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## A Dual Process Social Psychological Model of Corrupt Intention and Attitudes Toward Corrupt People

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Preliminary studies indicate that ideologies and worldviews are key in understanding the motivation behind corruption. Yet, there is no model seeking to explain corrupt intention that incorporates ideology and worldviews as predictors. Our objective was to propose a model integrating ideological factors (social dominance orientation [SDO] and right-wing authoritarianism [RWA]) and their underlying worldviews (competitive worldview beliefs [CWB] and dangerous worldview beliefs [DWB]) as predictors of corrupt intention and attitudes toward corrupt people and examine the model in the high corruption context of Brazil. For that purpose, preregistered hypotheses were tested across six studies. Results confirmed that corrupt intention is predicted by SDO but not RWA, while attitudes toward corrupt people are predicted by RWA but not SDO (Studies 1, 2, and 4). Replicating these findings cross-culturally, World Values Survey data (Study 3) indicated that corrupt intention is predicted by a proxy SDO index but not by a proxy RWA index. Experimentally increasing DWB amplified corrupt intention, but attitudes toward corrupt people remained unaffected (Study 5). Study 6 further confirmed the independence of corrupt intention and attitudes toward corrupt people, with corrupt intention primarily predicted by CWB and attitudes toward corrupt people primarily predicted by RWA. Hence, the first social psychological model that seeks to explain corruption integrating ideologies and worldviews was successfully proposed with implications for future research.

Keywords: corruption, corrupt intention, authoritarianism, social dominance, worldview

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Regrettably, corruption is widespread. Newspapers, magazines, and television programs around the world broadcast corruption cases on a daily basis. These cases usually involve bribery, embezzlement, or falsification of campaign contributions (Poveda, 2014), and the impact of corruption depletes national wealth (Kaufmann et al., 2009), enhances inequalities (Stiglitz, 2012), hinders environmental performance (Welsch, 2004), and undermines the evaluation of the political system (Anderson & Tverdova, 2003). In order to curb its negative consequences, scientific disciplines have addressed corruption in distinct ways. For instance, a search for "corruption" conducted on December 19, 2021, in the Web of Science database yielded 28,775 results, mostly from "Economics" (n = 4,826) and

"Political Science" (n = 3,263). However, only 488 results related to Psychology—specifically, "Experimental Psychology" (n = 11), "Educational Psychology" (n = 20), an unspecified "Psychology" category (n = 28), "Clinical Psychology" (n = 38), "Applied Psychology" (n = 89), "Social Psychology" (n = 123), and "Multidisciplinary Psychology" (n = 179).

That the majority of the psychology publications on corruption fit within the broad "Multidisciplinary Psychology" category indicates dissimilar theoretical approaches and variables that are considered in explaining corruption. For instance, studies using the Psychoanalytic perspective have emphasized an oedipal conflict related to authority and self-defensive mechanisms as the reason underlying

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corrupt behavior (e.g., Sapochnik, 2007). On the other hand, studies using the Behaviorist perspective sought to explain corruption through the consequences of corrupt action, addressing the reinforcement or punishment schemas involved in distinct organizational environments that could maintain corruption (e.g., Goltz, 2003). In contrast, classical studies in Social Psychology have argued that assessing minor dishonest behaviors is crucial to understand more severe behaviors such as corruption because dishonesty would increase gradually, in a slippery slope fashion (Ashforth & Anand, 2003; Bandura, 1999; Festinger & Carlsmith, 1959). Here, minor dishonest behaviors such as lying about the score when rolling a dice or when answering general knowledge quizzes, could predict more severe transgressions such as bribery (Bandura, 1999). Nevertheless, more recent studies indicate that focusing on minor dishonest behaviors is insufficient to predict corruption because severe dishonest behaviors are more likely to emerge abruptly rather than gradually (Köbis et al., 2017; Mazar & Ariely, 2006). Hence, the predictors of minor dishonest behaviors that are commonly assessed in psychological research might not predict corrupt behaviors (Gerlach et al., 2019).

Recent social psychological research about corruption has stressed the predictive power of injunctive and descriptive norms (Cialdini et al., 1990) on corrupt behavior (Abbink et al., 2018; Hoffmann & Patel, 2017; Köbis et al., 2018, 2019). For instance, the injunctive norms of corruption (i.e., the perception of the acceptance of corruption in society) are positively correlated to its descriptive norms (i.e., the perception of how prevalent corruption is). As a consequence, engagement in corrupt behavior increases (Köbis et al., 2015). The rationale is that individuals' perception regarding how prevalent and accepted corruption is, might cause a moral disengagement ("Who doesn't?"—Köbis et al., 2015), thus increasing the chances of corrupt behavior.

Notably, Köbis et al. (2019) used this assumption to propose an intervention seeking to reduce corruption in a field setting. By highlighting the decrease of corruption in South Africa—as identified by Transparency International (2017)—through posters in distinct places with this information, the level of engagement in corrupt behavior was significantly reduced in the KwaZulu-Natal region. Despite this important evidence regarding the impact of social norms and how such norms can be used to reduce corrupt behavior, it is worth noting that this relationship might be more complex in contexts with higher enduring levels of corruption (Karklins, 2005).

The complexity stems from the fact that people in contexts of endemic corruption usually do not approve corruption but also consistently rate it as highly prevalent, reversing the correlation between estimated prevalence and acceptance of corruption (Karklins, 2005; Persson et al., 2013). Hence, whereas highlighting the decrease of corruption in most contexts could be feasible and might have a short-term behavioral effect, this might not be necessarily the case in contexts where there is no decrease to be depicted. For example, highlighting the descriptive norms of corruption in contexts with enduring increasing levels of corruption such as Brazil (Transparency International, 2021a) could be detrimental as it would highlight the pervasive context of high corruption, which would increase the engagement in corrupt behavior. Therefore, although in countries with moderate levels of corruption (or in contexts where perceived corruption levels as measured by Transparency International have decreased), the social norms framework might provide feasible alternatives to curb corruption, this might not

be the case in social contexts with higher levels of corruption. Moreover, it might be important to identify key individual difference variables that motivate certain individuals to engage more in corrupt behavior than their counterparts who live in the same social context of high corruption levels.

Here, we propose and test a social psychological model seeking to explain corrupt intention and attitudes toward corrupt people in the continent-size country of Brazil, a high corruption context. Take, for example, the Corruption Perceptions Index produced by Transparency International (2021b), which scores 180 countries and territories by their perceived levels of public sector corruption (according to experts and business people) with scores ranging from 100 (very clean) to 0 (highly corrupt). In 2020, Brazil received a score of 38 (below the average score of 43) and its corruption score has worsen by five points since 2012. Notably, distinct scholars (Costa, 1994; Fischer et al., 2014) also noted that corruption is normative in Brazil, providing even more evidence for how widespread it is. Nevertheless, before detailing our theoretical model, we begin with a brief review of definitions and measurements of corruption. As its meaning has significantly changed over time (Miller, 2018), possible definitions will be assessed and a clear (although nonexhaustive) definition of corruption for the present work is provided in the next section.

## The Definition of Corruption

Currently, there are more than 15 definitions of corruption that are used in various areas ranging from Philosophy to Political Science and Psychology (Ko & Samajdar, 2010). A widely used definition is "the misuse of entrusted power for private gain," which was provided by Transparency International and later modified to "the abuse of entrusted power for private gain" (Ko & Samajdar, 2010; Kurer, 2015; Transparency International, 2021b). Another definition is the "behavior of public officials which deviates from accepted norms in order to serve private ends" (e.g., Huntington, 1968, p. 59), and "the illegal use of power for personal gain" (Zimring & Johnson, 2005, p. 796). In all these definitions, corruption is linked to the legal realm ("illegal use of power") and/or facets of social norms ("deviates from accepted norms"). When linked to the legal realm, corruption is defined as an illegal behavior or crime, and when related to its social norm facet, it is defined as dishonest or unethical behavior (e.g., Mann et al., 2016).

Given the widely used definition of corruption as "the misuse of entrusted power for private gain" (Ko & Samajdar, 2010; Kurer, 2015), corrupt behavior is defined in the present work as any action that consists of the misuse of entrusted power for private gain, and corrupt intention as the expression of one's willingness or commitment to engage in corrupt behavior. This distinction between corrupt behavior and corrupt intention is based on the proposition of Kish-Gephart et al. (2010) that unethical behavior is any action that violates widely accepted societal moral norms, whereas unethical intention is the expression of one's willingness or commitment to engage in an unethical behavior. As the specific unethical/dishonest behavior considered in the present work is corruption, our definition incorporates the proposition of Kish-Gephart et al. (2010) and applies it to corruption. These operational definitions of corrupt behavior/intention do not aim to be conceptually exhaustive and do not intend to be the only valid ones, as there are many different definitions of corruption. Nevertheless, these definitions were used due to their functional status (Charron, 2016) and to their coherence with the assessment of corrupt intention in the present work.

#### The Assessment of Corruption

A key issue for research on corruption and unethical behaviors is its assessment (Sequeira, 2015) and researchers have mostly used behavioral or self-report measures (Schwickerath et al., 2017). One important difference is that these methods are intended to measure distinct response processes: Whereas behavioral measures in lab settings tap responses to uncommon stimuli in specific and highly structured situations, self-report measures ask participants to answer based on reflections about how they usually behave (Dang et al., 2020). Hence, although internal validity is high when assessing corrupt or unethical behaviors in the lab, such assessment lacks external validity. Notably, participants in structured situations for behavioral experiments are often encouraged to do their best or reach their best performance, which is not the case for self-report measures. Furthermore, the features that make a task robust in experimental terms make them unreliable in self-report/psychometric terms. As experiments seek to produce replicable effects maximizing within-person variance at the expense of between-person variance, this process inherently reduces the psychometric reliability of the measure, which is a core issue for self-report assessments (Hedge et al., 2018).

Despite their differences, behavioral and self-report measures provide feasible ways to assess corruption. For instance, the behavioral computerized task developed by Köbis et al. (2015) assigns participants to a competition whereby they must make bids to earn a prize. During the bidding process, participants have the chance to offer a bribe to an official who ensures a higher chance of earning the prize, resembling corrupt transactions in procurement situations. On the side of self-report measures, Dickel and Graeff (2018) proposed a vignette that exposes participants to a situation in which they assume the role of an entrepreneur. The entrepreneur develops an innovative technology for reducing air pollution and tries to sell it in China. The technology does not comply with Chinese administrative directives, but a Chinese public official offers to provide a special license if the entrepreneur pays a bribe, asking the participants to indicate how likely it is that they would consent to such bribery.

