha = .79$), with higher scores indicating greater prosocial intentions.

Empathy. We measured trait empathy using the Basic Empathy Scale in Adults; the Basic Empathy Scale was originally developed to measure empathy in young people ([Jolliffe & Farrington, 2006](#)) and later adapted to measure empathy in adults ([Carré et al., 2013](#)). Subjects responded to 20 items on a 5-point Likert scale ranging from *strongly disagree* to *strongly agree*. Example items included "After being with a friend who is sad about something, I usually feel sad" and "Other people's feelings don't bother me at all" (reverse coded). Empathy was calculated as the mean score of these 20 items after reverse-coding relevant items ($M = 3.90$, $SD = 0.46$; $\alpha = .87$), with higher scores indicating higher trait empathy.

Guilt Proneness. We measured emotional guilt proneness using the short-form Test of Self-Conscious Affect-3 scale ([Tangney et al., 2000](#)). This scale measures the factors of guilt proneness, shame proneness, detachment/unconcern, and externalization of blame. It consists of 16 scenarios, all of which have four or five responses, each designed to measure one of the above factors. For example, one scenario states, "You break something at work and then hide it." It is then followed up with the items, "You would think: 'This is making me anxious. I need to either fix it or get someone else to'" (guilt proneness), "You would think about

quitting" (shame proneness), "You would think: 'A lot of things aren't made very well these days'" (externalization), and "You would think: 'It was only an accident'" (detachment/unconcern). Responses were reported on a 5-point Likert scale ranging from *not likely* to *very likely*. Guilt proneness was calculated as the mean score of the 16 items targeting this construct from each scenario ($M = 3.99$, $SD = 0.45$; $\alpha = .83$), with higher scores indicating higher guilt proneness.

Moral Identity. We assessed moral identity using the Self-Importance of Moral Identity Measure ([Aquino & Reed, 2002](#)). The scale begins by listing nine moral characteristics (caring, compassionate, fair, friendly, generous, helpful, hardworking, honest, and kind) and then has subjects respond to 10 items on a 5-point Likert scale (from *strongly disagree* to *strongly agree*). Example items include, "It would make me feel good to be a person who has these characteristics" and "The types of things I do in my spare time (e.g., hobbies) clearly identify me as having these characteristics." Moral identity was calculated as the mean score of these 10 items after reverse-coding relevant items ($M = 3.95$, $SD = 0.44$; $\alpha = .75$), with higher scores indicating a stronger moral identity. We also assessed the two subfactors of the Self-Importance of Moral Identity Measure: internalization (internal morality as integral to one's personal identity; $M = 4.56$, $SD = 0.46$; $\alpha = .75$) and symbolization (symbolic morality as integral to one's public identity; $M = 3.38$, $SD = 0.63$; $\alpha = .74$).

Self-Control. We measured self-control using the Brief Self-Control Scale ([Tangney et al., 2004](#)). Subjects responded to items on a 5-point Likert scale ranging from *not at all* to *very much*. Example items include "I am good at resisting temptation" and "I often act without thinking through all the alternatives" (reverse coded). Self-control was calculated as the mean score of these 13 items after reverse-coding relevant items ($M = 2.85$, $SD = 0.55$; $\alpha = .76$), with higher scores indicating higher self-control. We also investigated the two subfactors of impulsivity ($M = 2.71$, $SD = 0.81$; $\alpha = .67$) and restraint ($M = 2.69$, $SD = 0.74$; $\alpha = .62$) based on factor analytic studies suggesting that the Brief Self-Control Scale consists of these two subfactors ([Maloney et al., 2012](#)). We reverse-coded impulsivity so that higher scores would indicate higher impulsivity.

Obligation to Obey the Law. We measured felt obligation to obey the law using the Rule Orientation Scale ([Fine & van Rooij, 2021](#); [Fine, van Rooij, et al., 2016](#)). Subjects responded to items on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree*. Example items include "It is acceptable to break a legal rule if this legal rule makes unreasonable demands of you" and "It is acceptable to break a legal rule if you do not understand this legal rule." Obligation to obey the law was calculated by reverse-coding all 12 items and taking the mean score ($M = 3.96$, $SD = 0.92$; $\alpha = .87$), with higher scores indicating higher felt obligation to obey.

Protest Participation. As the summer protests of 2020 broke out across the country, we took this opportunity to measure participant protest participation in an exploratory investigation of convergent and discriminant validity with the proposed prosocial and antisocial rule-breaking constructs. Protest participation was measured by asking "Have you attended any protests in the last year? Please select all protests that you have attended," with the options "Protest to lift COVID restrictions" ($n = 2$), "Protest against racial inequality" ($n = 115$), "Protest to reform police" ($n = 58$), "Another type of protest" ($n = 8$), and "I did not attend any protests in the last year" ($n = 255$). We created a dummy-coded variable indicating

whether a participant had participated in any type of protest (31.5% of respondents) or not (68.5% of respondents).

Procedure

This study took place entirely online. After being contacted through the University of New Hampshire's SONA system, participants followed a link to a Qualtrics web-based survey. The first page consisted of an informed consent form where participants had to check "agree" before being allowed to continue. Those who checked "disagree" were instead presented with a note thanking them for their time, and they still received class credit without participating. Participants who agreed completed all survey material, including demographic information (gender, age, and race/ethnicity). They were given 1 hr to complete the survey material, and everyone finished within the allotted time. This study was approved by the University of New Hampshire's institutional review board (IRB No. EFEB32020).

Results

Analytic Strategy

To best identify the underlying factor structure of the prosocial and antisocial rule-breaking items, we employed a variety of analysis techniques, beginning with the elimination of poorly loading items ($< .40$ on the main factor and $> .30$ on the secondary factor) using a principal axis EFA with a two-factor solution. Because we expected a degree of cross-loadings between factors due to both being subsets of the overall rule-breaking construct, we chose an oblimin rotation rather than an orthogonal rotation (Brown, 2015). Items were removed one at a time (eliminating items with the highest cross-loadings first and then the lowest-loading item on its main factor second) until the scale stabilized, with all items meeting these criteria.

To eliminate item imbalance (Gustafsson & Aberg-Bengtsson, 2010) and to reduce the scale to a practical size for easier implementation, we chose to remove items from the subscale with the most items until both subscales had an equal number of items by eliminating items with the highest cross-loadings. This was done because of the proposed hierarchical nature of the items. Because the scale can be used as a single general rule-breaking scale or as two separate scales for prosocial and antisocial rule-breaking, items should be balanced so that the general rule-breaking scale is not weighted more toward either prosocial rule-breaking or antisocial rule-breaking.

To test the hypothesized hierarchical structure of the remaining items, we followed guidelines outlined by Awang (2012) to compare four SEM models using confirmatory factor analysis: a single-factor model, a correlated-factors model, a second-order hierarchical model (Chen et al., 2012; Hull et al., 1991), and a bifactor hierarchical model (Chen & Zhang, 2018; Morin et al., 2016; Reise, 2012; see the Supplemental Material, for detailed figures of each of these models). Correlated-factors models typically used in confirmatory factor analyses assume no relation between subfactors (i.e., cross-loadings = 0) and are thus inappropriate for testing hierarchical models in which subfactors are partially explained by an overall general factor (Chen et al., 2006). Given the need of fixing both paths from the general factor to the two subfactors (Awang, 2012), the second-order model would be equivalent to the

correlated-factors model and is included only to provide coefficients for these paths. The bifactor model does not suffer from these limitations, provides fit statistics and loadings for the hypothesized hierarchical structure (see Table 3 in Chen et al., 2006, for an explanation of the equivalence between a bifactor and a hierarchical model), and allows us to determine the degree to which a construct is explained by the general factor versus its respective subfactor (Giordano & Waller, 2020; Reise et al., 2010). For a detailed explanation of the advantages of the bifactor model over the second-order model, see Chen et al. (2006). Consistent with recommendations to avoid correlating residual errors (Brown, 2015; Hermida, 2015; Landis et al., 2009), we took a conservative approach and chose not to correlate any error terms to avoid artificially inflating SEM fit statistics. Because of the nested nature of these models, we employed chi-square difference tests to determine if prosocial and antisocial rule-breaking are best described as a unidimensional, two-factor, or hierarchical construct.

McDonald's omega (ω) is reported as a reliability coefficient alongside Cronbach's alpha when assessing full scale reliability, given that alphas are inappropriate for assessing reliability in multidimensional models (McDonald, 1999; Rodriguez et al., 2016). The degree of model unidimensionality is reported with omega hierarchical (ω_h); values greater than .80 indicate a unidimensional model (Rodriguez et al., 2016). Final factor loadings for the general factor and subfactors were extracted from the final bifactor model by applying a Schmid-Leiman transformation (Ebesutani et al., 2012; Schmid & Leiman, 1957).

Convergent validity with scale measures was established using bivariate correlations. Differences between prosocial and antisocial rule-breaking in correlations with other scale measures were assessed using Dunn and Clark's z (1969) and Zou's (2007) confidence interval. See Diedenhofen and Musch (2015) and Hittner et al. (2003) for a detailed discussion of why these tests are most appropriate for testing differences between dependent correlations with a shared overlapping variable. To control for potential suppression effects and to accurately disentangle prosocial rule-breaking from antisocial rule-breaking, we also investigated convergent validity using semipartial correlations controlling for the opposite rule-breaking factor (Friedman & Wall, 2005; Paulhus et al., 2004). By holding the opposite rule-breaking score constant, this avoids suppression effects due to individuals who are simultaneously prosocial and antisocial, for example.

We employed a binary logistic regression to predict 2020 protest participation (dummy coded as 1 = protested, 0 = did not protest) from prosocial and antisocial rule-breaking, controlling for gender (1 = male), age, and race (1 = White). Odds ratios and their confidence intervals are reported as effect-size estimates (Warner, 2020). All SEM model fit statistics were calculated using AMOS 26 statistical software, and all other analyses were conducted using the psych (Revelle, 2019), jmv (Selker et al., 2021), and cocur (Diedenhofen & Musch, 2015) packages in R (R Core Team, 2021). Graphs were produced using the GAMLj (Gallucci, 2019) R package. All data, R code, and original materials are publicly available at https://osf.io/hkfds/?view_only=400627a674634c1397dc70a6d84765c8.

Hypothesis 1: Identifying prosocial and antisocial subfactors.

The EFA on the initial 38 items showed that they generally loaded onto their intended subfactor (Table 1). The Kaiser-Meyer-Olkin

Table 1
Factor Loadings and Communalities for Initial 38 Items

Item	Factor		Communalities
	Prosocial	Antisocial	
Pro1—How likely are you to break company policy and give free food to the homeless family?	.426		.186
Pro2—How likely are you to ignore your boss and help the person who passed out in the street?	.430	−0.365	.271
Pro3—How likely are you to ignore the sign and enter the city to help others?	.361		.147
Pro4—How likely are you to excessively speed so your friend can get help?	.400		.157
Pro5—How likely are you to take the illegal U-turn so your friend can get to their interview on time?	.448		.205
Pro6—How likely are you to break curfew to pick up your friend?	.469		.235
Pro7—How likely are you to lie to your company so they donate money to abused children?	.346		.207
Pro8—How likely are you to lie to cover for a friend who is late for work?	.470		.217
Pro9—How likely are you to illegally buy marijuana to help with your family member's pain?	.522		.278
Pro10—How likely are you to give your friend your old pills to help with their painful migraines?	.347		.152
Pro11—How likely are you to cheat so the cancer charity gets more money?	.594		.371
Pro12—How likely are you to turn in the lost ID even though it will make you late for work?			.075
Pro13—How likely are you to steal the bike back for your friend?	.491		.262
Pro14—How likely are you to steal food in order to feed your family?	.480		.336
Pro15—How likely are you to break a law that takes away the rights of others?	.532		.296
Pro16—How likely are you to help this stranger by only pretending to shock them in an experiment?	.365		.144
Pro17—How likely are you to lie to your insurance company so a family member gets coverage?	.472		.249
Pro18—How likely are you to lie to your boss and use fresh food instead?			.105
Pro19—How likely are you to lie so the medical patient can get the free procedure?	.457		.221
Pro20—How likely are you to break the car window to save the abandoned dog?	.325		.104
Anti1—How likely are you to take the money from the cash drawer for yourself?		.632	.398
Anti2—How likely are you to call in sick and go to the lake despite your work being shorthanded?			.165
Anti3—How likely are you to vandalize your old supervisor's car to teach him a lesson?		.418	.272
Anti4—How likely are you to sell these drugs to make a lot of easy money for yourself?		.396	.195
Anti5—How likely are you to lie about the amount of books you read so you can get a larger bonus?		.422	.259
Anti6—How likely are you to cheat on the exam by using the answer key?		.416	.272
Anti7—How likely are you to take your company's money for yourself?		.549	.312
Anti8—How likely are you to scratch the truck of the driver who almost hit you with your keys?	.318	.350	.256
Anti9—How likely are you to steal the medication from the pharmacy for yourself?	.345	.399	.320
Anti10—How likely are you ignore the contact information and take the cash for yourself?		.667	.440
Anti11—How likely are you to endanger your coworker's job to save your own?		.613	.368
Anti12—How likely are you to lie and say you worked 30 hr so you can get free meals?		.303	.194
Anti13—How likely are you to lie in your application so you can win free groceries for a year?		.614	.368
Anti14—How likely are you to continue letting the previous tenant unknowingly pay your bills?		.615	.370
Anti15—How likely are you to cheat your friends in order to win a good amount of money?		.431	.191
Anti16—How likely are you to go to the event despite the stay-at-home order for the pandemic?		.371	.142
Anti17—How likely are you to come back at night and throw a rock through the store window?		.332	.196
Anti18—How likely are you to steal items from your work?		.398	.188
Eigenvalues	5.65	3.25	

Note. The principal axis factoring extraction method was used in combination with an oblimin rotation with a two-factor solution. Loading values greater than .30 are shown, with values greater than .40 highlighted in bold. Item descriptions are abbreviated here for brevity. See the [Supplemental Material](#) for full item descriptions.

measure of sampling adequacy (.866) and Bartlett's test of sphericity ($\chi^2 = 4,678$, $df = 703$, $p < .001$) indicated that the data were suitable for factor analysis. We progressively removed items until loadings stabilized, with 12 prosocial rule-breaking items and eight antisocial rule-breaking items remaining. We selected four additional prosocial items for removal to achieve item balance. The remaining eight prosocial items ($\alpha = .72$) and eight antisocial items ($\alpha = .79$) were combined to create the 16-item PARB scale ($\alpha = .75$, $\omega = .76$; see [Appendix A](#), for the final PARB scale).

Of all the models tested, the hierarchical bifactor model demonstrated the best fit (comparative fit index [CFI] = .94, Tucker–Lewis index [TLI] = .91, root-mean-square error of approximation [RMSEA] = .045; $\chi^2 = 176$, $df = 88$, $p < .001$; [Table 2](#)), with chi-square difference tests showing a large significant improvement over the unidimensional single-factor model ($\chi^2 = 555$, $df = 16$, $p < .001$) and a smaller but significant improvement over the correlated-factors model ($\chi^2 = 90$, $df = 15$, $p < .001$). Consistent

with this, loadings indicated that the hypothesized subset factor structure was retained after controlling for the overall general factor, with all items loading more strongly on the subset factors than the general rule-breaking factor ([Table 3](#)). As expected, the scale was not unidimensional ($\omega_h = .21$), falling well below the omega-hierarchical threshold of .80 ([Rodriguez et al., 2016](#)). This provides support for the existence of prosocial rule-breaking as a separate construct from antisocial rule-breaking and indicates that rule-breaking is not a single antisocial factor.

Hypothesis 2: Associations with morally salient scales.

Zero-order bivariate correlations demonstrated expected convergent validity with all other constructs, with the exception of moral identity ([Table 4](#)). As hypothesized, prosocial rule-breaking was positively associated with prosocial intentions ($r = .10$, $p = .02$, $r^2 = .01$), empathy ($r = .12$, $p = .006$, $r^2 = .02$), and guilt proneness

Table 2
SEM Model Fit Measures for Studies 1 and 2

Model	RMSEA	RMSEA 90% CI		CFI	TLI	Model test		
		Lower	Upper			χ^2	<i>df</i>	<i>p</i>
Study 1 (College sample)								
Single-factor model	.11	.10	.12	.58	.45	731	104	<.001
Correlated-factors model	.06	.05	.07	.89	.86	266	103	<.001
Hierarchical bifactor model	.05	.04	.05	.94	.91	176	88	<.001
Study 2 (MTurk sample)								
Single-factor model	.15	.14	.16	.72	.63	693	104	<.001
Correlated-factors model	.10	.09	.11	.88	.84	349	103	<.001
Hierarchical bifactor model	.06	.05	.08	.96	.93	177	88	<.001

Note. The fit statistics for the second-order model are identical to those for the correlated-factors model because both paths to subfactors are fixed; those statistics are thus not reported (see Awang, 2012; Chen et al., 2012). Bifactor fit statistics are reported for the hierarchical bifactor model. Bold values represent the best fitting model for each study. SEM = structural equation modeling; CI = confidence interval; RMSEA = root-mean-square error of approximation; CFI = comparative fit index; TLI = Tucker–Lewis index; MTurk = Amazon's Mechanical Turk.

($r = .11$, $p = .01$, $r^2 = .01$), although these relations were small, ranging from 1.04% to 1.54% variance explained. Unexpectedly, prosocial rule-breaking was not associated with moral identity as hypothesized ($r = -.06$, $p = .174$, $r^2 < .01$). This could be due to moral identity having two subfactors of internalization (morality as integral to one's personal identity) and symbolization (morality as integral to one's public identity). We tested this in an exploratory analysis and found that prosocial rule-breaking was positively associated with internalization ($r = .09$, $p = .048$, $r^2 = .01$) and negatively associated with symbolization ($r = -.15$, $p < .001$, $r^2 = .02$).

Contrary to our findings for prosocial rule-breaking and consistent with our hypotheses, antisocial rule-breaking was negatively associated with prosocial intentions ($r = -.32$, $p < .001$, $r^2 = .10$), empathy ($r = -.28$, $p < .001$, $r^2 = .08$), guilt proneness ($r = -.44$, $p < .001$, $r^2 = .19$), and moral identity ($r = -.22$, $p < .001$, $r^2 = .05$), with stronger relations ranging from 4.75% to 19.34% variance

explained. Antisocial rule-breaking also negatively correlated with moral identity's internalization subfactor ($r = -.26$, $p < .001$, $r^2 = .07$) and symbolization subfactor ($r = -.12$, $p = .009$, $r^2 = .01$).

Importantly, correlations with prosocial rule-breaking differed from correlations with antisocial rule-breaking for prosocial intentions ($r_{\text{difference}} = .42$, 95% CI [.32, .53], $z = 7.50$, $p < .001$), empathy ($r_{\text{difference}} = .41$, 95% CI [.30, .51], $z = 7.19$, $p < .001$), guilt proneness ($r_{\text{difference}} = .55$, 95% CI [.45, .65], $z = 10.16$, $p < .001$), and moral identity ($r_{\text{difference}} = .16$, 95% CI [.04, .27], $z = 2.73$, $p = .006$), suggesting a difference in the moral motivations underlying each type of rule-breaking.

Furthermore, prosocial and antisocial rule-breaking correlated positively ($r = .16$, $p < .001$, $r^2 = .02$), indicating the presence of a suppression effect. Because prosocial and antisocial rule-breaking were positively correlated but differed in the direction of their correlations with moral traits, this indicated the presence of a

Table 3
PARB Scale General and Subset Factor Loadings for Studies 1 and 2

Item	Study 1 (college sample)			Study 2 (MTurk sample)		
	General	Prosocial	Antisocial	General	Prosocial	Antisocial
Pro4		.41		.22	.48	
Pro5		.43		.32	.42	
Pro8		.45		.35	.64	
Pro9	.21	.52		.30	.56	
Pro11	.25	.58		.20	.52	
Pro13	.21	.46		.24	.48	
Pro17	.22	.43		.41	.42	.30
Pro19		.40		.42	.52	.23
Anti1	.27		.62	.40		.67
Anti3	.24		.38	.39		.63
Anti7	.26		.56	.41		.70
Anti10	.27		.63	.39		.74
Anti11	.21		.57	.39		.75
Anti13	.21		.56	.43		.68
Anti14	.22		.51	.38		.70
Anti15			.38	.39		.66
Eigenvalues	0.74	1.77	2.31	2.1	2.1	4.0

Note. Loading values greater than or equal to .20 are shown, with values greater than or equal to .40 highlighted in bold. Subset factor structure was retained after controlling for the overall general factor with all items loading more strongly on their subset factor than the overall general rule-breaking factor. Displayed values are drawn from each study's respective hierarchical bifactor model using a Schmid-Leiman transformation. PARB = Prosocial and Antisocial Rule-Breaking; MTurk = Amazon's Mechanical Turk.

“cooperative” suppression effect (Conger, 1974; Paulhus et al., 2004). Cooperative suppression obscures the true effect of both rule-breaking factors on each trait due to criterion-irrelevant variance (Friedman & Wall, 2005; Paulhus et al., 2004). Thus, semipartial correlations controlling for the opposite rule-breaking factor were necessary and revealed the larger true effect between prosocial rule-breaking and prosocial intentions ($sr = .15, p < .001, sr^2 = .02$), empathy ($sr = .17, p < .001, sr^2 = .03$), and guilt proneness ($sr = .19, p < .001, sr^2 = .04$), with variance explained now ranging from 2.25% to 3.61%. However, this did not improve the correlation between prosocial rule-breaking and moral identity ($sr = -.03, p = .541, sr^2 < .01$) because the direction of their zero-order correlation did not meet the criteria for suppression. However, the correlation with the internalization moral identity subfactor did meet the criteria for suppression. Because of this, semipartial correlations revealed a stronger effect between prosocial rule-breaking and internalization ($sr = .13, p = .003, sr^2 = .02$), as expected, and did not improve the correlation with symbolization ($sr = -.14, p = .003, sr^2 = .02$).

Furthermore, semipartial correlations revealed larger negative correlations between antisocial rule-breaking and prosocial intentions ($sr = -.34, p < .001, sr^2 = .12$), empathy ($sr = -.31, p < .001, sr^2 = .09$), and guilt proneness ($sr = -.46, p < .001, sr^2 = .21$), with unique variance explained ranging from 9.42% to 21.34%. As expected, semipartial correlations did not improve the correlation

between antisocial rule-breaking and moral identity ($sr = -.21, p < .001, sr^2 = .04$) or its internalization subfactor ($sr = -.28, p < .001, sr^2 = .08$) or symbolization subfactor ($sr = -.10, p = .03, sr^2 = .01$). Zero-order and semipartial correlations relevant to our hypotheses can be found in Table 4, and zero-order bivariate correlations for all variables can be found in the Supplemental Table S1.

Hypothesis 3: Associations with self-control and obligation to obey.

As hypothesized, self-control was negatively related to prosocial rule-breaking ($r = -.24, p < .001, r^2 = .06$) and antisocial rule-breaking ($r = -.24, p < .001, r^2 = .06$). The self-control impulsivity subfactor was associated with prosocial rule-breaking ($r = .25, p < .001, r^2 = .06$) and antisocial rule-breaking ($r = .24, p < .001, r^2 = .06$). Similarly, the self-control restraint subfactor was negatively associated with prosocial rule-breaking ($r = -.15, p < .001, r^2 = .02$) and antisocial rule-breaking ($r = -.12, p = .007, r^2 = .01$). Consistent with our hypotheses, felt obligation to obey the law was negatively associated with prosocial rule-breaking ($r = -.40, p < .001, r^2 = .16$) and antisocial rule-breaking ($r = -.30, p < .001, r^2 = .09$). Furthermore, correlations with prosocial rule-breaking did not differ from correlations with antisocial rule-breaking for self-control ($r_{\text{difference}} = -.003, 95\% \text{ CI } [-.11, .11], z = -.06, p = .95$) or

Table 4
Study 1 (College Sample) Correlations

Variable	Zero-order correlations			Semipartial correlations	
	Prosocial rule-breaking	Antisocial rule-breaking	$r_{\text{difference}}$	Prosocial rule-breaking	Antisocial rule-breaking
Prosocial intentions	.10 (1.04%) $p = .02$	-.32 (10.30%) $p < .001$	.42 $z = 7.50$ $p < .001$	.15 (2.25%) $p < .001$	-.34 (11.62%) $p < .001$
Empathy	.12 (1.54%) $p = .006$	-.28 (8.07%) $p < .001$	.41 $z = 7.19$ $p < .001$	.17 (2.89%) $p < .001$	-.31 (9.42%) $p < .001$
Guilt proneness	.11 (1.30%) $p = .01$	-.44 (19.36%) $p < .001$	.55 $z = 10.16$ $p < .001$	.19 (3.61%) $p < .001$	-.46 (21.34%) $p < .001$
Moral identity	-.06 (0.36%) $p = .17$	-.22 (4.75%) $p < .001$	.16 $z = 2.73$ $p = .006$	-.03 (.01%) $p = .54$	-.21 (4.45%) $p < .001$
Internalization	.09 (0.79%) $p = .048$	-.26 (6.97%) $p < .001$	.35 $z = 6.18$ $p < .001$	.13 (1.72%) $p = .003$	-.28 (7.95%) $p < .001$
Symbolization	-.15 (2.31%) $p < .001$	-.12 (1.39%) $p = .009$	.03 $z = 0.59$ $p = .56$	-.14 (1.82%) $p = .003$	-.10 (0.94%) $p = .03$
Self-control	-.24 (5.71%) $p < .001$	-.24 (5.52%) $p < .001$	< .01 $z = .06$ $p = .95$	-.21 (4.20%) $p < .001$	-.21 (4.28%) $p < .001$
Impulsivity	.25 (6.10%) $p < .001$	.24 (5.95%) $p < .001$	< .01 $z = .06$ $p = .95$	.21 (4.49%) $p < .001$	.21 (4.58%) $p < .001$
Restraint	-.15 (2.13%) $p = .001$	-.12 (1.46%) $p = .007$	.03 $z = .44$ $p = .66$	-.13 (1.66%) $p = .004$	-.10 (1.00%) $p = .03$
Obligation to obey	-.40 (15.60%) $p < .001$	-.30 (8.94%) $p < .001$	.10 $z = 1.80$ $p = .07$	-.35 (12.46%) $p < .001$	-.26 (6.86%) $p < .001$

Note. Values in bold are consistent with hypotheses. Variance explained is reported in parentheses. Semipartial correlations are controlled for the opposite rule-breaking subfactor. Impulsivity scores are reverse coded for easier interpretation. Differences between prosocial and antisocial rule-breaking correlations were calculated using Dunn and Clark's z procedure.

for obligation to obey the law ($r_{\text{difference}} = -.10$, 95% CI $[-.20, .01]$, $z = -1.80$, $p = .07$), suggesting that self-control and felt obligation to obey the law are linked to general rule-breaking and not necessarily to antisocial rule-breaking. Because these relations do not meet the criteria for suppression, we did not expect any suppression effects, which was supported by semipartial correlations (see Table 4).