For the sake of conceptual accuracy, it is worth noting that selfreport measures do not assess corrupt behavior in itself but rather the willingness or commitment to engage in corrupt behaviors (i.e., corrupt intention; Kish-Gephart et al., 2010). Self-report measures are thus used in the present work, since it has already been shown that they predict real-world behaviors, such as daily smoking, with higher magnitude than behavioral tasks (Eisenberg et al., 2019). Although there are no studies comparing the statistical power of selfreport and behavioral measures to predict corruption, there is consistent evidence supporting the predictive power of self-report measures across distinct contexts, as indicated by results in the metaanalyses of Glasman and Albarracín (2006) and Sharma et al. (2014). Considering this evidence and previous studies that assessed corrupt intention as a relevant variable (e.g., Dickel & Graeff, 2018; Huang et al., 2015; Liang et al., 2016; Tan et al., 2017), self-report measures seem to provide a feasible and externally valid way to assess corruption.

Regardless of the assessment method, distinct predictors of corruption have been pointed out. In the present work, we focus on two key predictors that have not yet been systematically investigated in the social psychological literature on corruption—namely, ideologies and worldviews—which we address in turn.

# Predictive Effects of Ideologies and Worldviews on Corruption

Two central predictors of corruption are ideologies and worldviews (Ferreira et al., 2012; Modesto & Pilati, 2020; Rosenblatt, 2012; Tan et al., 2016, 2017). For instance, it has already been shown that distinct corrupt politicians are maintained in power because people keep voting on them based on their ideologies and worldviews (Charron & Bågenholm, 2016). Furthermore, corruption in the public sector is more likely to prevail when right-wing parties are in power (Hessami, 2011). Despite these important preliminary findings, the key role of ideologies and worldviews in downplaying or sustaining corruption in a country has been neglected.

Considering the interpersonal nature of corrupt behavior, the social psychological literature provides important insights into what ideologies to assess when considering corruption (e.g., Bergh et al., 2016; Duckitt & Sibley, 2017; Pratto et al., 2006). Namely, it has been shown that two distinct ideological dimensions consistently emerge across studies, even when using very dissimilar methods (see Jost et al., 2003, for a review). Notably, Claessens et al. (2020) pointed out that the first ideological dimension essentially reflects the (un)willingness to cooperate, which is often indexed by social dominance orientation (SDO; Sidanius & Pratto, 1999), whereas the second dimension reflects the tendency to conform to group norms, which is often indexed by right-wing authoritarianism (RWA; Altemeyer, 1988).

It is likely that the (un)willingness toward cooperation indexed by SDO and the efforts toward group conformity indexed by RWA became universal human drives due to evolutionary pressure to survive (Claessens et al., 2020). One of their main evolutionary purposes is to provide social selection against dishonest group members, enhancing ingroup cohesion and success in intergroup conflicts (Tomasello et al., 2012). In fact, corruption is a particular form of dishonesty that has been addressed since ancient times (Miller, 2006) and provisioned as a crime in the penal code of almost all nations since the very beginning of civilization (Cepas & Dobryninas, 2016). Even nowadays corruption is almost universally disapproved (Gilman & Lewis, 1996; Husted et al., 1996; Miller, 2006) and in countries such as China, Indonesia, Vietnam, and Thailand, corrupt people are sentenced to capital punishment (Gonzales, 2017). Therefore, the combat against corruption goes back to ancestral history, indicating that the efforts to inhibit it might be strongly related to universal human drives indexed by SDO and RWA as outlined by Claessens et al. (2020).

In the present work, we set out to investigate the relationships between SDO, RWA, and corruption in an empirical model. Particularly, we seek to fill the gap in the social psychological literature regarding the relationship between ideologies and corruption by incorporating SDO, RWA, and their underlying worldviews.

#### Theoretical Framework of SDO and RWA

SDO indexes a general support to establish and maintain hierarchically structured intergroup relations in society regardless of the position of one's group within this hierarchy (Ho et al., 2015; Pratto et al., 1994; Pratto et al., 2013; Sidanius et al., 2001). SDO robustly predicts prejudice against a wide array of groups, including prejudiced attitudes toward black people (Mandalaywala et al., 2018), immigrants (Anderson & Ferguson, 2018), gender nonconforming people (Ching et al., 2020), and marginalized groups in Brazil (Gouveia et al., 2021), as well as implicit intergroup animosity (Pratto & Shih, 2000).

RWA is currently conceptualized (Duckitt et al., 2010) as a social attitude comprising "Authoritarianism" (i.e., support of harsh coercive measures), "Conservatism" (i.e., uncritical submission to authority), and "Traditionalism" (i.e., support of traditional moral values). RWA has also been shown to predict prejudice against many groups, including lesbians, gays and bisexuals (Crawford et al., 2016; Vilanova et al., 2021), transgenders (Makwana et al., 2018), women (Hunsberger et al., 1999), immigrants (Cohrs & Stelzl, 2010), black people (Van Hiel & Mervielde, 2005), Muslims (Rowatt et al., 2005), and poor people (Cozzarelli et al., 2002).

Previous empirical studies have consistently shown that SDO and RWA are relatively independent in many aspects. First, the correlations between them are rather small (Perry et al., 2013), usually ranging from .14 (Pratto et al., 1994) to .25 (Altemeyer, 1998), and their longitudinal bidirectional relation is moderate (Osborne et al., 2021). Second, it has been observed that SDO is primarily associated with Schwartz's (1992) value dimension of self-enhancement (achievement, power, and hedonism), whereas RWA is strongly associated with the conservation dimension (security, conformity, and tradition; Cohrs et al., 2005; Duriez & Van Hiel, 2002; McFarland, 2010). Third, SDO predicts conceptions of personal morality that downplay the importance of social equality and fairness, whereas RWA predicts conceptions that emphasize ingroup cohesion (Milojev et al., 2014). Finally, distinct metaanalyses (Proch, 2013; Sibley & Duckitt, 2008) indicated they are differentially related to the Big Five personality traits (McCrae & Allik, 2002), with SDO primarily predicted by low Agreeableness, and RWA primarily predicted by low Openness to Experience.

The distinct values and personality traits underpinning SDO and RWA thus suggest that they are expressions of dissimilar worldviews. Notably, the dual process motivational model of ideology and prejudice (DPM) proposed by Duckitt (2001) suggests that SDO is associated with competitive worldview beliefs (CWB), characterized by the perception of the social world as a "competitive jungle" where people have to ruthlessly struggle for survival. The socialization in environments marked by inequality, competition, and struggle for power over others makes the motivational goals of power and dominance salient, providing the belief that only the strong and able wins, expressed by high levels of SDO (Duckitt et al., 2002).<sup>1</sup>

On the other hand, RWA is associated with dangerous worldview beliefs (DWB), characterized by the perception of the social world as unpredictable, dangerous, and threatening (Duckitt, 2001; Duckitt et al., 2002). The socialization in environments marked by threats to disruption of societal stability and traditional values predisposes people to perceive greater threats, making the motivational goals of social control, security, and conformity salient (Duckitt & Sibley, 2017). As a way of attaining social control, people endorse harsher punitive measures, traditional moral values, and submission to authority, expressed by high RWA levels (Duckitt et al., 2010).

Subsequent research confirmed that CWB underlie SDO, whereas DWB underlie RWA, further supporting their independence (e.g., Asbrock & Fritsche, 2013; Duckitt & Fisher, 2003; Perry et al., 2013; Sibley & Duckitt, 2010, 2013; Sibley et al., 2007). We hereby advance this understanding by proposing that the independent effects of competitiveness and dangerousness on SDO and RWA make them differentially related to potentially independent aspects of corruption—namely, corrupt intention and attitudes toward corrupt people.

## The Differential Predictive Effects of SDO and RWA on Corrupt Intention and Attitudes Toward Corrupt People

SDO and RWA have been pointed out as central predictors of outgroup attitudes over the last decades (see Duckitt & Sibley, 2017, for a review). For instance, prejudiced attitudes toward social groups such as black people, women, and jews have been researched at least since 1950 (e.g., Adorno et al., 1950), and it has been noted that feelings toward distinct marginalized groups tend to be coherent with behaviors toward these groups. For instance, research based on the stereotype content model (Fiske et al., 1999) has shown that negative feelings toward marginalized groups predict the intention to remain distant from them (Follmer & Jones, 2017). This coherence between feelings and behavior might not exist when assessing attitudes toward corrupt people, however.

Historical and empirical evidence indicates that corrupt intention and attitudes toward corrupt people are independent aspects of corruption and, paradoxically, might even coexist. For instance, the presumed first document written in Brazil was a letter from the clerk Pero Vaz de Caminha sent to the then King of Portugal Manuel I in 1500, in which he described native Brazilians as spiritually corrupt and derogated. Nevertheless, at the bottom of the same letter, the clerk asked the king for a corrupt privilege, begging him to allow the clerk's son-in-law to come back to Portugal, who had been sent to Africa after robbing a church (Garschagen, 2015). It is also worth noting that several centuries later, when the traffic of slaves was forbidden in Brazil, members of the political and commercial elite developed a warning system to indicate when an illegal slave ship was approaching the coast. When this signal was received, journalists and officials who were overtly against slavery and corruption taking place in the royal family were bribed to avoid writing about the topic, remaining silent about the illegal slavery taking place (Holanda, 1396/2017). Another evidence for the coexistence of corrupt intention and negative attitudes toward corrupt people is the presence of endemic corruption in Afghanistan (Transparency International, 2019) and recent surveys pointing out that corrupt people are commonly described by the Afghans as "sinful," "venal," or "nasty" (Integrity Watch Afghanistan, 2016, p. 35). These pieces of evidence suggest that corrupt intention and attitudes toward corrupt people are related yet independent variables, and also likely

<sup>&</sup>lt;sup>1</sup> "High SDO" and "low SDO" refer to people who are respectively higher or lower than their peers in SDO, regardless of their absolute SDO scores (see Pratto et al., 2006). The same logic applies to the "high RWA" and "low RWA" terminologies.

predicted by distinct social attitudes and worldviews. It is thus necessary to investigate the extent to which attitudes toward corrupt people are similar or different from other out-group attitudes.

Notably, Duckitt and Sibley (2007) proposed that there are three distinct dimensions of out-group attitudes. The first dimension ("dangerous") comprehends attitudes driven by the goal of social control and security. It targets social groups seen as threatening, dangerous, and disruptive to social order or values, thus including not only realistic threats from violence and crime but also symbolic threats to collective norms, values, and morality (Asbrock et al., 2010). This class of out-group attitudes thus comprehends negative attitudes toward groups such as terrorists and violent criminals because they pose real threats, as well as toward groups such as "people who behave in immoral ways" because they pose symbolic threats (Asbrock et al., 2010).

The second dimension of out-group attitudes ("derogated") is driven by the goal of power and dominance, targeting groups that activate competitiveness over intergroup status or groups that make power differentials clear. Groups such as physically handicapped people or unemployment beneficiaries would be targets of prejudice because they might be seen as groups competing for financial resources, making economic gains in spite of others. Finally, the third dimension ("dissident") comprehends attitudes driven by both the goal of power and dominance, as well as the goal of social control and security. This class of out-group attitudes targets groups seen as competitive or low in status *and* threatening social safety or dominant norms. For instance, groups such as prostitutes or gay rights activists would be targets of prejudice because they are seen as having low status and simultaneously threatening traditional morality (Duckitt & Sibley, 2007).

According to Duckitt and Sibley (2007), the attitudinal dimension primarily characterized by competitiveness (derogated) is guided by the same motivational goals of SDO (i.e., power and dominance), being thus predicted by SDO but not RWA. On the other hand, the attitudinal dimension primarily characterized by threat (dangerous) is guided by the same motivational goals of RWA (i.e., social control and security), being thus predicted by RWA but not SDO. Finally, the third dimension (dissident) comprehends groups characterized by low status or competitiveness who *also* threatens traditional norms, being thus predicted by both SDO and RWA (see illustration in Figure 1).

Considering these three distinct dimensions of out-group attitudes, prejudiced attitudes toward corrupt people might be clustered within the dangerous dimension, that is, primarily characterized by threat. Indeed, corrupt people are usually seen as posing threats not only to traditional moral norms but also to institutional and personal safety (Netto, 2016). Furthermore, corrupt people are not seen as subordinate, since many corrupt acts are only possible due to the status, position, or power of corruptors, who often work in institutions that enhance social inequality (Faoro, 2016). It is thus possible that the main predictor of attitudes toward dangerous groups (namely RWA) might also predict attitudes toward corrupt people.

Considering the high differential power of threat and competitiveness, these variables might also underlie the possibly distinct predictors of attitudes toward corrupt people and corrupt intention. Whereas threat might underpin attitudes toward corrupt people, competitiveness might underpin corrupt intention. For instance, it has already been proposed that the engagement in corrupt behavior is not primarily guided by threat, but rather by the will to reaffirm the dominant position in society and achieve personal interests (Rosenblatt, 2012). Hence, similar to the distinction proposed by Duckitt and Sibley (2007) between the dimensions of out-group attitudes and the independent predictive effects of SDO and RWA, we propose that whereas attitudes toward corrupt people are guided by the motivational goal of social control and security, being thus predicted by RWA but not SDO, corrupt intention is guided by the motivational goal of power and dominance, being thus predicted by SDO but not RWA. This prediction is based on preliminary findings on the relationship between SDO and corruption, discussed in the following section.

## Previous Studies on SDO and Corruption

Although the relationship between SDO and corruption has been preliminarily investigated, it has not yet been systematically addressed. Congruent with the psychological focus on minor dishonest behaviors instead of severe ones, most previous studies assessed the relationship between SDO and dishonesty in a broad sense, not focusing on corruption specifically. For instance, it has already been shown that SDO is negatively predicted by the Honesty–Humility personality trait, which reflects a tendency to avoid breaking rules and manipulating others for personal gain, and to be uninterested in wealth/luxuries and elevated social status (Lee et al., 2010; Sibley et al., 2010). Furthermore, those high in SDO tend to cheat significantly more than those with lower levels of SDO to win a competition (Cozzolino & Snyder, 2008). Notably, one of the few studies

## Figure 1



Illustration of the Dual Process Motivational Model of Ideology and Prejudice Proposed by Duckitt and Sibley (2007)

addressing the relationship between SDO and corruption was conducted by Rosenblatt (2012), who provided a thorough theoretical analysis of the relationship between SDO and corruption. She concluded that those high in SDO would not consider behaviors such as bribery as corrupt, and that institutional inequality would compel individuals to get to the top overlooking moral norms and values, thus engaging in corrupt behavior.

The study by Ferreira et al. (2012) also sought to associate SDO with corruption. They assessed a Brazilian indigenous construct called "*jeitinho*," and proposed that it comprises three components: corruption (i.e., solving a problem using illicit means), social norms breaking (i.e., bypassing some social norm to solve a personal problem but not using illicit means), and creativity (i.e., using new ways to solve a problem without violating social or legal norms). By assigning participants to scenarios depicting a person performing a behavior considered *jeitinho* and asking them if the depicted person is similar to them, their results suggested that SDO is directly associated with corruption and social norms breaking.

Another notable attempt to associate SDO with corruption was conducted by Tan et al. (2016), who argued that "corruption may be to some extent perceived as beneficial for the social and economic development rather than threatening the security and social order in these areas" (p. 214). Based on system justification theory (Jost & Banaji, 1994), Tan et al. proposed that not only SDO but also RWA would be positively associated with corrupt intention because "people with high SDO or RWA are often willing to justify and sustain the traditional hierarchical order and social norms and have strong unjust and unequal attitudes and behavioral intentions toward gaining disproportionate benefits" (p. 213). Despite the seemingly coherent rationale, their hypothesis was rejected, as the only direct significant association was between SDO and corrupt intention, whereas RWA did not significantly predict corrupt intention directly.

Taken in conjunction, these preliminary findings suggest a seemingly consistent relationship between SDO and corruption, but some of their limitations should be considered. First, although Rosenblatt (2012) provides a thorough theoretical proposal of the relationship between SDO and corruption, no original empirical data supporting the hypotheses were presented. This limitation is overcome by Ferreira et al. (2012), who empirically assessed the associations between corruption as a dimension of jeitinho and SDO. However, they did not ask directly whether participants would engage in the corrupt actions described in the scenarios, but rather if the depicted person performing a corrupt action was similar to them. It remains thus unclear if participants actually had the intention to engage in corrupt behaviors. Tan et al. (2016) overcame this limitation by directly assessing corrupt intention and the predictive effects of SDO and RWA, indicating a differential predictive effect (i.e., SDO over RWA). However, the reasons underlying this differential effect remains unclear since the author's framework could not account for this unexpected result.

To fill this gap, we propose that SDO and RWA might not simultaneously explain corrupt intention. Drawing upon the dual process model proposed by Duckitt (2001) that SDO and RWA are related yet independent ideological variables, we reasoned that they might also explain independent aspects of corruption. The preliminary evidence indicates that SDO is consistently associated with corrupt intention, so RWA might explain another independent aspect. Considering the aforementioned evidence, it is likely that this other independent aspect is attitudes toward corrupt people. These assumptions are tested in a model integrating SDO, RWA, CWB, and DWB. The objective of the present research is thus to propose such a model integrating worldviews, social attitudes, corrupt intention, and attitudes toward corrupt people across six studies. Each study had a specific objective, seeking to gradually address the relationships between these variables.

#### Study 1

The first step to test the model was to assess the relationship between SDO and corrupt intention, following previous studies that have focused on SDO (and not RWA) when examining corruption (e.g., Ferreira et al., 2012; Rosenblatt, 2012; Tan et al., 2017). As distinct studies have shown a positive association between SDO and corrupt intention, our Hypothesis 1 (preregistered at https://osf.io/ w8d9e) was that corrupt intention is positively predicted by the general support to establish and maintain hierarchically structured intergroup relations in society (i.e., SDO). However, differently than Tan et al. (2016), we advance the understanding of the relationship between social attitudes and corrupt intention by hypothesizing that SDO predicts corrupt intention with a higher magnitude than the endorsement of general System-Justifying Beliefs (SJB; Hypothesis 2). This is because we do not assume that corruption may be beneficial for the social and economic development as argued by Tan et al. (2016, p. 214). Instead, we propose that the relationship between SDO and corrupt intention might not be primarily due to the alleged system-justifying function of corruption, but rather due to the motivation to obtain power and dominance (Duckitt, 2001).

Corruption could only be seen as justifiable if it in fact afforded beneficial social and economic outcomes (see Tan et al., 2016). However, it has already been shown that corruption is almost universally disapproved (Gilman & Lewis, 1996; Husted et al., 1996; Miller, 2006), even in high corruption contexts (Widmalm, 2008), so considering corruption as something beneficial would be an exception rather than the rule. Moreover, those high in RWA tend to widely endorse general SJB (Jost et al., 2003), so if corruption was indeed widely seen as justified, RWA would have been a direct significant predictor of corrupt intention, but the study by Tan et al. (2016) indicated the opposite. Alternatively, we propose that corruption is primarily a form of gaining benefits over others and maintaining or gaining a dominant social position, so SDO should predict corrupt intention with a higher magnitude than SJB. The specific objective of Study 1 was thus to test these initial hypotheses derived from our model.

#### Method

#### **Participants and Procedure**

The sample was recruited through convenience sampling in Brazil, and the study design was approved by the Institutional Review Board of the university associated with this project (protocol number 85495618.6.0000.5336).<sup>2</sup> The link of the online survey was

<sup>&</sup>lt;sup>2</sup> All studies in the present work were approved under the same protocol number. As the studies were designed and conducted sequentially (i.e., one after the other), each study design was added to the original protocol number through amendments that were also approved by the same Institutional Review Board, in accordance with the Resolution 510/2016 of the National Health Council in Brazil.

posted on social media platforms and shared by the profiles of distinct research groups and their members inviting users to participate in a decision-making study. The link was available between December 2018 and April 2019. Participants expressed their informed consent prior to starting the survey and only the researchers had access to the data.

The sample initially comprised 228 participants, but 14 were excluded because they incorrectly answered attention-check questions about the corruption scenario (described in the following section). Hence, the final sample was composed of 214 participants (64% females), whose ages ranged from 18 to 65 years old (M = 31.35; SD = 12.17). Detailed description of the sample in terms of educational level, ethnicity, socioeconomic class, and political self-categorization is available in Section A of the Supplemental Materials.