Hypothesis 4: Predicting protest behavior.

Finally, our exploratory investigation of how well each construct predicts actual protest participation revealed expected predictive validity. The prosocial rule-breaking PARB score predicted likelihood to engage in actual protest behavior ($b = 0.313$, $SE = 0.14$, $p = .025$; $OR = 1.37$, 95% CI $[1.05, 1.81]$), whereas the antisocial rule-breaking score did not ($b = -0.104$, $SE = 0.13$, $p = .410$; $OR = 0.90$, 95% CI $[0.70, 1.15]$). Each additional point in the prosocial rule-breaking PARB score predicted a 37% increase in protest likelihood during the summer protests of 2020, demonstrating convergent validity (Figure 2). Importantly, the antisocial rule-breaking PARB score did not predict protest likelihood, indicating discriminant validity.

Discussion

The PARB scale shows promise as a measure of both antisocial and prosocial rule-breaking. Overall, both rule-breaking subscales displayed good convergent and discriminant validity, with their theoretically related constructs suggesting that internal moral motivations differ between prosocial and antisocial rule-breaking. Prosocial rule-breaking appears to be positively linked with prosocial intentions, empathy, and guilt proneness, whereas antisocial rule-breaking is negatively linked with these same factors. Furthermore, these results suggest that overall, general rule-breaking is associated with lower self-control and lower obligation to obey the law—and is not necessarily defined by antisociality. Finally, prosocial rule-breaking successfully predicted likelihood to participate in protests. Although this last result did not distinguish between illegal and legal protest behavior, it does offer some evidence that

prosocial rule-breaking can be used to successfully predict actual prosocially motivated antiauthority behavior such as protesting against police (legally or illegally) during the BLM movement.

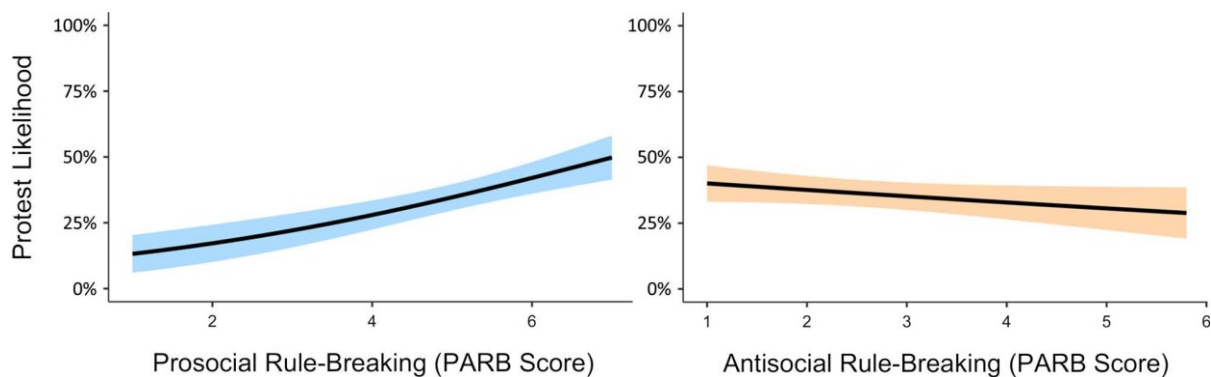
Interestingly, the lack of a relation between prosocial rule-breaking and moral identity was explained by a positive association with the internalization moral identity subfactor and a negative association with the symbolization moral identity subfactor. This suggests that prosocial rule-breaking may be driven by internal moral values and lessened by a desire to publicly appear moral. This makes sense, in that moral rebels and prosocial rule breakers such as whistleblowers are often the target of public ire (Hennigan, 2015; Minson & Monin, 2012; Touchton et al., 2020). Those concerned with maintaining public approval should be less likely to engage in prosocial rule-breaking because of the fallout that comes with violating social norms. Conversely, those with strong internal moral values who are less concerned about how they appear to others should be more likely to engage in prosocial rule-breaking. These findings are consistent with these ideas.

Study 2

The main purpose of Study 2 was to take a confirmatory approach and determine if the factor structure of the PARB scale and its relation to theoretically related constructs remained consistent in the general population in comparison to the predominantly college-aged sample of Study 1. The secondary purpose was to further establish construct validity between the PARB Scale and a between-subjects experimental cheating task in which the motivation to cheat was to either help others or to help oneself. This cheating task was adapted from similar paradigms (e.g., Teper et al., 2011; von Hippel et al., 2005). The hypotheses for Study 2 were as follows:

1. The factor structure of the PARB scale and its relation with other measures would be consistent with Study 1.
2. The PARB scale subfactors would demonstrate convergent and discriminant validity with actual prosocial and antisocial cheating behavior in the experimental cheating task.

Figure 2
Binary Logistic Regression Predicting Protest Likelihood From PARB Scores



Note. Each additional point in prosocial rule-breaking score predicted a 37% increase in protest likelihood during the summer protests of 2020. Importantly, antisocial rule-breaking score did not predict protest likelihood, indicating discriminant validity. Error bars represent standard error. PARB = Prosocial and Antisocial Rule-Breaking. See the online article for the color version of this figure.

Method

Participants

We recruited a sample of 289 participants from Amazon Mechanical Turk (MTurk). We removed two participants for not completing the survey material, 13 more for completing all study materials in less than 10 min, and another 22 who gave nonsense responses to an open-ended question (see the [Supplemental Material](#), for a list of these responses). Of the remaining 252 participants included in this study, 141 identified as males (56%) and 111 as females (44%); 176 primarily identified as White (70.1%), 32 as Asian (12.7%), 19 as Black (7.6%), 13 as Hispanic (5.2%), six as Native American (2.4%), five as other (2%), and one did not identify as any race. The average age was 38.4 ($SD = 11.1$), with ages ranging from 18 to 73. All participants were paid \$3 for participating.

Materials

We included all scales from the previous study, including the Prosocial Behavioral Intentions Scale ($M = 5.82$, $SD = 0.94$; $\alpha = .79$); the Basic Empathy Scale in Adults ($M = 3.74$, $SD = 0.62$; $\alpha = .91$); the Test of Self-Conscious Affect-3 scale's short-form measure of guilt proneness ($M = 4.18$, $SD = 0.59$; $\alpha = .85$); the Self-Importance of Moral Identity Measure ($M = 3.67$, $SD = 0.60$; $\alpha = .76$), with its internalization ($M = 4.23$, $SD = 0.72$; $\alpha = .80$) and symbolization ($M = 3.11$, $SD = 0.97$; $\alpha = .89$) subfactors; the Brief Self-Control Scale ($M = 3.52$, $SD = 0.82$; $\alpha = .89$), with its impulsivity ($M = 3.49$, $SD = 1.06$; $\alpha = .86$) and restraint ($M = 3.20$, $SD = 1.01$; $\alpha = .82$) subfactors; and the Rule Orientation Scale ($M = 4.33$, $SD = 1.25$; $\alpha = .93$), which we used as a measure of felt obligation to obey the law (Fine & van Rooij, 2021). We also used the PARB scale developed in Study 1 ($M = 3.63$, $SD = 1.11$; $\alpha = .88$, $\omega = .89$), including its eight prosocial rule-breaking items ($M = 4.77$, $SD = 1.22$; $\alpha = .81$) and eight antisocial rule-breaking items ($M = 2.50$, $SD = 1.52$; $\alpha = .93$).

Cheating Score

To measure actual rule-breaking behavior, we developed an experiment designed to elicit cheating behavior, which we adapted from similar designs used by Fine and van Rooij (2017), Gino et al. (2013), von Hippel et al. (2005), and Teper et al. (2011). We provided participants with a link to a separate website unaffiliated with the present researchers or their university (<https://testmoz.com/>). On this website, participants were given an easy opportunity to cheat on a math test consisting of 10 problems drawn from the quantitative sections of Graduate Record Examinations (GRE) practice exams (Princeton Review, 2016). Upon returning to the main study website, participants were informed that the experimenters did not have access to their true scores and were asked to report their scores honestly. In reality, we did have access to their true scores. We calculated cheating scores for each participant by subtracting their true score ($M = 2.37$, $SD = 2.10$, range = 0–10) from their reported score ($M = 3.63$, $SD = 2.91$, range = 0–10) to retrieve their total cheating amount ($M = 1.28$, $SD = 2.68$, range = 0–10).

Procedure

We advertised the study on Amazon MTurk as "Chance to receive an additional 300 dollars," with an accompanying description that

stated, "We are testing to see if different kinds of rewards improve cognitive performance." Recruited participants followed a link to a Qualtrics survey that contained all study materials except for the test portion of the cheating task (see below). After consenting to the study, participants read instructions informing them that they were about to take a 10-question math test with a 10-min time limit. Qualtrics randomly assigned participants to either the prosocial condition or the antisocial condition. Those in the antisocial condition read that they would receive a raffle ticket for a \$300 prize for every answer they got correct (an exclusively self-serving scenario). Those in the prosocial condition read that for every answer they got correct, a struggling cancer charity would receive a raffle ticket for \$300 (an exclusively other-helping scenario). Those in the prosocial condition were led to believe that the charity was real when it was, in fact, fictional. We included a manipulation check to ensure data quality.

Participants followed instructions informing them that they had to visit an outside external website to complete the math test and had to return to Qualtrics after receiving their test score. Qualtrics provided each participant with a randomly generated "passcode" and informed participants that they would need this to access the test. The test opened in a new window at <https://testmoz.com/>, whereas Qualtrics remained open in the background. On <https://testmoz.com/>, participants entered their "passcode" into a text field and then the test began. The "passcode" was actually a randomly generated ID number that we later used to link each participant's Testmoz data to their survey data collected on Qualtrics. We timed the math test to end automatically at 10 min. After completing the test or running out of time, participants received their true score (how many math problems out of 10 they got correct).

Upon returning to the Qualtrics questionnaire as previously instructed, participants were informed that the experimenters did not have access to the Testmoz data and were asked to report their scores honestly (how many items they got correct out of 10). In reality, we did have access to their test scores, which were saved on our anonymous Testmoz account and were later used to calculate cheating scores by subtracting each participant's true score from their reported score. Participants completed the remaining survey material entirely on Qualtrics. We randomized the scale order for each participant to control for ordering effects. Finally, each participant received a debriefing form that explained the true nature of the study. This study was approved by the University of New Hampshire's institutional review board (IRB No. 8294).

Results

Analytic Strategy

Using a confirmatory approach, we tested the same SEM models and bivariate correlations from Study 1. To test if the prosocial rule-breaking PARB score demonstrated convergent validity with prosocial cheating and discriminant validity with antisocial cheating, we examined simple slopes from a negative binomial regression testing for an interaction between the prosocial rule-breaking PARB score and the dummy-coded experimental condition variable while predicting cheating amount. The second regression conducted the same analysis but with the antisocial rule-breaking PARB score as the moderated predictor. Investigating simple slopes allowed us to determine whether PARB subfactor scores directly predicted

cheating in each of the cheating conditions (simple-slope significance indicating convergent validity and nonsignificance indicating discriminant validity). Rather than filtering the data by condition and examining regression coefficients while excluding the interaction term, we took a conservative approach and examined simple-slope coefficients while controlling for any possible interaction effects (no matter how small or insignificant). A significant interaction term indicates a clear difference in how a PARB score predicts prosocial cheating compared to antisocial cheating.

In all regression analyses, we controlled for the demographic variables of age, gender (dummy coded as 1 = male), and race (dummy coded as 1 = White), as well as the other unmoderated PARB subfactor score. We employed negative binomial regressions because cheating amount was a count variable that was not normally distributed (Cameron & Trivedi, 2013). Incidence rate ratios (IRR) and their confidence intervals are reported as effect-size estimates. All data, R code, and original materials used in Study 2 are publicly available at https://osf.io/hkfds/?view_only=400627a674634c1397dc70a6d84765c8.

Hypothesis 1: Consistency with Study 1.