#### Measures

The survey included the 16-item SDO<sub>7</sub> scale (Ho et al., 2015) which has been adapted to the Brazilian context (Vilanova et al., in press). Participants rated the agreement to each item on a 7-point agreement scale ranging from 1 (*totally disagree*) to 7 (*totally agree*), and the scale had good internal consistency (Cronbach's  $\alpha = .88$ ). Besides the SDO measure, participants also completed the eight-item System Justification Scale (Kay & Jost, 2003) to assess their endorsement of general SJB. Participants rated the SJB items using the same 7-point agreement scale, and the scale had good internal consistency (Cronbach's  $\alpha = .72$ ).

The vignette proposed by Mazar and Aggarwal (2011) was used to assess corrupt intention (see also Huang et al., 2015). In the vignette scenario, participants assumed the role of a sales agent who competed against two other firms to win a contract from an international buyer and earn a commission. The sales agent was contemplating whether to offer a bribe to the potential international buyer to help win this contract. After reading the scenario, two attention-check questions were presented. First, the amount of money disputed in the contract was asked (BRL 15,000,000) and participants had to indicate which of the options was correct (BRL 5,000, BRL 10,000,000, or BRL 15,000,000). Second, the composition of the income in the scenario (salary and sales commission) was asked and participants had to indicate which of the options was correct (only salary, only sales commission, or salary and sales commission). Participants who marked at least one of the attention-check questions incorrectly were excluded from further analyses (n = 14).

After reading the vignette, participants were asked to indicate how much they agreed with five items on a 9-point agreement scale ranging from 1 (*totally disagree*) to 9 (*totally agree*). Items were previously used by Huang et al. (2015) and consisted of "Bribing the buyer is not on my mind" (reverse coded); "In general, I am willing to bribe the buyer"; "I would never consider the hypothesis of bribing the buyer" (reverse coded); "If I find myself in the same situation in the future, I will bribe the buyer"; "I think I will bribe the buyer." This corrupt intention scale had good internal consistency (Cronbach's  $\alpha = .90$ ).

#### Data Analysis

First, zero-order Pearson correlations between the arithmetic mean scores among the measures were assessed. We used G\*Power

software version 3.1.9.2 to compute statistical power analyses and it indicated that to conduct this analysis with .05  $\alpha$  error probability, .80 statistical power and .39 effect size (the Pearson's r effect size reported by Tan et al., 2016 on the relationship between SDO and corrupt intention), at least 46 participants would be necessary, so our sample fulfills this requirement. Complementing this initial analysis, we also computed (not preregistered) partial correlations between SDO and corrupt intention controlling for SJB, and between SJB and corrupt intention controlling for SDO. Afterward, a latent path model considering SDO and SJB as predictors and corrupt intention as the outcome was performed. The sample size calculator for structural equation model (SEM) proposed by Soper (2020) indicated that at least 152 participants are required to detect a medium effect size ( $\beta = .27$ , the effect size reported by Tan et al., 2016) considering a model with three latent variables, 29 observed variables, and .80 statistical power, so our sample also fulfills this requirement. The weighted least squares mean and variance adjusted (WLSMV) estimation method was used, and fit indices of the model were assessed. Values of  $\chi^2$ /degrees of freedom ( $\chi^2/df$ ) < 2.00, comparative fit index (CFI) Tucker-Lewis index (TLI) > .90, and root-mean-square error of approximation (RMSEA) < .08 were deemed adequate (Holgado-Tello et al., 2010).

Although SEM makes it possible to assess if SDO predicts corrupt intention with a higher magnitude than SJB (particularly if nonoverlapping confidence intervals are observed), we tested Hypothesis 2 more formally. The paths from SDO and SJB mean scores to corrupt intention were fixed to equality and a univariate Wald test of parameter constraint was conducted (not preregistered).

#### Results

Table 1 presents the full results. In brief, SDO was significantly associated with corrupt intention, r(212) = .29, p < .001, 95% CI [.16, .41], but SJB was not, r(212) = -.03, p = .65, 95% CI [-.16, .10]. Similarly, partial correlations confirmed a positive and significant correlation between SDO and corrupt intention controlling for SJB,  $r_{\text{partial}}(211) = .31$ , p < .001, 95% CI [.18, .43], but the correlation between SJB and corrupt intention when controlling for SDO was statistically nonsignificant,  $r_{\text{partial}}(211) = -.13$ , p = .07, 95% CI [-.30, .05].

As can be seen in the abbreviated latent model in Figure 2, SDO predicted corrupt intention (B = .97, 95% CI [.44, 1.49],  $\beta = .40$ , p < .001) with a higher magnitude than SJB (B = -.37, 95% CI [.-05, -.69],  $\beta = -.19, p = .02$ ). Indeed, the Wald test of parameter

Table 1

*Bivariate Correlations Between SDO, SJB, and Corrupt Intention* (*Study 1*)

Variable	SDO	SJB	Corrupt intention
<ol> <li>SDO</li> <li>SJB</li> <li>Corrupt intention</li> </ol>	.31*	.29*	.29*
	.31*		03

*Note.* SDO = social dominance orientation; SJB = system-justifying beliefs. Coefficients above diagonal are zero-order correlations and those below the diagonal are partial correlations. p < .001.

#### Figure 2

SEM Comparing Predictive Effects of SDO and SJB on Corrupt Intention (Study 1)



*Note.* SEM = structural equation model; SDO = social dominance orientation; SJB = system-justifying beliefs. Manifest variables are omitted from the illustration.

p < .05. p < .001.

constraint confirmed that the SDO path (B = .30, 95% CI [.18, .43]) was significantly stronger,  $\chi^2(1) = 11.95$ , p < .001, than the SJB path (B = -.12, 95% CI [-.01, -.23]) in predicting corrupt intention. Nevertheless, despite the confirmation of our hypotheses, it is worth noting that the latent model only showed adequate to marginal fit:  $\chi^2(374) = 519.80$ , p < .001;  $\chi^2/df = 1.39$ , RMSEA = .04, CFI = .84, TLI = .82.<sup>3</sup> We are aware that model fit could be improved by using statistical techniques such as item parceling (Little et al., 2002), but our focus is on the critical associations between the latent factors, so we keep the original model using individual items as indicators in the article. For the sake of completedness, we assessed the model through item parceling in Section C of the Supplemental Materials, which yields comparable results.

#### Study 2

Study 1 indicated that corrupt intention is primarily predicted by SDO and not by the endorsement of general SJB, contradicting previous propositions that there might be a direct relationship between endorsement of SJB and corrupt intention (Tan et al., 2016, 2017). Hence, the endorsement that "society is fair," "the political system operates as it should," and "most policies serve the greater good" (Kay & Jost, 2003) was not reliably associated with corrupt intention in our sample. Indeed, in addition to international studies suggesting that corruption is never seen as justified or beneficial (Gilman & Lewis, 1996; Husted et al., 1996; Miller, 2006; Widmalm, 2008), Study 1 findings indicate that even in a country with endemic corruption such as Brazil, corruption is not primarily predicted by a motivation to sustain the status quo; rather, the primary predictor of corrupt intention is support for hierarchy between groups in society.

The next step in the model integrating social attitudes and corruption was to assess the differential effect of SDO and RWA on attitudes toward corrupt people. We argue that RWA has a predictive role in corruption, but its role does not consist in predicting corrupt intention. Rather, it might predict attitudes toward those who perpetrate corruption. As previously mentioned, "corrupt people" would thus be seen as a group that is not low on status and power (because usually only those who hold dominant positions in society can take part in corruption schemes), but who threatens social security and morality (Faoro, 2016; Mungiu-Pippidi, 2006). As these are the characteristics of the groups on the dangerous dimension proposed by Duckitt and Sibley (2007), our Hypothesis 3 posits that when assessing attitudes toward out-groups, corrupt people would be clustered in the dimension of dangerous groups. Finally, as the motivational goal of RWA is that of social control and security, and RWA predicts negative attitudes toward groups seen as dangerous, our Hypothesis 4 posits that RWA (but not SDO) should predict negative attitudes toward corrupt people. Both hypotheses were preregistered at https://osf.io/84hzx. Study 2 sought to test these hypotheses.

#### Method

#### **Participants**

This study used a similar procedure to that used in Study 1, but the sample comprised members of a labor union in Southern Brazil. A broader research project about civil service was conducted within the labor union and members were invited through email to complete an online survey between February and May 2020. A total of 696 members clicked on the link containing the invitation to participate in the research, but 269 individuals completed less than 80% of the survey, 17 said they were no longer union members, and 44 answered the same attention-check questions of Study 1 incorrectly. Hence, the final sample comprised 366 respondents (63.4% females), whose ages ranged from 28 to 86 years old (M = 55.04; SD = 13.19). Section A of the Supplemental Material provides detailed sample description.

## Measures

Given the characteristics of the sample and the fact this study was part of a broader survey, we had to compromise and use shorter versions of all measures (or specific dimensions thereof). The eight-item version of the SDO<sub>7</sub> (Ho et al., 2015) was used and participants rated the items on a 7-point agreement scale ranging from 1 (totally disagree) to 7 (totally agree), presenting good internal consistency (Cronbach's  $\alpha = .80$ ). The items comprising the Authoritarianism dimension of the Authoritarianism-Conservatism-Traditionalism (ACT) scale proposed by Duckitt et al. (2010), which were adapted to the Brazilian context by Vilanova et al. (2018), were used to assess RWA. The Authoritarianism dimension was selected because it predicts more strongly prejudice against groups seen as dangerous (Duckitt & Bizumic, 2013). It comprised 11 items rated on a 5-point agreement scale ranging from 1 (totally disagree) to 5 (totally agree) and had good internal consistency (Cronbach's  $\alpha = .91$ ).

<sup>&</sup>lt;sup>3</sup> The loadings of the items constituting the latent variables are depicted in the Section B of the Supplemental Materials.

Attitudes toward marginalized groups were assessed through the affective thermometer proposed by Asbrock et al. (2010) and adapted to the Brazilian context by Cantal et al. (2015), who added three Brazilian-specific disliked groups: "politicians," "northeasterners" (those from the northeast region of Brazil), and "environmentalists." In the present study, the group "corrupt people" was also added to test our hypotheses. Thus, it assessed participants' sentiments toward 25 distinct groups anchored at 1 (*very negative*) and 7 (*very positive*).