All confirmatory factor analyses from the previous study were replicated in Study 2 (see Table 2), with the final hierarchical bifactor model once again demonstrating the best fit (CFI = .96, TLI = .93, RMSEA = .064; $\chi^2 = 177$, $df = 88$, $p < .001$). The factor loadings from the final model were consistent with Study 1 except that the general rule-breaking factor demonstrated somewhat stronger loadings. Despite the increased influence of the general rule-breaking factor, subset factors still loaded more strongly and were replicated across studies (Table 3). Both the prosocial rule-breaking ($\alpha = .81$) and antisocial rule-breaking ($\alpha = .93$) subscales showed good reliability.

Zero-order bivariate correlations were also consistent with Study 1, with prosocial rule-breaking positively associating with prosocial intentions ($r = .20$, $p < .001$, $r^2 = .04$), empathy ($r = .15$, $p = .017$, $r^2 = .02$), and guilt proneness ($r = .18$, $p < .004$, $r^2 = .07$) but not with moral identity ($r = .01$, $p = .882$, $r^2 < .01$). When considering the two subfactors of moral identity, prosocial rule-breaking was not associated with the internalization subfactor ($r = .04$, $p = .53$, $r^2 < .01$) or the symbolization subfactor ($r = -.02$, $p = .76$, $r^2 < .01$), but this inconsistency with Study 1 could have been due to the larger sample size in Study 1 and expected suppression effects (see below for semipartial correlations).

Contrary to prosocial rule-breaking and also consistent with Study 1, antisocial rule-breaking was negatively associated with prosocial intentions ($r = -.37$, $p < .001$, $r^2 = .14$), empathy ($r = -.43$, $p < .001$, $r^2 = .18$), guilt proneness ($r = -.52$, $p < .001$, $r^2 = .27$), and moral identity ($r = -.13$, $p = .04$, $r^2 = .02$). Interestingly, antisocial rule-breaking was negatively associated with the internalization moral identity subfactor ($r = -.60$, $p < .001$, $r^2 = .36$) but positively correlated with the symbolization moral identity subfactor ($r = .29$, $p < .001$, $r^2 = .08$).

As hypothesized, correlations with prosocial rule-breaking once again differed from correlations with antisocial rule-breaking for prosocial intentions ($r_{\text{difference}} = .57$, 95% CI [.43, .69], $z = 7.90$, $p < .001$), empathy ($r_{\text{difference}} = .58$, 95% CI [.45, .71], $z = 8.69$, $p < .001$), and guilt proneness ($r_{\text{difference}} = .70$, 95% CI [.57, .82],

$z = 10.27$, $p < .001$) but did not differ for moral identity ($r_{\text{difference}} = .14$, 95% CI [-.01, .28], $z = 1.81$, $p = .07$).

As in Study 1, prosocial and antisocial rule-breaking correlated positively ($r = .28$, $p < .001$, $r^2 = .08$). In conjunction with the rule-breaking factors associating with moral traits in different directions, the positive relation between prosocial and antisocial rule-breaking once again indicated the presence of a suppression effect (Conger, 1974; Paulhus et al., 2004). Therefore, semipartial correlations controlling for the opposite rule-breaking factor were necessary and revealed the true effect between prosocial rule-breaking and prosocial intentions ($sr = .31$, $p < .001$, $sr^2 = .10$), empathy ($sr = .28$, $p < .001$, $sr^2 = .08$), and guilt proneness ($sr = .34$, $p < .001$, $sr^2 = .12$), with unique variance explained ranging from 8.06% to 11.56%. Consistent with Study 1, semipartial correlations did not improve the relation between prosocial rule-breaking and moral identity ($sr = .05$, $p = .45$, $sr^2 < .01$). When considering the two subfactors of moral identity, however, prosocial rule-breaking was positively associated with the internalization subfactor ($sr = .22$, $p < .001$, $sr^2 = .05$) but not the symbolization subfactor ($sr = -.11$, $p = .10$, $sr^2 = .01$).

Consistent with our hypotheses and with Study 1, semipartial correlations revealed the true negative relations between antisocial rule-breaking and prosocial intentions ($sr = -.45$, $p < .001$, $sr^2 = .20$), empathy ($sr = -.50$, $p < .001$, $sr^2 = .25$), and guilt proneness ($sr = -.61$, $p < .001$, $sr^2 = .37$), with variance explained ranging from 20.43% to 36.72%. As expected, semipartial correlations did not improve the relation between antisocial rule-breaking and moral identity ($sr = -.14$, $p = .03$, $sr^2 = .02$).

Once again, self-control was negatively related to prosocial rule-breaking ($r = -.28$, $p < .001$, $r^2 = .08$) and antisocial rule-breaking ($r = -.42$, $p < .001$, $r^2 = .17$). The self-control impulsivity subfactor was associated with prosocial rule-breaking ($r = .23$, $p < .001$, $r^2 = .05$) and antisocial rule-breaking ($r = .53$, $p < .001$, $r^2 = .28$). Similarly, the self-control restraint subfactor was negatively associated with prosocial rule-breaking ($r = -.27$, $p < .001$, $r^2 = .07$) and antisocial rule-breaking ($r = -.13$, $p = .04$, $r^2 = .02$). Consistent with Study 1, the felt obligation to obey the law was negatively associated with prosocial rule-breaking ($r = -.35$, $p < .001$, $r^2 = .12$) and antisocial rule-breaking ($r = -.68$, $p < .001$, $r^2 = .46$). Although these correlations were all negative as hypothesized, correlations with antisocial rule-breaking were slightly stronger than correlations with prosocial rule-breaking for self-control ($r_{\text{difference}} = .14$, 95% CI [.00, .27], $z = 1.97$, $p = .049$) and moderately stronger for rule orientation ($r_{\text{difference}} = .33$, 95% CI [.21, .45], $z = 5.62$, $p < .001$), suggesting that self-control and obligation to obey the law are both linked to general rule-breaking in the same hypothesized direction but have a stronger negative association with antisocial rule-breaking. With the exception of these differences, all bivariate correlations from Study 1's undergraduate sample were replicated in Study 2's Amazon MTurk sample, as hypothesized (Table 5).

However, while controlling for the opposite rule-breaking factor, semipartial correlations revealed that the self-control impulsivity subfactor was not associated with prosocial rule-breaking ($sr = .08$, $p = .19$, $sr^2 = .01$) but was still associated with antisocial rule-breaking ($sr = .49$, $p < .001$, $sr^2 = .24$). Conversely, the self-control restraint subfactor was negatively associated with prosocial rule-breaking ($r = -.25$, $p < .001$, $r^2 = .06$) but was not associated with antisocial rule-breaking ($sr = -.13$, $p = .40$, $sr^2 = .02$). If self-control is better understood as having two subfactors, this suggests that prosocial rule-breaking is not necessarily driven by impulsivity

Table 5
Study 2 (MTurk Sample) Correlations

Variable	Zero-order correlations			Semipartial correlations	
	Prosocial rule-breaking	Antisocial rule-breaking	$r_{\text{difference}}$	Prosocial rule-breaking	Antisocial rule-breaking
Prosocial intentions	.20 (3.84%) $p = .002$	-.37 (13.62%) $p < .001$	.57 $z = 7.90$ $p < .001$	.31 (9.86%) $p < .001$	-.45 (20.43%) $p < .001$
Empathy	.15 (2.28%) $p = .02$	-.43 (18.49%) $p < .001$	.58 $z = 8.22$ $p < .001$	.28 (8.06%) $p < .001$	-.50 (24.80%) $p < .001$
Guilt proneness	.18 (7.78%) $p = .004$	-.52 (27.14%) $p < .001$	.70 $z = 10.27$ $p < .001$	.34 (11.56%) $p < .001$	-.61 (36.72%) $p < .001$
Moral identity	.01 ($<.01\%$) $p = .88$	-.13 (1.61%) $p = .04$	.14 $z = 1.81$ $p = .07$	.05 ($<.01\%$) $p = .45$	-.14 (1.84%) $p = .03$
Internalization	.04 ($<.01\%$) $p = .53$	-.60 (36.00%) $p < .001$	.64 $z = 9.94$ $p < .001$	.22 (4.71%) $p < .001$	-.63 (40.07%) $p < .001$
Symbolization	-.02 ($<.01\%$) $p = .76$	.29 (8.12%) $p < .001$	.30 $z = 4.13$ $p < .001$	-.11 (1.10%) $p = .10$	.30 (9.18%) $p < .001$
Self-control	-.28 (7.78%) $p < .001$	-.42 (17.22%) $p < .001$	.14 $z = 1.97$ $p = .049$	-.17 (2.82%) $p = .007$	-.35 (12.25%) $p < .001$
Impulsivity	.23 (5.29%) $p < .001$	.53 (28.30%) $p < .001$	.30 $z = 4.55$ $p < .001$	.08 (0.67%) $p = .194$	.49 (23.72%) $p < .001$
Restraint	-.27 (7.45%) $p < .001$	-.13 (1.64%) $p = .042$	.15 $z = 1.97$ $p = .049$	-.25 (6.10%) $p < .001$	-.05 ($<.01\%$) $p = .40$
Obligation to obey	-.35 (12.25%) $p < .001$	-.68 (46.10%) $p < .001$	.33 $z = 5.62$ $p < .001$	-.17 (2.72%) $p = .009$	-.60 (36.48%) $p < .001$

Note. Values in bold are consistent with hypotheses. Variance explained is reported in parentheses. Semipartial correlations are controlled for the opposite rule-breaking subfactor. Impulsivity scores are reverse coded for easier interpretation. Differences between prosocial and antisocial rule-breaking correlations were calculated using Dunn and Clark's z procedure. MTurk = Amazon's Mechanical Turk.

but is restrained by self-control. Conversely, antisocial rule-breaking is unrelated to restraint but is driven by impulsivity. However, this particular finding was not fully consistent with Study 1 and thus is not conclusive.

Hypothesis 2: Predicting cheating behavior.

Before conducting any analyses involving the experimental cheating task, we eliminated 43 participants who failed the manipulation check, leaving 209 participants for the following analyses. As hypothesized, the simple slope predicting prosocial cheating from the prosocial rule-breaking PARB score was significant ($b = 1.302$, $SE = 0.38$, $p < .001$; $IRR = 3.68$, 95% CI [1.68, 9.82]), showing expected convergent validity between the prosocial rule-breaking PARB score and actual prosocial cheating behavior. For every 1-point increase in participants' prosocial rule-breaking scores, their actual prosocial cheating amount increased by 268%. Also as hypothesized, the prosocial rule-breaking simple slope predicting antisocial cheating was not significant ($b = 0.262$, $SE = 0.25$, $p = .293$; $IRR = 1.30$, 95% CI [0.73, 2.32]), suggesting discriminant validity. Importantly, the interaction between prosocial rule-breaking PARB score and cheating condition was significant ($b = 1.040$, $SE = 0.45$, $p = .020$; $IRR = 2.83$, 95% CI [1.07, 8.76]), meaning the relation between prosocial rule-breaking PARB score and cheating differed depending on

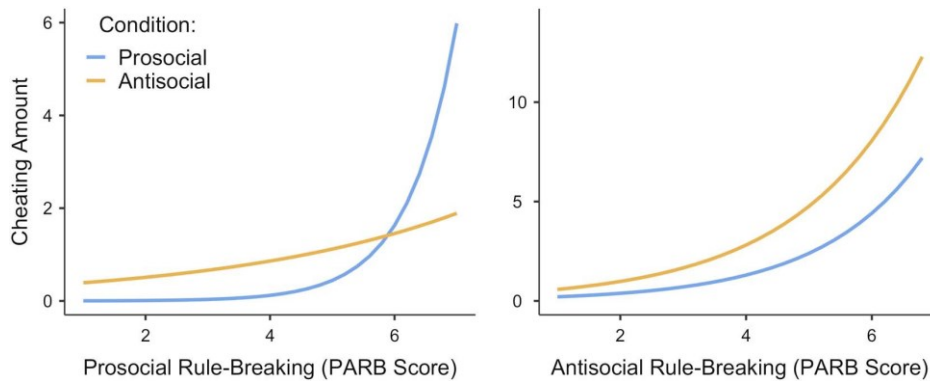
whether it was predicting prosocial cheating or antisocial cheating (Figure 3).

The second negative binomial regression with antisocial rule-breaking PARB score as the moderated predictor showed a significant simple slope predicting antisocial cheating, showing convergent validity between the antisocial rule-breaking PARB construct and actual antisocial cheating behavior ($b = 0.527$, $SE = 0.24$, $p = .025$; $IRR = 1.69$, 95% CI [1.01, 3.06]). For every 1-point increase in participants' antisocial rule-breaking scores, their actual antisocial cheating amount increased by 69%. The simple slope predicting prosocial cheating was also significant ($b = 0.611$, $SE = 0.21$, $p < .004$; $IRR = 1.84$, 95% CI [1.21, 3.08]), indicating a lack of discriminant validity. Consistent with this, the interaction between antisocial rule-breaking and cheating condition was not significant ($b = -0.084$, $SE = 0.30$, $p = .781$; $IRR = 1.09$, 95% CI [0.55, 2.11]), meaning the two simple slopes did not significantly differ between experimental conditions (Figure 3).