#### Data Analysis

First, to test our hypothesis that corrupt people are clustered in the dimension of dangerous groups proposed by Duckitt and Sibley (2007), we initially considered the Kaiser-Guttman criterion (i.e., Eigenvalue > 1) and parallel analysis using Monte Carlo simulations to assess how many factors could be reliably extracted from the attitudes toward marginalized groups. Afterward, exploratory factor analysis (EFA) using principal axis factoring extraction method and oblimin rotation was conducted, retaining items with factor loadings above .30 (Tabachnick & Fidell, 2001). Subsequently, confirmatory factor analysis (CFA) using the WLSMV estimation method was conducted to test the fit indices of the EFA model. Considering the 1:10 minimum acceptable item-to-participant ratio for factor analytic models (Costello & Osborne, 2005), at least 250 participants would be required to conduct this analysis, so our sample fulfills this requirement. Then, a SEM assessing the predictive effects of SDO and RWA on the dimensions of prejudice including corrupt people as a dangerous group was performed. The sample size calculator for SEM proposed by Soper (2020) indicated that at least 96 participants are required to detect a .36 effect size (the smallest significant effect size of the correlations between SDO, RWA, and the dimensions of generalized attitudes as reported by Duckitt & Sibley, 2007) considering a model with five latent variables, 42 observed variables, and .80 statistical power; so our sample also fulfills this requirement.

Afterward, the specific associations with corrupt people in particular were assessed. Hence, Pearson correlations between mean scores of SDO, RWA, and attitudes toward corrupt people were calculated. G\*Power indicated that to conduct this analysis with .05  $\alpha$  error probability, .80 statistical power, and effect size of .21, at least 173 participants would be necessary, so our sample fulfills this requirement. Since no previous studies assessed our predicted relationships, we decided to calculate statistical power based on .21 as it is the average effect size of studies in social psychology (Richard et al., 2003). Then, to test our hypothesis about the predictive effects of SDO and RWA on attitudes toward corrupt people, a SEM using the WLSMV estimation method was conducted. The sample size calculator for SEM proposed by Soper (2020) indicated that at least 201 participants are required to detect a .21 effect size considering a model with two latent variables, 20 observed variables, and .80 statistical power, so our sample also fulfills this requirement.

## Results

When assessing the number of factors to be extracted from the out-group attitudes measure, three factors presented Eigenvalues higher than 1 (values were 6.85, 3.59, and 1.24, respectively). The

parallel analysis confirmed that these three factors could be reliably extracted, as the Eigenvalues obtained through Monte Carlo simulated data were, respectively, .59, .44, and .38. Three factors were then extracted through EFA. Confirming our expectation, the "corrupt people" item presented factor loading above .30 only in the dangerous dimension. Moreover, almost all groups presented factor loadings above .30 in only one of the dimensions assessed (see Table 2). The exceptions were "politicians," which did not present loading above .30 in any of the factors, and "prostitutes," which presented loadings above .30 in both the derogated and dissident dimensions. These two groups were excluded from subsequent analyses.

The three-factor model of the remaining 23 groups had adequate to marginal fit to the data,  $\chi^2(227) = 405.69$ , p < .001;  $\chi^2/df = 1.74$ , RMSEA = .05, CFI = .89, TLI = .87. We then performed the latent SEM testing the differential predictive effects of SDO and RWA on the three dimensions of attitudes, including the group of corrupt people within the dangerous dimension, which had good model fit,  $\chi^2(809) = 1,096.28$ , p < .001;  $\chi^2/df = 1.33$ , RMSEA = .03, CFI = .94, TLI = .94. As can be seen in Figure 3, the results confirm the differential prediction by SDO and RWA observed in previous studies (Asbrock et al., 2010; Cantal et al., 2015)—except that attitudes toward derogated groups was only marginally predicted by SDO (B = -.14, 95% CI [-.29, .00],  $\beta = -.19$ , p = .056). Notably, and confirming our prediction, only RWA significantly predicted attitudes toward dangerous groups (B = -.20, 95% CI [-.27, -.13],  $\beta = -.43$ , p < .001).

When assessing the relationships between SDO, RWA, and attitudes toward corrupt people in particular, our prediction was again confirmed. While the SDO correlation was weak and statistically nonsignificant, r(364) = -.01, p = .20, 95% CI [.04, -.17], a moderate and statistically significant correlation between RWA and attitudes toward corrupt people was observed, r(364) = -.23, p < .001, 95% CI [-.13, -.33]. Results from the latent path model considering only "corrupt people" as the outcome variable confirm the correlation results (Figure 4): SDO was not a significant predictor (B = .04, 95% CI [-.02, .09],  $\beta = .06$ , p = .21) but RWA was (B =-.18, 95% CI [-.24, -.12],  $\beta = -.29$ , p < .001;  $\chi^2$ [168] = 307.87, p < .001,  $\chi^2/df = 1.83$ , RMSEA = .05, CFI = .95, TLI = .95.

#### Study 3

The findings from Study 2 confirmed that attitudes toward corrupt people clustered in the dangerous dimension, indicating that corrupt people are seen as a threatening social group but not low on status (Duckitt & Sibley, 2007). Importantly, attitudes toward corrupt people were predicted by RWA but not SDO. The present study extends the examination of the predicted differential effects of RWA and SDO regarding corrupt intention. In particular, Study 3 sought to test two further preregistered hypotheses (https://osf.io/arynk): SDO significantly predicts corrupt intention (Hypothesis 5), whereas RWA does not significantly predict corrupt intention (Hypothesis 6). To assess if the hypothesized associations are verified across different cultures, we used the national representative samples of the World Value Survey (WVS; available at http://www.worldvaluessurvey .org/; Haerpfer et al., 2020). The WVS is a large survey conducted in all inhabited continents every 5 years, and the seventh wave of the survey is the most recent, administered between 2017 and 2020 in 48 countries.

#### DUAL PROCESS CORRUPTION

Table 2

Dimensions and Factor Loadings for the Out-Group Attitudes Dimensions (Study 2)

Group	Derogated dimension	Dangerous dimension	Dissident dimension
People who make society dangerous for others	.13	.66	06
Violent criminals	.04	.63	04
Drunk drivers	.07	.69	14
People who disrupt safety and security	.04	.77	01
Gang members	04	.81	.07
Drug dealers	13	.72	.10
Corrupt people	06	.76	02
Politicians	.09	.19	.11
People who behave in immoral ways	.06	.40	.16
Physically unattractive people	.86	04	07
Obese people	.80	.03	03
People who do not make the grade	.81	.01	.06
Mentally handicapped people	.84	05	02
Psychiatric patients	.79	03	.05
People who just seem to be "losers"	.63	.11	.09
Unemployed people	.59	.07	.14
People who criticize authorities	.10	.05	.47
Protestors	02	.05	.74
People who cause disagreement in our society	.01	.29	.44
Atheists	.22	.05	.44
Gay right activists	.03	05	.87
Feminists	.00	01	.83
Prostitutes	.33	.01	.38
Brazilian Northeasterners	.28	.02	.39
Environmentalists	02	01	.72

Note. Loadings above .30 in bold.

## **Participants**

We analyzed data from 48 countries based on the availability of the WVS7. It comprised 69,578 participants (51.6% females) from North America, South America, Africa, Europe, and Asia, whose ages ranged from 16 to 103 years old (M = 42.31; SD = 16.38).

#### Measures

Similar to the study by Onraet et al. (2013) assessing right-wing attitudes cross-nationally, we selected two items comprehending social-cultural right-wing attitudes as a proxy for RWA, and two other items assessing economic-hierarchical right-wing attitudes as a proxy for SDO. The first RWA proxy item assessed obedience as a child-rearing value by asking participants if they found that obedience should be especially encouraged at home. The response was coded as 0 corresponding to "Not mentioned" and 1 corresponding to "Mentioned" (overall M = .33; SD = .47). The second RWA proxy item assessed endorsement of greater respect to authority by asking participants if they think that it would be a good or a bad thing. The response was coded as 1 corresponding to "bad thing," 2 corresponding to "don't mind," and 3 corresponding to "good thing" (overall M = 2.41; SD = .77). The scores of these two proxy items were then averaged, thus forming the social-cultural right-wing attitudes index.

The first SDO proxy item assessed preference for income inequality by asking participants to rate on a 10-point Likert scale how much they agreed with the sentence "Incomes should be made more equal" (the first point on the scale, coded as 1) versus "We need larger income differences as incentives for individual effort" (the last point on the scale, coded as 10; overall M = 6.26; SD = 3.02). The second SDO proxy item assessed the endorsement of people receiving state aid for unemployment by asking participants to rate on a 10-point Likert scale how much they agreed with the sentence "It is an essential characteristic of democracy" versus "It is not an essential characteristic of democracy." In this particular question, participants could also spontaneously mention that receiving state aid for unemployment was against democracy, so responses were coded on an 11-point scale ranging from 0 (agreeing that receiving state aid for unemployment was an essential characteristic of democracy) to 10 (spontaneously mentioning that it was against democracy). The scores of these two items were then averaged, thus forming the economic-hierarchical right-wing attitudes index. It is worth noting that these proxy SDO items were different from the ones used by Onraet et al. (2013) and described in our preregistration, an issue further explained in Section D of the Supplemental Materials.

Finally, two items were used as proxy measures for corrupt intention. The first item assessed the perception of how justifiable it is "Cheating on taxes if you have a chance" by asking participants to rate on a 10-point Likert scale if they thought it was "Never justifiable" (coded as 1) through "Always justifiable" (coded as 10; overall M = 2.18; SD = 2.14). The second item assessed the perception of how justifiable it is for "Someone accepting a bribe in the course of their duties" by asking participants to rate on the same 10-point Likert scale how much they thought it was justifiable (overall M = 1.93; SD = 1.90). The scores of these two items were then averaged to form the corrupt intention index. These items were chosen because attitudes toward corruption predict corrupt intention (Bicchieri & Ganegonda, 2017).



#### Figure 3 SEM Comparing Predictive Effects of SDO and RWA on Out-Group Attitudes (Study 2)

*Note.* SEM = structural equation model; SDO = social dominance orientation; RWA = right-wing authoritarianism. Manifest variables are omitted from the illustration. Dashed lines depict nonsignificant (p > .05) paths. <sup>†</sup>p = .056. <sup>\*</sup>p < .05. <sup>\*\*\*</sup>p < .001.