Discussion

Study 2 provides further evidence that the PARB Scale is a valid measure that captures the same construct as actual prosocial and antisocial rule-breaking behavior, with some caveats. First, the hierarchical factor structure established in Study 1 and each

Figure 3
Simple Slopes Testing Validity Between the PARB Scale Constructs and Actual Cheating Behavior



Note. Each additional point in prosocial rule-breaking PARB score (left figure) predicted a 268% increase in actual prosocial cheating behavior (blue line) and did not predict antisocial cheating (orange line). These two slopes significantly differed. Conversely, each additional point in antisocial rule-breaking PARB score (right figure) predicted a 69% increase in actual antisocial cheating behavior (orange line) but also predicted prosocial cheating behavior (blue line). PARB = Prosocial and Antisocial Rule-Breaking. See the online article for the color version of this figure.

subscale's relations to theoretically relevant survey measures were consistent across both studies. Furthermore, prosocial rule-breaking scores from the PARB scale were positively associated with actual prosocial cheating but not antisocial cheating behavior, showing expected convergent and discriminant validity. However, antisocial rule-breaking scores from the scale were positively associated with both prosocial cheating and antisocial cheating, showing convergent but not discriminant validity.

Consistent with Study 1, semipartial correlations revealed that prosocial rule-breaking was positively associated with moral identity's internalization subfactor but not with the symbolization subfactor. This provides further evidence that prosocial rule-breaking is driven by internal moral values and not by a desire to publicly appear moral. Interestingly, the symbolization subfactor of moral identity was positively associated with antisocial rule-breaking, a finding that is inconsistent with Study 1. It is possible that antisocial rule breakers are more concerned with appearing moral to hide their antisociality, but further research is needed to explore this possibility and to better understand this inconsistency.

General Discussion

The results of these two studies suggest that prosocial rule-breaking is different from antisocial rule-breaking. Prosocial rule-breaking appears to be motivated by prosocial intentions, empathy, and proneness to emotional guilt. Antisocial rule-breaking, on the other hand, is negatively predicted by these same constructs. This shows a difference in motivations across these moral dimensions. General rule-breaking as a whole seems to be facilitated by lower self-control and less felt obligation to obey the law and appears to exist on a separate "impulsive rule-breaking" dimension rather than a moral one. In short, these results suggest that rule-breaking is less related to the moral dimension than previously assumed and can be carried out for either prosocial or antisocial reasons depending on individual differences in each person's moral characteristics.

Unlike antisocial rule-breaking, prosocial rule-breaking appears to be driven, rather than suppressed, by prosocial inclinations. This surprising reversal conflicts with classic theories suggesting that people are innately selfish and require self-control and deliberate moral reasoning to overcome their innate antisociality (Gottfredson & Hirschi, 1990; Kohlberg, 1968, 1971). Instead, the present studies provide further support for research showing a positive link between impulsivity and many types of prosocial behavior (e.g., Rand et al., 2012; Righetti et al., 2013) and provide a more nuanced explanation for studies linking impulsivity to antisocial rule-breaking (e.g., Fine, Steinberg, et al., 2016; Rebellon et al., 2008; Vazsonyi et al., 2017). In short, it appears that impulsive risk-taking facilitates rule-breaking to achieve one's goals, whether these goals are selfishly antisocial or altruistically prosocial. For people lacking in prosocial intent, empathy, and emotional guilt, those goals are likely to be self-serving without any regard for others. Such individuals are more likely to engage in impulsive antisocial behavior as understood and studied by criminologists, psychologists, and legal scholars. However, among people with prosocial intentions, high empathy, and a proneness to feel emotional guilt, impulsive risk-taking may instead facilitate prosocial rule-breaking, as demonstrated by human rights activists, protesters, and historical figures (e.g., civil rights activists, abolitionists on the Underground Railroad, and dissenters in Nazi Germany) who have been willing to risk death or imprisonment to help others. Impulsive risk-takers with strong moral characteristics may be the first to challenge the established norms of their time and become the impetus for social change. In light of modern issues such as limited racial diversity in important sectors of society, threats to women's reproductive freedom, and challenges to the LGBT+ community's right to marry, impulsive prosocial rule breakers may be the first to tackle these challenges, despite established societal norms and laws.

Many of the peaceful protesters in support of the BLM movement were arrested for nonviolent offenses (Hale et al., 2020; Snow, 2020). Much of this prosocial rule-breaking was punished for violating the Civil Obedience Act" (1968), which was initially passed in the 1960s to combat civil rights activists spurred by

Martin Luther King, Jr. (Gerstein, 2021). This act was proposed and championed by Senator Russell Long, who openly and publicly supported racial segregation and expressed his disapproval of King. Remarkably, this law, which was created to directly oppose the civil rights movement, is now being applied to prosecute BLM activists (Gerstein, 2021).

Legal rules that restrict peaceful protesting are not simply relics of the past destined for prompt extinction but are presently on the rise. In the wake of the BLM protests, 36 new laws restricting the right to protest have since been enacted in the United States, with another 44 currently pending (International Center for Non-Profit Law [ICNL], 2022). Recently enacted laws include an act that makes the obstruction of a sidewalk or street punishable by a year in jail in Tennessee and a new Florida law that can send someone to prison simply for participating in a protest that becomes unruly, even if that person is not unruly themselves (An Act to Amend Tennessee Code Annotated, 2020; Combating Public Disorder, 2021). Furthermore, a new law currently pending in New Hampshire would allow police to use deadly force simply if they believe someone to be “likely” to use any force at all during a vaguely defined “riot” (An Act Relative to the Use of Deadly Force in Defense of Another, 2022).

This recent wave of legal restrictions on the right of peaceful assembly has been decried by the United Nations Office of the High Commissioner for Human Rights, with experts expressing concern over vague definitions of offenses and “draconian” penalties (Day et al., 2021). Despite the United Nations strongly urging all U.S. states to stop antiprotest legislation and to implement reforms addressing police brutality, these laws continue to pass, with many of these legal initiatives still currently progressing through the legislative process (Day et al., 2021; ICNL, 2022). With the recent rise in sanctions and legal restrictions on activism, regular people may become less willing to engage in activism as it becomes increasingly illegal and risky in modern society. Instead, societies may have to rely on prosocial rule breakers who are willing to break these new laws to push for positive social change and advance human rights as they have done throughout history.

Even though prosocial rule-breaking can play a role in positive social change, it is important to note that prosocial rule-breaking is not necessarily beneficial to society and also has the potential to cause great harm, despite having prosocial intentions. Morality is subjective, with different people having different beliefs about what the greater good is and how to best achieve it. Some atrocities carried out in the United States were committed by people who believed that their destructive actions were morally justified by a perceived benefit to society. For example, the terrorist Timothy McVeigh believed that his bombing that killed 168 people in Oklahoma City was a legitimate tactic in defense of Americans’ rights to personal freedom (Herbeck & Michel, 2001). On a smaller scale, parents who incorrectly believe that vaccines cause autism might think they are helping their child by refusing mandatory vaccinations when, in reality, they are putting their child at greater risk of serious illness and disease (Plotkin et al., 2009). The potential harm of prosocial rule-breaking also applies to the cases studied in the present research, such as illegally taking a U-turn to get your friend to a job interview on time. Even if this act is done with the best intentions, the risk to the lives of passengers and other drivers is a legitimate concern. Deciding which acts of rule-breaking are morally justified is a philosophical question and beyond the scope of this article, but we hope that the PARB scale developed here can

provide researchers greater clarity in understanding the psychological motivations behind such instances of rule-breaking.

Limitations and Future Directions

The current research is not without limitations. For instance, significant positive correlations between the prosocial rule-breaking construct and measures of prosociality were low (.10–.20). However, after identifying and controlling for suppression effects, the true effects were revealed, with semipartial correlations between prosocial rule-breaking and measures of prosociality ranging from .15 to .34. Despite that improvement, the relations between prosocial rule-breaking and measures of prosociality in Study 1 (.15–.19) were still lower than those in Study 2 (.28–.34). This is likely because undergraduates scored much higher than MTurk workers on measures of prosociality, creating a ceiling effect. Because undergraduate means were closer to the maximum possible values, this created less variance and weaker correlations. This was not an issue in Study 2, in which a wider range of values allowed for richer correlations. Although lower correlations are certainly a concern when comparing these values to hypothesized null values, it is important to note the differences when comparing these to the negative correlations of antisocial rule-breaking. We posit that the detection of these differences is important to answer many unexplored research questions, and a valuable feature of the PARB scale.

Second, although the prosocial ($\alpha = .81$) and antisocial ($\alpha = .93$) subscales showed good reliability in Study 2, they showed only moderate reliability in Study 1 (α s = .72 and .79, respectively). We believe this was due to the sheer length of the initial scale, composed of the 38 original items. This may have led the undergraduate sample to lose focus and answer more erratically, impacting the reliability of the final 16 items extracted from the original 38. Study 2 utilized only the final 16 items, which may have been easier for participants to follow and allowed them to report their scores more reliably. Because of this, we are more confident in the reliability scores from Study 2. Moreover, whereas the prosocial rule-breaking construct showed convergent and discriminant validity in all tests, the antisocial rule-breaking construct mostly displayed convergent validity. Other measures may be required in future studies to determine its degree of discriminant validity.

Another limitation that should be addressed is the samples used in these studies. For example, the Amazon MTurk workers who participated in Study 2 are likely experienced in taking research studies and may have seen through the deception required for the cheating paradigm. It may prove useful to replicate this study in a variety of populations who may be more naïve to research studies. Furthermore, the samples used in these studies were primarily White (92% in Study 1 and 70% in Study 2), and the sample used in Study 1 was primarily female (80%). This could have implications for the generalizability of our results. For example, the higher scores on prosociality measures from Study 1 could have been due to the effect of gender. Our scale may also generate different results for members of minority groups. For example, it is possible that Black Americans could score higher on prosocial rule-breaking likelihood because of a history of negative interactions with police and other authority figures. Highly prosocial Black Americans could potentially view these authority figures as less legitimate, which could result in reduced felt obligation to obey, which could impact their prosocial rule-breaking scores. Future research investigating questions such as

these should aim to test our findings across a broad demographic range.

Another possible limitation is the lack of existing theory to support the conceptualization of prosocial rule-breaking. To address this, we drew from a variety of disciplines to support the conceptualization of prosocial rule-breaking, such as research and theory from the psychology of emotion (e.g., Batson et al., 1981; Tangney et al., 2007a), criminology (e.g., Gottfredson & Hirschi, 1990; Rebellon et al., 2008), cognitive psychology (e.g., Barriga & Gibbs, 1996; Kohlberg, 1971), economic game theory (e.g., Rand et al., 2012; Savikhin & Sheremeta, 2013), and legal psychology (e.g., Cole et al., 2021; Fine & van Rooij, 2021). We believe that the consilience between these disciplines offers support for our conceptualization of prosocial rule-breaking, but we also respect and understand the value of incremental theoretical developments within disciplines, which is admittedly lacking here.

Despite our efforts, we recognize that this novel concept may suffer from undertheorizing when compared to the robust developments surrounding most theories from legal psychology. As an example, we defined a behavior to be prosocial by the prosocial traits that underlie said behavior and the prosocial goals of hypothetical behavior rather than measuring behavior directly. Despite demonstrating that the prosocial rule-breaking construct as measured by the PARB scale predicts actual prosocial cheating behavior, our scale can claim to measure only a proclivity to engage in prosocial rule-breaking, not the behavior itself. When considering this in addition to the need to control for suppression effects, our measure has greater utility as a predictive measure rather than an outcome measure, unlike typical measures of criminality. Further theoretical developments are certainly needed to best illuminate this construct. Our hope is that the introduction of prosocial rule-breaking as a novel concept will spur a new wave of robust theoretical development in the realm of legal psychology and encourage other researchers to build upon what we have presented here.

The PARB scale developed in this study provides a starting point for further developments and opens up many avenues for future research. For example, researchers investigating legal socialization processes such as procedural justice and perceived legitimacy of authority (as described by Trinkner & Cohn, 2014; Tyler & Lind, 2002; Tyler & Trinkner, 2017) can study the degree to which such processes impact prosocial rule-breaking likelihood as opposed to antisocial rule-breaking likelihood. Individuals who have strong moral characteristics and perceive authorities as behaving in an unfair manner may be less likely to internalize the values exemplified by those authorities, perceive those authorities to be less legitimate, and subsequently engage in more prosocial rule-breaking. Similarly, prior research on the effect of moral and legal reasoning on rule-breaking through the integrated cognitive legal socialization model (e.g., Cohn et al., 2010, 2012; Cole et al., 2021) can be expanded to determine if reasoning capacity affects prosocial and antisocial rule-breaking differently. In this sense, prosocial rule breakers would be expected to have high moral reasoning but low legal reasoning. Furthermore, the PARB scale may explain the surprising lack of antisocial characteristics found in terrorists (Horgan, 2005) and could provide further insight into the possible prosocial intentions behind their misguided beliefs and subsequent crimes.

In short, the PARB scale can be utilized by legal researchers and psychologists to understand the different motivations behind rule-breaking rather than categorizing all rule-breaking as antisocial. This

will assist researchers in untangling the rule-breaking concept from moral dimensions and could prove useful in informing interventions addressing adolescent delinquency and recidivism. Understanding the different reasons people break laws and other rules helps dispel the myth that all rule breakers are antisocial, giving researchers, forensic investigators, judges, and juries clearer insight when assessing the different motivations for various types of rule-breaking.

Conclusion

Across two studies, we developed and assessed the validity of the PARB scale. The scale distinguished between prosocial and antisocial subfactors under the overall rule-breaking factor, with the prosocial factor successfully predicting protest behavior and cheating to help others. Evidence from these studies suggests a difference between the motivations underlying prosocial and antisocial rule-breaking and indicates that not all rule-breaking is necessarily antisocial. The PARB scale offers researchers a new tool capable of testing a variety of unexplored research questions about rule-breaking intended to help others and offers a conceptual framework for understanding how it differs from antisocial rule-breaking.

References

- An Act Relative to the Use of Deadly Force in Defense of Another. (2022). H.B. 197. https://gencourt.state.nh.us/bill_status/pdf.aspx?id=3750&q=billVersion
- An Act to Amend Tennessee Code Annotated. (2020). Title 8; Title 38; Title 39 and Title 40, Relative to Criminal Law. H.B. 8005/S.B. 8005. <https://wapp.capitol.tn.gov/apps/BillInfo/Default.aspx?BillNumber=HB8005&GA=111>
- Aquino, K., McFerran, B., & Laven, M. (2011). Moral identity and the experience of moral elevation in response to acts of uncommon goodness. *Journal of Personality and Social Psychology*, 100(4), 703–718. <https://doi.org/10.1037/a0022540>
- Aquino, K., & Reed, A., II. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology*, 83(6), 1423–1440. <https://doi.org/10.1037/0022-3514.83.6.1423>
- Awang, Z. (2012). *A handbook on SEM: Structural equation modeling* (4th ed.). MARA University of Technology Kelantan.
- Barriga, A. Q., & Gibbs, J. C. (1996). Measuring cognitive distortion in antisocial youth: Development and preliminary validation of the "How I Think" questionnaire. *Aggressive Behavior*, 22(5), 333–343. [https://doi.org/10.1002/\(SICI\)1098-2337\(1996\)22:5<333::AID-AB2>3.0.CO;2-K](https://doi.org/10.1002/(SICI)1098-2337(1996)22:5<333::AID-AB2>3.0.CO;2-K)
- Bartels, D. M., & Pizarro, D. A. (2011). The mismeasure of morals: Antisocial personality traits predict utilitarian responses to moral dilemmas. *Cognition*, 121(1), 154–161. <https://doi.org/10.1016/j.cognition.2011.05.010>
- Basurto, X., Blanco, E., Nenadovic, M., & Vollen, B. (2016). Integrating simultaneous prosocial and antisocial behavior into theories of collective action. *Science Advances*, 2(3), Article e1501220. <https://doi.org/10.1126/sciadv.1501220>
- Batson, C. D. (1987). Prosocial motivation: Is it ever truly altruistic? *Advances in Experimental Social Psychology*, 20, 65–122. [https://doi.org/10.1016/S0065-2601\(08\)60412-8](https://doi.org/10.1016/S0065-2601(08)60412-8)
- Batson, C. D. (2011). *Altruism in humans*. Oxford University Press.
- Batson, C. D. (2018). *A scientific search for altruism: Do we only care about ourselves?* Oxford University Press. <https://doi.org/10.1093/oso/9780190651374.001.0001>
- Batson, C. D., Duncan, B. D., Ackerman, P., Buckley, T., & Birch, K. (1981). Is empathic emotion a source of altruistic motivation? *Journal of Personality and Social Psychology*, 40(2), 290–302. <https://doi.org/10.1037/0022-3514.40.2.290>
- Batson, C. D., Dyck, J. L., Brandt, J. R., Batson, J. G., Powell, A. L., McMaster, M. R., & Griffitt, C. (1988). Five studies testing two new

- egoistic alternatives to the empathy–altruism hypothesis. *Journal of Personality and Social Psychology*, 55(1), 52–77. <https://doi.org/10.1037/0022-3514.55.1.52>
- Batson, C. D., & Powell, A. A. (2003). Altruism and prosocial behavior. In T. Millon & M. J. Lerner (Eds.), *Handbook of psychology: Personality and social psychology* (Vol. 5, pp. 463–484). Wiley. <https://doi.org/10.1002/0471264385.wei0519>
- Baumeister, R. F., & Vohs, K. D. (2003). Self-regulation and the executive function of the self. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 1–197). Guilford Press.
- Baumsteiger, R., & Siegel, J. T. (2019). Measuring prosociality: The development of a prosocial behavioral intentions scale. *Journal of Personality Assessment*, 101(3), 305–314. <https://doi.org/10.1080/00223891.2017.1411918>
- Bial, R. (1999). *The underground railroad*. Houghton Mifflin Harcourt.
- Bodin, Ö., Mancilla Garcia, M., & Robins, G. (2020). Reconciling conflict and cooperation in environmental governance: A social network perspective. *Annual Review of Environment and Resources*, 45(1), 471–495. <https://doi.org/10.1146/annurev-environ-011020-064352>
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. Guilford Press.
- Burt, S. A., & Donnellan, M. B. (2009). Development and validation of the subtypes of Antisocial Behavior Questionnaire. *Aggressive Behavior*, 35(5), 376–398. <https://doi.org/10.1002/ab.20314>
- Cameron, A. C., & Trivedi, P. K. (2013). *Regression analysis of count data* (2nd ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9781139013567>
- Caprara, G. V., Barbaranelli, C., Pastorelli, C., Cermak, I., & Rosza, S. (2001). Facing guilt: Role of negative affectivity, need for reparation, and fear of punishment in leading to prosocial behaviour and aggression. *European Journal of Personality*, 15(3), 219–237. <https://doi.org/10.1002/per.402>
- Carlo, G., & Randall, B. A. (2002). The development of a measure of prosocial behaviors for late adolescents. *Journal of Youth and Adolescence*, 31(1), 31–44. <https://doi.org/10.1023/A:1014033032440>
- Carré, A., Stefaniak, N., D'Ambrosio, F., Bensalah, L., & Besche-Richard, C. (2013). The Basic Empathy Scale in adults (BES-A): Factor structure of a revised form. *Psychological Assessment*, 25(3), 679–691. <https://doi.org/10.1037/a0032297>
- Cauffman, E., Fine, A., Thomas, A. G., & Monahan, K. C. (2017). Trajectories of violent behavior among females and males. *Child Development*, 88(1), 41–54. <https://doi.org/10.1111/cdev.12678>
- Chen, F. F., Hayes, A., Carver, C. S., Laurenceau, J. P., & Zhang, Z. (2012). Modeling general and specific variance in multifaceted constructs: A comparison of the bifactor model to other approaches. *Journal of Personality*, 80(1), 219–251. <https://doi.org/10.1111/j.1467-6494.2011.00739.x>
- Chen, F. F., West, S. G., & Sousa, K. H. (2006). A comparison of bifactor and second-order models of quality of life. *Multivariate Behavioral Research*, 41(2), 189–225. https://doi.org/10.1207/s15327906mbr4102_5
- Chen, F. F., & Zhang, Z. (2018). Bifactor models in psychometric test development. In P. Irwing, T. Booth, & D. J. Hughes (Eds.), *The Wiley handbook of psychometric testing: A multidisciplinary reference on survey, scale and test development* (pp. 325–345). Wiley. <https://doi.org/10.1002/9781118489772.ch12>
- Civil Obedience Act. (1968). 18 U.S.C., Title X, § 1002a. <https://uscode.house.gov/view.xhtml?path=/prelim@title18/part1/chapter12&edition=prelim>
- Cohn, E. S., Bucolo, D., Rebellon, C. J., & Van Gundy, K. (2010). An integrated model of legal and moral reasoning and rule-violating behavior: The role of legal attitudes. *Law and Human Behavior*, 34(4), 295–309. <https://doi.org/10.1007/s10979-009-9185-9>
- Cohn, E. S., Trinkner, R. J., Rebellon, C. J., Van Gundy, K. T., & Cole, L. M. (2012). Legal attitudes and legitimacy: Extending the integrated legal socialization model. *Victims and Offenders*, 7(4), 385–406. <https://doi.org/10.1080/15564886.2012.713902>
- Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon & N. Eisenberg (Eds.), *Social, emotional, and personality development. Handbook of child psychology* (pp. 779–862). Wiley.
- Cole, L. M., Cohn, E. S., Rebellon, C. J., & Van Gundy, K. T. (2014). Feeling guilty to remain innocent: The moderating effect of sex on guilt responses to rule-violating behavior in adolescent legal socialization. *Psychology, Crime and Law*, 20(8), 722–740. <https://doi.org/10.1080/1068316X.2013.854794>
- Cole, L. M., Kelley, D. C., Hennigan, P. J., Rebellon, C. J., Van Gundy, K. T., & Cohn, E. S. (2021). Emotion: The forgotten component of legal socialization. *Journal of Social Issues*, 77(2), 291–313. <https://doi.org/10.1111/josi.12444>
- Combating Public Disorder. (2021). C.S./H.B. 1/S.B. 484. <https://www.myfloridahouse.gov/Sections/Bills/billsdetail.aspx?BillId=70193>
- Conger, A. J. (1974). A revised definition for suppressor variables: A guide to their identification and interpretation. *Educational and Psychological Measurement*, 34(1), 35–46. <https://doi.org/10.1177/001316447403400105>
- Crockett, M. J., Clark, L., Lieberman, M. D., Tabibnia, G., & Robbins, T. W. (2010). Impulsive choice and altruistic punishment are correlated and increase in tandem with serotonin depletion. *Emotion*, 10(6), 855–862. <https://doi.org/10.1037/a0019861>
- Dahling, J. J., Chau, S. L., Mayer, D. M., & Gregory, J. B. (2012). Breaking rules for the right reasons? An investigation of pro-social rule breaking. *Journal of Organizational Behavior*, 33(1), 21–42. <https://doi.org/10.1002/job.730>
- Day, D., Reid, A., Balcerzak, M., Gumedze, S., Sunga, R., Tidball-Binz, M., & Voule, C. (2021). *United States: UN expert decries new laws targeting peaceful and Black Lives Matter protesters*. United Nations Office of the High Commissioner for Human Rights. <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=27060&LangID=E>
- De Wall, C. N., Finkel, E. J., & Denson, T. F. (2011). Self-control inhibits aggression. *Social and Personality Psychology Compass*, 5(7), 458–472. <https://doi.org/10.1111/j.1751-9004.2011.00363.x>
- Dienhohen, B., & Musch, J. (2015). cocor: A comprehensive solution for the statistical comparison of correlations. *PLOS ONE*, 10(3), Article e0121945. <https://doi.org/10.1371/journal.pone.0121945>
- Dovidio, J. F., Piliavin, J. A., Schroeder, D. A., & Penner, L. A. (2017). *The social psychology of prosocial behavior*. Psychology Press. <https://doi.org/10.4324/9781315085241>
- Dunn, O. J., & Clark, V. (1969). Correlation coefficients measured on the same individuals. *Journal of the American Statistical Association*, 64(325), 366–377. <https://doi.org/10.1080/01621459.1969.10500981>
- Ebesutani, C., Reise, S. P., Chorpita, B. F., Ale, C., Regan, J., Young, J., Higa-McMillan, C., & Weisz, J. R. (2012). The Revised Child Anxiety and Depression Scale-Short Version: Scale reduction via exploratory bifactor modeling of the broad anxiety factor. *Psychological Assessment*, 24(4), 833–845. <https://doi.org/10.1037/a0027283>
- Feltz, A. (2007). The Knobe effect: A brief overview. *Journal of Mind and Behavior*, 28(3–4), 265–278. <https://www.jstor.org/stable/43854197>
- Fine, A., Steinberg, L., Frick, P. J., & Cauffman, E. (2016). Self-control assessments and implications for predicting adolescent offending. *Journal of Youth and Adolescence*, 45(4), 701–712. <https://doi.org/10.1007/s10964-016-0425-2>
- Fine, A., & van Rooij, B. (2017). For whom does deterrence affect behavior? Identifying key individual differences. *Law and Human Behavior*, 41(4), 354–360. <https://doi.org/10.1037/lhb0000246>
- Fine, A., van Rooij, B., Feldman, Y., Shalvi, S., Scheper, E., Leib, M., & Cauffman, E. (2016). Rule orientation and behavior: Development and validation of a scale measuring individual acceptance of rule violation. *Psychology, Public Policy, and Law*, 22(3), 314–329. <https://doi.org/10.1037/law0000096>