#### **Data Analysis**

First, a meta-analysis on the correlation coefficients of socialcultural right-wing attitudes, economic-hierarchical right-wing attitudes, and corrupt intention per country was conducted using the Hunter–Schmidt estimator for a random-effects model based on

#### Figure 4



SEM Comparing Predictive Effects of SDO and RWA on Attitudes Toward Corrupt People (Study 2)

*Note.* SEM = structural equation model; SDO = social dominance orientation; RWA = right-wing authoritarianism. Manifest variables are omitted from the illustration. Dashed lines depict nonsignificant (p > .05) paths. \*\* p < .001.

the Fisher's z transformed correlation coefficient. Beyond providing a quantitative estimation of the effect, the meta-analytical results allow inspection of the cross-cultural variability of the correlations. In addition, to control for the likely overlap between the variables assessed, we conducted a multivariate meta-analysis (not preregistered) using a random-effects approach via mixed-effects models (Becker, 2009; Card, 2012). Therefore, we computed a variance-covariance matrix for each pairwise comparison between the economic-hierarchical right-wing attitudes, social-cultural rightwing attitudes, and corrupt intention variables. Afterward, we performed a Z-test statistics multivariate meta-analysis using the correlation coefficients as the primary outcome. A random-effects model was used, assuming that the observed correlation estimates might vary across countries to account for divergent actual underlying effects. The multivariate model was fitted via restricted maximum likelihood (REML) estimation method, and a Bonferroni post hoc test was conducted to control for multiple testing (Viechtbauer, 2010).

To verify the hypothesized differential predictive effects, a twolevel random intercept regression using robust maximum likelihood (MLR) estimator was performed. The multilevel analysis complements the meta-analytic correlational evidence because it considers the hierarchical structure of the data; that is, it takes into account the fact that individuals are not truly independent observations, but are rather nested within societies (for other cross-cultural applications, see Milfont et al., 2018; Pratto et al., 2013). The centered grand mean of social-cultural and economic-hierarchical right-wing attitudes were considered the independent predictors and corrupt

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Two distinct models were specified in the multilevel regression. The first model did not contain any explanatory variables (M0) and the second model contained the economic-hierarchical and social-cultural right-wing attitudes as predictors (M1). To assess the difference between the models, the intraclass correlation coefficient (ICC), the model deviance (defined by the formula Deviance =  $-2 \times$  Loglikelihood) and the Akaike information criterion (AIC) were considered (Dedrick et al., 2009). Models were considered significantly different if the value of  $\frac{\Delta deviance}{\Delta df}$  was above the critical value of 1.96, and the model with lower ICC and AIC was considered the most adequate (Hox, 2010).

#### Results

Unexpectedly, the meta-analysis of correlation coefficients in the countries provided mixed support for our differential hypothesis, as shown in Table 3. The meta-analyzed correlation coefficient of the relationship between economic-hierarchical right-wing attitudes and corrupt intention (r = .04, 95% CI [.01, .07], standard error [SE] = .01, z = 2.85, p = .004) was similar to the meta-analyzed correlation coefficient of the relationship between social-cultural right-wing attitudes and corrupt intention (r = -.03, 95% CI [-.06, -.01], SE = .01, z = -3.03, p = .002), which does not fully support the expected differential effect. Inspection of the results in Table 3 and Figures 5 and 6 indicates great cross-country variability in the associations, since the correlations between economic-hierarchical right-wing attitudes and corrupt intention ranged from .00 (Myanmar) to .29 (Iraq), and the correlations between social-cultural right-wing attitudes and corrupt intention ranged from .00 (China, Cyprus, and Puerto Rico) to -.21 (Chile)—which is supported by the statistically significant Q-statistics. The multivariate meta-analysis confirmed these results even after controlling for the correlation between economic-hierarchical right-wing attitudes and social-cultural rightwing attitudes. As depicted in Table 4, we found significant effect estimates of the meta-analyzed correlation between corrupt intention and both economic-hierarchical right-wing attitudes (r = .04, 95%CI [.01, .07], SE = .01, z = 2.86, p = .004) and social-cultural rightwing attitudes (r = -.03, 95% CI [-.06, -.01], SE = .01, z = -3.04, p = .002).

Although an unexpected significant correlation between socialcultural right-wing attitudes and corrupt intention was found, the correlation between economic-hierarchical right-wing attitudes and corruption was clearly in the hypothesized direction. Hence, as a way of overcoming this mixed evidence through a more sophisticated analysis, the multilevel regression was conducted.

The multilevel regressions supported our hypothesized differential predictive effect. As shown in Table 5, the economic-hierarchical right-wing attitudes significantly predicted corrupt intention ( $\beta = .04$ , p = .03), whereas social-cultural attitudes did not ( $\beta = .00$ , p = .96). Furthermore, the model containing economic-hierarchical and social-cultural right-wing attitudes (AIC = 785,885.05) explained significantly more

variance than the M0 (AIC = 786,082.36), since the variance explained ( $\frac{\Delta deviance}{\Delta df}$  = 100.67) was higher than the critical 1.96 value (Hox, 2010). Although the within-level variance explained by the predictors was low ( $R^2$  = .01), a significant portion of the variance in the between-level was explained by the predictors, as indicated by the between-level  $R^2$  (.93) and the reduction of the ICC from .34 to .04 after predictors were inserted.

## Study 4

Study 3 advanced the results of Studies 1 and 2 by providing preliminary evidence that economic-hierarchical right-wing attitudes (as a proxy for SDO) but not social-cultural right-wing attitudes (as a proxy for RWA) predict corrupt intention. Although a meta-analysis of the correlations across countries provided mixed support for our expectations, the differential predictive effect on corrupt intention was supported by the multilevel regression when both predictors were simultaneously considered.

Despite confirming our assumptions, some important limitations of Study 3 must be considered. First, proxy measures that do not exactly correspond to the original operationalizations of SDO, RWA, and corrupt intention were used. Second, only the Conservatism/Submission to Authority dimension of RWA was indexed by the proxy items used in the social-cultural right-wing attitudes. Third, it has already been pointed out that using the WVS variables as proxy measures might compromise the reliability of the results due to the considerable variance across countries (Dang et al., 2020; Onraet et al., 2013), which was supported by the significant Qstatistic in our meta-analysis. Hence, the next step to propose the model consisted in assessing the relationships between SDO, RWA, and corrupt intention through measures with higher reliability that tap all dimensions of the constructs instead of proxy measures. Moreover, attitudes toward corrupt people should also be considered to comprehend the relationships between the social attitudes assessed (SDO and RWA), and the two distinct aspects of corruption that were considered theoretically relevant (i.e., corrupt intention and attitudes toward corrupt people).

The present study thus sought to test Hypothesis 7 (preregistered at https://osf.io/2vpfk) that SDO predicts corrupt intention but RWA does not, while RWA predicts attitudes toward corrupt people but SDO does not.

#### Method

#### **Participants**

Different from previous studies, this sample was exclusively obtained from a study link advertised in Facebook using a similar approach as in previous studies (Thomson et al., 2018), so a more thorough procedure to validate the answers was used. The advertisements were directed to people living in Brazil without any other restriction. Statistics from Facebook indicated that the advertisement had 554,367 impressions and 36,023 link clicks. This indicates that the advertisement was successful in reaching a broad audience, as the click-through rate of 6.50% is higher than the 0.11% global rate (Chapman, 2011). The online survey was available between October and November 2020.

Initially, 945 individuals consented to take part in the study. However, 50 had their data excluded because they were less

#### VILANOVA, MILFONT, AND COSTA

## Table 3

Correlations Between Corrupt Intention, Economic-Hierarchical Right-Wing Attitudes, and Social-Cultural Right-Wing Attitudes Per Country (Study 3)

Country	Correlation between economic-hierarchical right-wing attitudes and corrupt intention	Correlation between social-cultural right-wing attitudes and corrupt intention	
Andorra	.12	09	
Argentina	.07	13	
Australia	.02	09	
Bangladesh	.10	.03	
Bolivia	.01	.01	
Brazil	.03	13	
Myanmar	.00	.13	
Chile	.23	21	
China	.09	.00	
Faiwan	.03	.01	
Colombia	04	05	
Cyprus	.28	.00	
Ecuador	08	01	
Ethiopia	09	01	
Germany	.08	09	
Greece	01	.01	
Guatemala	06	04	
Hondura	.11	.15	
Indonesia	16	.09	
iran	.01	.03	
Iraq	.29	11	
lapan	.08	.03	
Kazakhstan	.03	04	
Jordan	03	08	
South Korea	.12	.02	
Kyrgyzstan	.01	04	
Lebanon	06	12	
Macau	.12	.12	
Malaysia	04	04	
Mexico	.02	06	
New Zealand	04	14	
Nicaragua	01	04	
Vigeria	.07	08	
Pakistan	.08	07	
Peru	06	06	
Philippines	03	08	
Puerto Rico	.04	.00	
Romania	11	09	
Russia	.06	12	
Serbia	.04	.02	
Vietnam	.04	09	
Zimbabwe	.03	01	
Fajikistan	.09	.07	
Fhailand	.19	.06	
Funisia	.06	.00	
Furkey	.17	12	
Egypt	03	12	
USA	01	14	
Meta-analyzed correlation based on random-effects model	r = .04, 95% CI [.01, .07], SE = .01, z = 2.85, p = .004; Q(47) = 581.61, p < .001	r =03, 95% CI [06, SE = .01, z = -3.03, p = .0 Q(47) = 406.10, p < .001	

than 18 years old. Afterward, 116 were excluded because they answered attention-check questions incorrectly, as in Studies 1 and 2. Then, 69 had their data excluded because they answered less than 80% of the survey (Schlomer et al., 2010). Finally, outliers were excluded based on Mahalanobis and Cook's distances, as well as leverage values. Those who had scores above the cut-off values (Kannan & Manaj, 2015) in at least two of these criteria

were excluded (n = 5). We also examined whether there were any cases with duplicate IP addresses or participants who completed the full survey under 3 min, but there were none. Hence, the final sample was composed of 705 participants (66.5% females), whose ages ranged from 18 to 78 years old (M = 36.74; SD =13.97). Section A of the Supplemental Materials provides detailed sample description.

## Figure 5 Forest Plot Depicting Correlations Between Economic-Hierarchical Right-Wing Attitudes and Corrupt Intention Per Country (Study 3)



Note. The full country names can be found in Section E of the Supplemental Materials.

#### Measures

The SDO<sub>7</sub> scale (Ho et al., 2015) was used to assess SDO as in Study 1. It comprises 16 items rated on a 7-point agreement scale ranging from 1 (*totally disagree*) to 7 (*totally agree*), and it has adequate internal consistency (Cronbach's  $\alpha = .78$ ). The ACT scale proposed by Duckitt et al. (2010), which has been adapted to the Brazilian context by Vilanova et al. (2018), was used to assess RWA. It comprised the full 34-item version rated on a 5-point agreement scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), and it had good internal consistency (Cronbach's  $\alpha = .91$ ). The same vignette scenario used in Study 1 was used in the present study (Mazar & Aggarwal, 2011), followed by the five-item corrupt intention measure (Cronbach's  $\alpha = .79$ ) and the 25-item affective thermometer used in Study 2. As the hypothesis tested in the present study only concerns corrupt people, only attitudes toward this group will be analyzed.<sup>4</sup>

#### Data Analysis

First, zero-order and partial Pearson correlations between mean scores of SDO, RWA, corrupt intention, and attitudes toward corrupt people were assessed. G\*Power indicated that to conduct this analysis with .05  $\alpha$  error probability, .80 statistical power, and effect size of .29 (the smallest significant correlation between these variables in the previous studies of this project), at least 88 participants would be necessary, so our sample fulfills this requirement. Then, to test our hypothesis about the differential predictive effects

of SDO and RWA on corrupt intention and attitudes toward corrupt people, a SEM using the WLSMV estimation method was conducted. The sample size calculator for SEM proposed by Soper (2020) indicated that at least 128 participants are required to detect a .29 effect size (the smallest significant effect between these variables found in the previous SEM analyses of this project) considering a model with three latent variables, 56 observed variables, and .80 statistical power, so our sample also fulfills this requirement.

## Results

As expected, SDO was positively and significantly correlated with corrupt intention, r(703) = .18, p < .001, 95% CI [.11, .25]), but the correlation for RWA was weak and statistically nonsignificant, r(703) = .04, p = .25, 95% CI [-.03, .11]. At the same time, SDO was not correlated with attitudes toward corrupt people, r(703) = .02, p = .70, 95% CI [-.06, .09], but the correlation for RWA was, r(703) = -.10, p = .01, 95% CI [-.17, -.03]. Partial correlations further confirmed these findings. There was a positive correlation between SDO and corrupt intention controlling for both RWA and attitudes toward corrupt people,  $r_{\text{partial}}(701) = .17$ , p < .001, 95% CI [.10, .24]), but no correlation between SDO and attitudes toward corrupt people controlling for RWA and corrupt intention,  $r_{\text{partial}}(701) = .02$ , p = .54,

<sup>&</sup>lt;sup>4</sup> Although we only analyzed the "corrupt people" item, we also replicated the inclusion of attitudes toward corrupt people in the dangerous dimension through CFA in the Study 4 sample. These findings are reported in Section F of the Supplemental Materials.

#### VILANOVA, MILFONT, AND COSTA



## Figure 6

Forest Plot Depicting Correlations Between Social-Cultural Right-Wing Attitudes and Corrupt Intention Per Country (Study 3)

Note. The full country names can be found in Section E of the Supplemental Materials.

-0.3

-0.2

-0.1

0

0.1

0.2

95% CI [-.05, .09]. Similarly, no significant correlation between RWA and corrupt intention was found controlling for both SDO and attitude toward corrupt people,  $r_{\text{partial}}(701) = -.01$ , p = .88, 95% CI [-.08, .06], but a significant correlation between RWA and attitudes toward corrupt people controlling for SDO and corrupt intention was observed,  $r_{\text{partial}}(701) = -.11$ , p = .005, 95% CI [-.18, -.03]; see Table 6.

The latent path model depicted in Figure 7 also supported the differential predictive effect of SDO and RWA on corrupt intention and attitudes toward corrupt people,  $\chi^2(1,479) = 4,887.93$ , p < .001;  $\chi^2/df = 3.30$ , RMSEA = .06, CFI = .67, TLI = .66. As expected, SDO significantly predicted corrupt intention (B = .40, 95% CI [.19, .60],  $\beta = .28$ , p < .001) but RWA did not (B = -.18, 95% CI [-.47, .10],  $\beta = -.07$ , p = .21). Moreover, RWA significantly predicted attitudes toward corrupt people (B = -.12, 95% CI [-.20, -.03],  $\beta = -.13$ , p = .01) but SDO did not (B = .03, 95% CI [-.02, .09],  $\beta = .07$ , p = .20).

#### Study 5

The findings from Study 4 consolidated results shown separately in the previous studies: SDO predicts corrupt intention but not attitudes toward corrupt people, whereas RWA predicts attitudes toward corrupt people but not corrupt intention. Our tested model has thus far integrated social attitudes, corrupt intention, and attitudes toward corrupt people, lacking the examination of how worldviews affect these relationships. Study 5 thus sought to assess the effect of worldviews on the aforementioned variables.

0.3

The dual process model asserts that DWB predict RWA, whereas CWB predict SDO (Duckitt, 2001). As our studies have shown that SDO predicts corrupt intention, while RWA predicts attitudes toward corrupt people, the consequence is that if CWB increases, SDO and corrupt intention levels should increase, whereas RWA and attitude toward corrupt people should remain unaffected. Similarly, if DWB increase, RWA and negative attitudes toward corrupt people should increase, whereas SDO and corrupt intention should remain unaffected, as illustrated in Figure 8.

However, the meta-analysis by Perry et al. (2013) indicated an asymmetry in the dual relations between worldviews and social attitudes: Whereas DWB indeed predicted RWA ( $\beta = .37$ ) and did not considerably predict SDO ( $\beta = .08$ ), CWB considerably predicted both SDO ( $\beta = .53$ ) and RWA ( $\beta = .11$ ). Hence, to test the differential effect of worldviews and social attitudes on corruption through experimental manipulation, it might be more feasible to manipulate DWB, as it does not simultaneously influence RWA and SDO.

We thus conducted the experimental manipulation of DWB implemented by Duckitt and Fisher (2003), comprising the random assignment of participants to one of three experimental conditions: a safe scenario, depicting a future that is socially prosperous, stable, safe, and secure; a control scenario, depicting a future that is essentially unchanged from the present; and a threat scenario, depicting a future that is unstable and violent. The objective was to

#### Table 4

Correlations Between Corrupt Intention, Economic-Hierarchical Right-Wing Attitudes, and Social-Cultural Right-Wing Attitudes Per Country Based on Random-Effects Multivariate Model (Study 3)

Country	Correlation between economic-hierarchical right-wing attitudes and corrupt intention	Correlation between social-cultural right-wing attitudes and corrupt intention	Correlation between economic-hierarchical right-wing attitudes and social-cultural right-wing attitudes
Andorra	.12	09	.08
Argentina	.07	13	.07
Australia	.02	09	.18
Bangladesh	.10	.03	03
Bolivia	.01	.01	02
Brazil	.03	13	.07
Myanmar	.00	.14	16
Chile	.23	21	15
China	.08	.00	02
Taiwan	.03	.05	10
Colombia	04	05	.04
Cyprus	.28	00	.01
Ecuador	08	06	05
Ethiopia	09	05	02
Germany	.09	09	.02
Greece	01	.01	06
Guatemala	06	04	.05
Hondura	.11	.15	.03
Indonesia	16	.08	11
		.03	01
Iran	.01 .29		01
Iraq		11	
Japan	.08	.03	.07
Kazakhstan	.03	04	09
Jordan	03	08	.00
South Korea	.12	.02	.12
Kyrgyzstan	.01	04	05
Lebanon	06	12	01
Macau	.12	.12	.14
Malaysia	04	04	.05
Mexico	.02	06	.00
New Zealand	04	14	.20
Nicaragua	01	04	.00
Nigeria	.07	08	07
Pakistan	.08	07	06
Peru	06	06	.01
Philippines	03	08	.00
Puerto Rico	.04	.00	03
Romania	11	09	01
Russia	.06	12	15
Serbia	.04	.02	.11
Vietnam	.06	09	12
Zimbabwe	.03	01	.01
Tajikistan	.09	.07	08
Thailand	.19	.06	.08
Tunisia	.06	.07	.03
Turkey	.17	12	01
Egypt	03	14	.00
USA	01	09	.19
Meta-analyzed correlation based on random-effects multivariate model	r = .04, 95% CI [.01, .06], $SE = .01, z = 2.86, p = 0.004^{a},$ Q(47) = 613.22, p < .001	r =03, 95% CI [06,01], $SE = .01, z = -3.04, p = 0.002^{a},$ Q(47) = 418.65, p < .001	r = .00, 95% CI [02, .03], SE = .01, z = .29, p = .77, Q(47) = 502.29, p < .001

Note. The multivariate meta-analysis takes the correlation between the outcomes tested into account.

<sup>a</sup> The *p*-values survive a three-level Bonferroni correction for multiple testing (.017).

test the following five preregistered hypotheses based on the DPM (https://osf.io/3pg57): Compared to participants in the other conditions, participants assigned to the threat scenario will present the highest RWA levels (Hypothesis 8), as well as the most negative attitudes toward corrupt people (Hypothesis 9).

Furthermore, *there will be no statistically significant differences between experimental conditions on SDO* (Hypothesis 10), *CWB* (Hypothesis 11), and *corrupt intention* (Hypothesis 12). Finally, DWB levels were compared across conditions as a manipulation check.

Table 5	
Multilevel Regression Models	s (Study 3)

	Model w	ithout predictor	rs (M0)	Model with predictors (M1)			
Parameters	Effect	SE	р	Unstandardized effect	SE	р	β
Within level							
Corrupt intention residual variance	7464.44	1.79	<.001	7418.74	1719.56	<.001	
Predictive effects							
Economic-hierarchical right-wing	_	_	_	.16	.08	.03	.04
attitudes $\rightarrow$ Corrupt intention							
Social-cultural right-wing attitudes $\rightarrow$	_	_	_	.00	.04	.96	.00
Corrupt intention							
Between level							
Corrupt intention residual variance	3846.94	1198.59	.001	276.22	63.17	<.001	_
Intraclass correlation coefficient (ICC)	.34			.04			
$R^2$		_		Within level $=$	.01; Between l	evel = .93	
Deviance (df)	786076.36 (3)		785875.05 (5)				
$\Delta$ deviance ( $\Delta$ df)	— 201.31 (2)						
Akaike information criterion (AIC)	7	86,082.36		7	85,885.05		
$\Delta$ AIC				197.31			

## Method

## **Participants**

The present sample was also exclusively obtained from a link advertised on Facebook, so the same procedure detailed in Study 4 was used to validate the answers. The advertisements were directed to people living in Brazil without any other restriction. Statistics from Facebook indicated that the advertisement had 176,286 impressions and 4,902 link clicks. This shows that the advertisement was successful in reaching a broad audience, as the click-through rate of 2.78% is higher than the 0.11% global rate (Chapman, 2011). After participants clicked on the advertisement, they were redirected to the online experiment which was available between November and December 2020.