- Fine, A. D., & van Rooij, B. (2021). Legal socialization: Understanding the obligation to obey the law. *Journal of Social Issues*, 77(2), 367–391. <https://doi.org/10.1111/josi.12440>
- Finkel, E. J., DeWall, C. N., Slotter, E. B., Oaten, M., & Foshee, V. A. (2009). Self-regulatory failure and intimate partner violence perpetration. *Journal of Personality and Social Psychology*, 97(3), 483–499. <https://doi.org/10.1037/a0015433>
- Fogelman, E., & Wiener, V. L. (1985). The few, the brave, the noble. *Psychology Today*, 19(8), 60–65. Frick, P. J., Lahey, B. B., Loeber, R., Tannenbaum, L., van Horn, Y., Christ, M. A. G., Hart, E. A., & Hanson, K. (1993). Oppositional defiant disorder and conduct disorder: A meta-analytic review of factor analyses and cross-validation in a clinic sample. *Clinical Psychology Review*, 13(4), 319–340. [https://doi.org/10.1016/0272-7358\(93\)90016-F](https://doi.org/10.1016/0272-7358(93)90016-F)
- Friedman, L., & Wall, M. (2005). Graphical views of suppression and multicollinearity in multiple linear regression. *American Statistician*, 59(2), 127–136. <https://doi.org/10.1198/000313005X41337>
- Gallucci, M. (2019). *GAMLj: General analyses for linear models* [R package]. <https://gamlj.github.io/>
- Gerstein, J. (2021, February 2). Law used to prosecute Capitol riot, Black Lives Matter violence under fire as racist. *Politico*. <https://www.politico.com/news/2021/02/02/capitol-riot-black-lives-matter-465156>
- Gibbs, J. J., & Giever, D. (1995). Self-control and its manifestations among university students: An empirical test of Gottfredson and Hirschi's general theory. *Justice Quarterly*, 12(2), 231–255. <https://doi.org/10.1080/07418829500092661>
- Gino, F., Ayal, S., & Ariely, D. (2013). Self-serving altruism? The lure of unethical actions that benefit others. *Journal of Economic Behavior and Organization*, 93, 285–292. <https://doi.org/10.1016/j.jebo.2013.04.005>
- Giordano, C., & Waller, N. G. (2020). Recovering bifactor models: A comparison of seven methods. *Psychological Methods*, 25(2), 143–156. <https://doi.org/10.1037/met0000227>
- Glenn, A. L., Koleva, S., Iyer, R., Graham, J., & Ditto, P. H. (2010). Moral identity in psychopathy. *Judgement and Decision*, 5(7), 497–505. <https://escholarship.org/uc/item/5b6767j5>
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford University Press. <https://doi.org/10.1515/9781503621794>
- Greene, J. D. (2013). *Moral tribes: Emotion, reason, and the gap between us and them*. Penguin.
- Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*, 293(5537), 2105–2108. <https://doi.org/10.1126/science.1062872>
- Gustafsson, J. -E., & Aberg-Bengtsson, L. (2010). Unidimensionality and interpretability of psychological instruments. In S. E. Embretson (Ed.), *Measuring psychological constructs: Advances in model-based approaches* (pp. 97–121). American Psychological Association. <https://doi.org/10.1037/12074-005>
- Halali, E., Bereby-Meyer, Y., & Meiran, N. (2014). Between self-interest and reciprocity: The social bright side of self-control failure. *Journal of Experimental Psychology: General*, 143(2), 745–754. <https://doi.org/10.1037/a0033824>
- Hale, G., Winton, R., & Mozingo, J. (2020, June 9). Hundreds were arrested for peacefully protesting. Here are their stories. *Los Angeles Times*. <https://www.latimes.com/california/story/2020-06-09/hundreds-were-arrested-for-peacefully-protesting-here-are-their-stories>
- Hardy, S. A., Bean, D. S., & Olsen, J. A. (2015). Moral identity and adolescent prosocial and antisocial behaviors: Interactions with moral disengagement and self-regulation. *Journal of Youth and Adolescence*, 44(8), 1542–1554. <https://doi.org/10.1007/s10964-014-0172-1>
- Hennigan, P. (2015). *Is vegan food really that bad? The relation between moral identity threat and flavor preference* [Honors thesis, Salem State University]. Salem State Digital Repository. <http://hdl.handle.net/20.500.13013/572>
- Herbeck, D., & Michel, L. (2001, June 10). McVeigh hints at some regrets. *The Buffalo News*. <https://buffalonews.com/2001/06/10/mcveigh-hints-at-some-regrets/>
- Hermida, R. (2015). The problem of allowing correlated errors in structural equation modeling: Concerns and considerations. *Computational Methods in Social Sciences*, 3(1), 5–17. http://cmss.univnt.ro/wp-content/uploads/vol/split/vol_III_issue_1/CMSS_vol_III_issue_1_art.001.pdf
- Hertz, S. G., & Krettenauer, T. (2016). Does moral identity effectively predict moral behavior? A meta-analysis. *Review of General Psychology*, 20(2), 129–140. <https://doi.org/10.1037/gpr0000062>
- Hittner, J. B., May, K., & Silver, N. C. (2003). A Monte Carlo evaluation of tests for comparing dependent correlations. *The Journal of General Psychology*, 130(2), 149–168. <https://doi.org/10.1080/00221300309601282>
- Horgan, J. (2005). *The psychology of terrorism*. Routledge.
- Hull, J. G., Lehn, D. A., & Tedlie, J. C. (1991). A general approach to testing multifaceted personality constructs. *Journal of Personality and Social Psychology*, 61(6), 932–945. <https://doi.org/10.1037/0022-3514.61.6.932>
- International Center for Non-Profit Law. (2022, January 24). *US protest law tracker*. https://www.icnl.org/usprotestlawtracker/?location=&status=&issue=&date=custom&date_from=2020-01-01&date_to=2021-12-31&type=
- Jolliffe, D., & Farrington, D. P. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and Violent Behavior*, 9(5), 441–476. <https://doi.org/10.1016/j.avb.2003.03.001>
- Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, 29(4), 589–611. <https://doi.org/10.1016/j.adolescence.2005.08.010>
- Knobe, J. (2003). Intentional action in folk psychology: An experimental investigation. *Philosophical Psychology*, 16(2), 309–324. <https://doi.org/10.1080/09515080307771>
- Kohlberg, L. (1968). The child as a moral philosopher. *Psychology Today*, 2(4), 25–30.
- Kohlberg, L. (1971). Stages of moral development. *Moral Education*, 1(51), 23–92. <https://doi.org/10.3138/9781442656758-004>
- Kooistra, E. B., Reinders Folmer, C., Kuiper, M. E., Olthuis, E., Brownlee, M., Fine, A., & van Rooij, B. (2020). *Mitigating covid-19 in a nationally representative UK sample: Personal abilities and obligation to obey the law shape compliance with mitigation measures* (Amsterdam Law School Research Paper No. 2020-19). <https://doi.org/10.2139/ssrn.3598221>
- Kovach, K. A. (1987). What motivates employees? Workers and supervisors give different answers. *Business Horizons*, 30(5), 58–65. [https://doi.org/10.1016/0007-6813\(87\)90082-6](https://doi.org/10.1016/0007-6813(87)90082-6)
- Landis, R. S., Edwards, B. D., & Cortina, J. M. (2009). On the practice of allowing correlated residuals among indicators in structural equation models. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends: Doctrine, verity and fable in the organizational and social sciences* (pp. 193–214). Routledge/Taylor and Francis Group.
- Lindner, C., Nagy, G., & Retelsdorf, J. (2015). The dimensionality of the Brief Self-Control Scale—An evaluation of unidimensional and multidimensional applications. *Personality and Individual Differences*, 86, 465–473. <https://doi.org/10.1016/j.paid.2015.07.006>
- Loeber, R., & Schmalting, K. B. (1985). Empirical evidence for overt and covert patterns of antisocial conduct problems: A metaanalysis. *Journal of Abnormal Child Psychology*, 13(2), 337–353. <https://doi.org/10.1007/BF00910652>
- Loiacono, E., & Wilson, V. (2020). Do we truly sacrifice truth for simplicity: Comparing complete individual randomization and semi-randomized approaches to survey administration. *AIS Transactions on Human-Computer Interaction*, 12(2), 45–69. <https://doi.org/10.17705/1thci.00128>
- Maloney, P. W., Grawitch, M. J., & Barber, L. K. (2012). The multi-factor structure of the Brief Self-Control Scale: Discriminant validity of restraint and impulsivity. *Journal of Research in Personality*, 46(1), 111–115. <https://doi.org/10.1016/j.jrp.2011.10.001>

- Malti, T., & Krettenauer, T. (2013). The relation of moral emotion attributions to prosocial and antisocial behavior: A meta-analysis. *Child Development*, 84(2), 397–412. <https://doi.org/10.1111/j.1467-8624.2012.01851.x>
- Manapat, P. D., Edwards, M. C., MacKinnon, D. P., Poldrack, R. A., & Marsch, L. A. (2021). A psychometric analysis of the Brief Self-Control Scale. *Assessment*, 28(2), 395–412. <https://doi.org/10.1177/1073191119890021>
- Maneiro, L., Gómez-Fraguela, J. A., Cutrín, O., & Romero, E. (2017). Impulsivity traits as correlates of antisocial behaviour in adolescents. *Personality and Individual Differences*, 104, 417–422. <https://doi.org/10.1016/j.paid.2016.08.045>
- Martin, T. A., & Cohn, E. S. (2004). Attitudes toward the criminal legal system: Scale development and predictors. *Psychology, Crime and Law*, 10(4), 367–391. <https://doi.org/10.1080/10683160310001629265>
- McDonald, R. P. (1999). *Test theory: A unified treatment*. Lawrence Erlbaum.
- Miller, P. A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behavior. *Psychological Bulletin*, 103(3), 324–344. <https://doi.org/10.1037/0033-2909.103.3.324>
- Minson, J. A., & Monin, B. (2012). Do-gooder derogation: Disparaging morally motivated minorities to defuse anticipated reproach. *Social Psychological and Personality Science*, 3(2), 200–207. <https://doi.org/10.1177/1948550611415695>
- Morelli, S. A., Lieberman, M. D., & Zaki, J. (2015). The emerging study of positive empathy. *Social and Personality Psychology Compass*, 9(2), 57–68. <https://doi.org/10.1111/spc3.12157>
- Morin, A. J., Arens, A. K., & Marsh, H. W. (2016). A bifactor exploratory structural equation modeling framework for the identification of distinct sources of construct-relevant psychometric multidimensionality. *Structural Equation Modeling*, 23(1), 116–139. <https://doi.org/10.1080/10705511.2014.961800>
- Morrison, E. W. (2006). Doing the job well: An investigation of pro-social rule breaking. *Journal of Management*, 32(1), 5–28. <https://doi.org/10.1177/0149206305277790>
- Niv, S., Tuvblad, C., Raine, A., & Baker, L. A. (2013). Aggression and rule-breaking: Heritability and stability of antisocial behavior problems in childhood and adolescence. *Journal of Criminal Justice*, 41(5), 285–291. <https://doi.org/10.1016/j.jcrimjus.2013.06.014>
- Oliner, S. P. (1992). *Altruistic personality: Rescuers of Jews in Nazi Europe*. Simon and Schuster.
- Parks, R., & Haskins, J. (1992). *Rosa Parks: My story*. Dial Books. Paulhus, D. L., Robins, R. W., Trzesniewski, K. H., & Tracy, J. L. (2004). Two replicable suppressor situations in personality research. *Multivariate Behavioral Research*, 39(2), 303–328. https://doi.org/10.1207/s15327906mbr3902_7
- Plotkin, S., Gerber, J. S., & Offit, P. A. (2009). Vaccines and autism: A tale of shifting hypotheses. *Clinical Infectious Diseases*, 48(4), 456–461. <https://doi.org/10.1086/596476>
- Prediger, S., Volland, B., & Herrmann, B. (2014). Resource scarcity and antisocial behavior. *Journal of Public Economics*, 119, 1–9. <https://doi.org/10.1016/j.jpubeco.2014.07.007>
- Princeton Review. (2016). *Cracking the GRE premium (2017 edition)*. Penguin Random House.
- Quiles, Z. N., & Bybee, J. (1997). Chronic and predispositional guilt: Relations to mental health, prosocial behavior, and religiosity. *Journal of Personality Assessment*, 69(1), 104–126. https://doi.org/10.1207/s15327752jpa6901_6
- Raine, A., & Yang, Y. (2006). Neural foundations to moral reasoning and antisocial behavior. *Social Cognitive and Affective Neuroscience*, 1(3), 203–213. <https://doi.org/10.1093/scan/nsi033>
- Rand, D. G. (2016). Cooperation, fast and slow: Meta-analytic evidence for a theory of social heuristics and self-interested deliberation. *Psychological Science*, 27(9), 1192–1206. <https://doi.org/10.1177/0956797616654455>
- Rand, D. G., Greene, J. D., & Nowak, M. A. (2012). Spontaneous giving and calculated greed. *Nature*, 489(7416), 427–430. <https://doi.org/10.1038/nature11467>
- R Core Team. (2021). *R: A language and environment for statistical computing* (Version 4.0) [Computer software]. <https://cran.r-project.org>
- Rebellon, C. J., Straus, M. A., & Medeiros, R. (2008). Self-control in global perspective: An empirical assessment of Gottfredson and Hirschi's general theory within and across 32 national settings. *European Journal of Criminology*, 5(3), 331–361. <https://doi.org/10.1177/1477370808090836>
- Reise, S. P. (2012). The rediscovery of bifactor measurement models. *Multivariate Behavioral Research*, 47(5), 667–696. <https://doi.org/10.1080/00273171.2012.715555>
- Reise, S. P., Moore, T. M., & Haviland, M. G. (2010). Bifactor models and rotations: Exploring the extent to which multidimensional data yield univoocal scale scores. *Journal of Personality Assessment*, 92(6), 544–559. <https://doi.org/10.1080/00223891.2010.496477>
- Revelle, W. (2019). *psych: Procedures for psychological, psychometric, and personality research* [R package]. <https://cran.r-project.org/package=psych>
- Righetti, F., Finkenauer, C., & Finkel, E. J. (2013). Low self-control promotes the willingness to sacrifice in close relationships. *Psychological Science*, 24(8), 1533–1540. <https://doi.org/10.1177/0956797613475457>
- Rodriguez, A., Reise, S. P., & Haviland, M. G. (2016). Applying bifactor statistical indices in the evaluation of psychological measures. *Journal of Personality Assessment*, 98(3), 223–237. <https://doi.org/10.1080/00223891.2015.1089249>
- Savikhin, A. C., & Sheremeta, R. M. (2013). Simultaneous decision-making in competitive and cooperative environments. *Economic Inquiry*, 51(2), 1311–1323. <https://doi.org/10.1111/j.1465-7295.2012.00474.x>
- Schmid, J., & Leiman, J. M. (1957). The development of hierarchical factor solutions. *Psychometrika*, 22(1), 53–61. <https://doi.org/10.1007/BF02289209>
- Selker, R., Love, R., Dropmann, D., & Moreno, V. (2021). *jmv: The 'jamovi' analyses* [R package]. <https://CRAN.R-project.org/package=jmv>
- Snow, A. (2020, June 4). AP tally: Arrests at widespread US protests hit 10,000. *AP News*. <https://apnews.com/article/american-protests-us-news-arrests-minnesota-burglary-bb2404f9b13c8b53b94c73f818f6a0b7>
- Stuewig, J., Tangney, J. P., Kendall, S., Folk, J. B., Meyer, C. R., & Dearing, R. L. (2015). Children's proneness to shame and guilt predict risky and illegal behaviors in young adulthood. *Child Psychiatry and Human Development*, 46(2), 217–227. <https://doi.org/10.1007/s10578-014-0467-1>
- Sweeten, G. (2012). Scaling criminal offending. *Journal of Quantitative Criminology*, 28(3), 533–557. <https://doi.org/10.1007/s10940-011-9160-8>
- Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, 72(2), 271–324. <https://doi.org/10.1111/j.0022-3506.2004.00263.x>
- Tangney, J. P., Dearing, R., Wagner, P. E., & Gramzow, R. (2000). *The Test of Self-Conscious Affect-3 (TOSCA-3)*. George Mason University. <https://doi.org/10.1111/j.0022-3506.2004.00263.x>
- Tangney, J. P., Stuewig, J., & Mashek, D. J. (2007a). Moral emotions and moral behavior. *Annual Review of Psychology*, 58(1), 345–372. <https://doi.org/10.1146/annurev.psych.56.091103.070145>
- Tangney, J. P., Stuewig, J., & Mashek, D. J. (2007b). What's moral about the self-conscious emotions? In J. L. Tracy, R. W. Robins, & J. P. Tangney (Eds.), *The self-conscious emotions: Theory and research* (pp. 21–37). Praeger.
- Taylor, D. B. (2021, November 5). George Floyd protests: A timeline. *New York Times*. <https://www.nytimes.com/article/george-floyd-protests-timeline.html>
- Teper, R., Inzlicht, M., & Page-Gould, E. (2011). Are we more moral than we think? Exploring the role of affect in moral behavior and moral forecasting. *Psychological Science*, 22(4), 553–558. <https://doi.org/10.1177/0956797611402513>
- Theoharis, J. (2015). *The rebellious life of Mrs. Rosa Parks*. Beacon Press.
- Touchton, M. R., Klostad, C. A., West, J. P., & Uscinski, J. E. (2020). Whistleblowing or leaking? Public opinion toward Assange, Manning, and Snowden. *Research and Politics*, 7(1), 1–9. <https://doi.org/10.1177/2053168020904582>

- Trinkner, R., & Cohn, E. S. (2014). Putting the "social" back in legal socialization: Procedural justice, legitimacy, and cynicism in legal and nonlegal authorities. *Law and Human Behavior*, 38(6), 602–617. <https://doi.org/10.1037/lhb0000107>
- Tyler, T. R. (2006). *Why people obey the law*. Princeton University Press. <https://doi.org/10.1515/9781400828609>
- Tyler, T. R., & Lind, E. A. (2002). Procedural justice. In J. Sanders & V. L. Hamilton (Eds.), *Handbook of justice research in law* (pp. 65–92). Springer. https://doi.org/10.1007/0-306-47379-8_3
- Tyler, T. R., & Trinkner, R. (2017). *Why children follow rules: Legal socialization and the development of legitimacy*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780190644147.001.0001>
- van Leeuwen, N., Rodgers, R. F., Gibbs, J. C., & Chabrol, H. (2014). Callous-unemotional traits and antisocial behavior among adolescents: The role of self-serving cognitions. *Journal of Abnormal Child Psychology*, 42(2), 229–237. <https://doi.org/10.1007/s10802-013-9779-z>
- van Rooij, B., de Bruijn, A. L., Reinders Folmer, C., Kooistra, E. B., Kuiper, M. E., Brownlee, M., Olthius, E., & Fine, A. (2020). *Compliance with COVID-19 mitigation measures in the United States* (Amsterdam Law School Research Paper No. 2020-21). <https://doi.org/10.2139/ssrn.3582626>
- van Rooij, B., & Fine, A. (2021). *The behavioral code: The hidden ways the law makes us better or worse*. Beacon Press.
- Vazsonyi, A. T., Mikuška, J., & Kelley, E. L. (2017). It's time: A meta-analysis on the self-control-deviance link. *Journal of Criminal Justice*, 48, 48–63. <https://doi.org/10.1016/j.jcrimjus.2016.10.001>
- von Hippel, W., Lakin, J. L., & Shakarchi, R. J. (2005). Individual differences in motivated social cognition: The case of self-serving information processing. *Personality and Social Psychology Bulletin*, 31(10), 1347–1357. <https://doi.org/10.1177/0146167205274899>
- Walker, H. M., Ramsey, E., & Gresham, F. M. (2004). *Antisocial behavior in school: Evidence-based practices*. Wadsworth Publishing Company.
- Wallach, M. A., & Wallach, L. (1983). *Psychology's sanction for selfishness: The error of egoism in theory and therapy*. The Freeman.
- Wallinius, M., Johansson, P., Larden, M., & Dernevik, M. (2011). Self-serving cognitive distortions and antisocial behavior among adults and adolescents. *Criminal Justice and Behavior*, 38(3), 286–301. <https://doi.org/10.1177/0093854810396139>
- Wang, W., Fu, C., Kong, X., Osinsky, R., Hewig, J., & Wang, Y. (2022). Neuro-behavioral dynamic prediction of interpersonal cooperation and aggression. *Neuroscience Bulletin*, 38(3), 275–289. <https://doi.org/10.1007/s12264-021-00777-7>
- Warner, R. M. (2020). *Applied statistics II: Multivariable and multivariate techniques* (3rd ed.). Sage Publications.
- Wiley, C. (1997). What motivates employees according to over 40 years of motivation surveys. *International Journal of Manpower*, 18(3), 263–280. <https://doi.org/10.1108/01437729710169373>
- Zou, G. Y. (2007). Toward using confidence intervals to compare correlations. *Psychological Methods*, 12(4), 399–413. <https://doi.org/10.1037/1082-989X.12.4.399>

Appendix A

PARB Scale

Some people are more likely to break rules in certain situations. What about you? As you read each scenario, think about your past behavior and try to imagine how you would truly act in each of the described situations.

On a scale from 1 (*very unlikely*) to 7 (*very likely*), please select the number that best describes your view:

1. *You are working alone as a cashier and realize that your cash drawer is over after counting it at the end of the night. You could easily pocket the extra money and no one would ever know, but company policy says this is stealing.*

How likely are you to take the money for yourself?

2. *You get a job at the front desk of a hospital. You are signing in a poor patient for an expensive procedure when you realize they do not have health insurance. They would have qualified for a free procedure if only they had made 500 less dollars last year.*

How likely are you to lie about how much the patient made last year so they can get the free procedure?

3. *You work with a friend, but your boss is unfairly looking for a reason to fire them. One day, your friend is late, and your boss is asking if you have seen them.*

How likely are you to lie to cover for a friend who is late for work?

4. *You move into a new apartment and soon realize the utility bill is still under the name of the previous tenant. It appears to be set to automatic payment and if you do not say anything, you might not have to pay your bill for some time.*

How likely are you to continue letting the previous tenant unknowingly pay your bills?

5. *A close family member has been suffering from extreme chronic chest pain for the last month but refuses to go to the hospital because they do not have access to health insurance. If they were on your plan, they would be covered, but they do not qualify.*

How likely are you to lie to your insurance company so your family member gets medical coverage?

6. *Your job is holding a fundraiser to raise money for corporate interests. They recently cut your health insurance benefits, and you have an expensive doctor's appointment coming up. You see that the collection box is unattended.*

How likely are you to take the money for yourself?

7. *You are running late driving your friend to their job interview when you miss your turn. You realize you can still get them there on time if you pull an illegal U-turn at the next light.*

How likely are you to take the illegal U-turn so your friend can get to their interview on time?

8. *You did not do anything wrong, but your boss fires you anyway and will not give you your final paycheck. You want to teach him a lesson and remember that he parks his car outside the view of any security cameras.*

How likely are you to vandalize your old supervisor's car to teach him a lesson?

9. *You are playing a card game with friends, and you stand to win a good amount of money. Your friends are drunk and not paying attention. You realize you could easily cheat without anyone noticing.*

How likely are you to cheat in order to win a good amount of money?

10. *Your friend is very upset about having their expensive bike stolen. Later, you are walking home when you see your friend's bike leaning against a bike rack. The thief is not around, and you know you will not get this chance again.*

How likely are you to steal the bike back for your friend?

11. *Your state decides to go against the trend of legalizing marijuana and makes using or carrying it for any reason illegal. A family member is diagnosed with cancer and asks you to buy marijuana from one of your old friends to help with their pain.*

How likely are you to break the law and buy marijuana to help with your family member's pain?

12. *You learn about a program that will select 1,000 people and pay for all their groceries for a year, but you have to live below the poverty line to apply. You realize you would save thousands of dollars*

if selected, but you make too much money.

How likely are you to lie in your application so you can win free groceries for a year?

13. *You find someone's wallet on the ground. Inside, you find a good amount of money and their contact information. You have bills that need paying and could really use the money.*

How likely are you to ignore the contact information and take the cash for yourself?

14. *You are driving to the hospital with your sick friend, who is experiencing terrible stomach pain. You are tempted to excessively speed because you want your friend to receive relief as fast as possible, but you know this would be illegal.*

How likely are you to excessively speed so your friend can get help?

15. *Employee evaluations are due the next day, and you find out your supervisor is recommending to the department head that you be fired. You stumble across your report and realize you could easily swap yours with that of a hard-working coworker.*

How likely are you to endanger your coworker's job to save your own by swapping your evaluation reports?

16. *You sign up for a study designed to test if helping others improves performance on a math test. You are told for every math problem you get correct, a cancer charity will receive money, but you will not get anything. The test is too hard, but you see an easy opportunity to cheat.*

How likely are you to cheat so the cancer charity gets more money?

Appendix B

PARB Scale—Instructions for Researchers

We recommend randomizing the order of items for each participant to control for ordering effects (see [Loiacono & Wilson, 2020](#)). We also recommend presenting one item at a time as to not overwhelm participants with too much text at once. Preserve the font format for easier reading.

Item Coding:

1. *Antisocial*
2. *Prosocial*
3. *Prosocial*
4. *Antisocial*
5. *Prosocial*
6. *Antisocial*

7. *Prosocial*
8. *Antisocial*
9. *Antisocial*
10. *Prosocial*
11. *Prosocial*
12. *Antisocial*
13. *Antisocial*
14. *Prosocial*
15. *Antisocial*
16. *Prosocial*

Items are scored from 1 (*very unlikely*) to 7 (*very likely*).

- Take the average of all Prosocial items to obtain the *Prosocial Rule-Breaking Score*.
- Take the average of all *Antisocial* items to obtain the *Antisocial Rule-Breaking Score*.
 - a. Include both the prosocial and antisocial scores in regression models to control for suppression effects

and to address the shared variance due to the general rule-breaking factor.

- If measuring general rule-breaking, take the average of all items to obtain the *General Rule-Breaking Score*.

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