Initially, 595 individuals consented to take part in the study but four were less than 18 years old. Afterward, 44 were excluded because they answered attention-check questions incorrectly, as in Studies 1, 2, and 4. Then, 231 had their data excluded because they answered less than 80% of the survey (Schlomer et al., 2010). Finally, outliers were excluded based on Mahalanobis and Cook's distances, as well as leverage values. Those who had scores above the cut-off values (Kannan & Manaj, 2015) in at least two of these criteria were excluded (n = 10). We also examined whether there were any cases with duplicate IP addresses or paticipants who completed the full survey under 3 min, and only one pair of answers had a duplicate IP, so we retained the first one. Hence, the final sample was composed of 305 participants (60.7% females), whose ages ranged from 18 to 66 years old (M = 35.12; SD = 10.42). Section A of the Supplemental Materials provides detailed sample description.

#### **Procedure and Measures**

First, participants were randomly assigned to one of three experimental conditions adapted from Duckitt and Fisher (2003). One condition depicted a safe future scenario in which Brazil enjoyed many years of economic boom and social harmony, with very low rates of crime, unemployment, and poverty (n = 94). Another condition depicted a control future scenario in which Brazil was basically the same as it is—a society with distinct social issues but relatively prosperous (n = 110). The final condition depicted a social threat scenario in which Brazil had even higher rates of crime than now and dramatic economic decline (n = 101).

Participants then answered the refined version of the DWB scale provided by Perry et al. (2013). In its cross-culturally adapted version, it comprises 11 items rated on a 5-point agreement scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). The scale had adequate internal consistency in our sample (Cronbach's  $\alpha = .87$ ). Afterward,

Table 6

Bivariate Correlations Between SDO, RWA, Corrupt Intention, and Attitudes Toward Corrupt People (Study 4)

Variable	SDO	RWA	Corrupt intention	Attitude toward corrupt people
<ol> <li>SDO</li> <li>RWA</li> <li>Corrupt intention</li> <li>Attitudes toward corrupt people</li> </ol>	.35 <sup>**</sup>	.36**	.18**	.02
	.17 <sup>**</sup>	01	.04	10*
	.02	11*	.16**	.16**

*Note.* SDO = social dominance orientation; RWA = right-wing authoritarianism. Coefficients above diagonal are zero-order correlations and those below the diagonal are partial correlations.

 $p^* p < .05. p^* < .001.$ 

#### Figure 7

SEM Comparing Predictive Effects of SDO and RWA on Corrupt Intention and Attitudes Toward Corrupt People (Study 4)



*Note.* SEM = structural equation model; SDO = social dominance orientation; RWA = right-wing authoritarianism. Dashed lines depict nonsignificant (p > .05) paths. Manifest variables of SDO, RWA, and corrupt intention are omitted from the illustration. \*p < .05. \*\*p < .001.

participants completed the 34-item ACT scale (Cronbach's  $\alpha = .93$ ) and the 25-item affective thermometer scale, but we focus only on the "corrupt people" item to test our predictions.<sup>5</sup>

Subsequently, participants completed the refined version of the 11-item version of the CWB provided by Perry et al. (2013), which had adequate internal consistency (Cronbach's  $\alpha = .77$ ). As in previous studies, participants then completed the 16-item SDO<sub>7</sub> scale (Cronbach's  $\alpha = .89$ ) and the five-item corrupt intention measure (Cronbach's  $\alpha = .89$ ) after reading the vignette proposed by Mazar and Aggarwal (2011).

## Data Analysis

We first examined whether the experimental manipulation significantly increased the DWB scores. Mean DWB scores were thus compared across the three conditions through a one-way analysis of variance (ANOVA). Then, mean scores of CWB, RWA, SDO, corrupt intention, and attitudes toward corrupt people were also compared across conditions through one-way ANOVAs, followed by post hoc comparisons using the Games–Howell procedure (Sauder & DeMars, 2019). Based on the study by Duckitt and Fisher (2003), the effect size of the experimental manipulation on RWA was f = .26. G\*Power indicated that to reach .80 statistical power considering .05  $\alpha$  levels and three groups, at least 147 participants in total are necessary, so our sample fulfills this requirement.

#### Results

The results indicated that the manipulation successfully increased DWB levels, F(2, 302) = 101.46, p < .001;  $\eta^2 = .40$ , 90% CI [.33, .46]. As can be seen in Table 7, the participants assigned to the threat scenario had the highest score of DWB (M = 3.80; SD = .62), followed by those assigned to the control (M = 3.20; SD = .86) and

safe scenarios (M = 2.30; SD = .71). Post hoc analyses confirmed that the differences among all these scenarios were statistically significant (p < .001). Despite evidence that the experimental manipulation worked, the manipulation did not cause a significant increase in RWA levels, F(2, 302) = 1.34, p = .26;  $\eta^2 = .01$ , 90% CI [0, .03], as the scores were similar across the threat (M = 2.22; SD = .66), control (M = 2.13; SD = .60), and safe (M = 2.07; SD = .54) conditions. Post hoc comparisons confirmed the RWA scores were statistically comparable across all three conditions (ps > .20). Similarly, the experimental manipulation had no effect on attitude toward corrupt people, F(2, 302) = .93, p = .40;  $\eta^2 = .01$ , 90% CI [0, .02], as scores were similar across threat (M = 1.30; SD = .74), control (M = 1.42; SD = .77), and safe (M = 1.43; SD = .74) conditions, which was confirmed by post hoc comparisons (ps > .40).

Similar to DWB, CWB levels significantly differed across conditions, F(2, 302) = 7.03, p = .001;  $\eta^2 = .04$ , 90% CI [.01, .08]. As the levels of manipulated threat increased, the CWB levels also increased, as participants assigned to the threat condition presented the highest CWB levels (M = 1.99; SD = .57), followed by those assigned to the control condition (M = 1.88; SD = .60) and the safe condition (M = 1.69; SD = .50). Note, however, that the CWB levels were comparable across the control and threat conditions (p = .36)in post hoc comparisons; but the levels differed across safe versus control (p = .04) and threat (p < .001) conditions. Despite these statistically significant differences in CWB levels, the experimental manipulation did not influence SDO levels, F(2, 302) = .90, p = .41;  $\eta^2 = .01, 90\%$  CI [0, .02], as scores were similar across the threat (M = 2.06; SD = 1.21), control (M = 1.89; SD = 1.02), and safe (M = 1.88; SD = .90) conditions, which was confirmed by post hoc comparisons (ps > .40). Finally, corrupt intention levels

<sup>&</sup>lt;sup>5</sup> Although we only analyzed the "corrupt people" item, we also replicated the inclusion of attitudes toward corrupt people in the dangerous dimension through CFA in the Study 5 sample. It is reported in Section F of the Supplemental Material.

Hypothesized Model Integrating Worldviews, Social Attitudes, Corrupt Intention, and Attitudes Toward Corrupt People <u>Worldview:</u> <u>Social Attitude</u>:



significantly differed across experimental conditions, F(2, 302) = 6.77, p = .001;  $\eta^2 = .04$ , 90% CI [.01, .08], such that those assigned to the threat condition showed higher levels of corrupt intention (M = 3.01; SD = 2.04) compared to those in the control (M = 2.43; SD = 1.72) and safe (M = 2.09; SD = 1.46) conditions. Post hoc comparisons confirmed that corrupt intention levels were higher in the threat condition compared to the safe condition (p = .001) and marginally higher compared to the safe versus control conditions (p = .29).

Figure 8

## Study 6

The findings from Study 5 indicated that although DWB significantly increased across threat conditions, providing evidence that the experimental manipulation was successful, this did not cause significant increases in RWA or negative attitudes toward corrupt people. This could indicate that despite the changes in DWB, increasing RWA levels are a necessary condition to significantly change attitudes toward corrupt people, suggesting a full mediational role of RWA. Considering CWB, although it significantly increased when comparing the threat and safe conditions, SDO levels remained unchanged and corrupt intention significantly increased, indicating that CWB has a key predictive role in the previously found associations between SDO and corrupt intention. Results thus comprehensively suggest that when considering corrupt intention, the competitive worldview might be the primary predictor, and SDO might have no mediational role in predicting corrupt intention. However, when considering attitudes toward corrupt people, the social attitude/ideology might be the primary

Table 7

Mean and Standard Deviations for the Worldview, Social Attitude, Corrupt Intention, and Attitude Toward Corrupt People Measures in the Three Scenario Conditions (Study 5)

Measure		cenario 94)	Control scenarioThreat scenario $(n = 110)$ $(n = 101)$			ANOVA	
	М	SD	М	SD	М	SD	F
Dangerous worldview beliefs	2.30	.71	3.20	.86	3.80	.62	101.46**
Competitive worldview beliefs	1.69	.50	1.88	.60	1.99	.57	7.03*
Right-wing authoritarianism	2.07	.54	2.13	.60	2.22	.66	1.34
Social dominance orientation	1.88	.90	1.89	1.02	2.06	1.21	.90
Corrupt intention	2.09	1.46	2.43	1.72	3.01	2.04	6.77*
Attitude toward corrupt people	1.43	.74	1.42	.77	1.30	.74	.93

*Note.* ANOVA = analysis of variance.

 $p^* < .05. p^* < .001.$ 

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Figure 9. The objective of Study 6 was thus to test whether the associations depicted in Figure 9 would be confirmed in another sample using survey data. Hence, we sought to test the mediational role of SDO (or lack thereof) in the path between CWB and corrupt intention, as well as the mediational role of RWA in the path between DWB and attitude toward corrupt people. As our model directly derived from Study 5, we have tentatively hypothesized that *the path between CWB and corrupt intention would not be significantly mediated by SDO* (Hypothesis 13) but *the path between DWB and attitudes toward corrupt people would be significantly mediated by RWA* (Hypothesis 14); however, these predictions were not included in the preregistration.

predictor, and RWA might be the full mediator between DWB and

attitudes toward corrupt people, providing the model illustrated in

## Method

## **Participants**

Study 6 was conducted between November and December 2020. As in Study 1, the link of the online survey was posted on social media platforms and shared by the profiles of distinct research groups and their members inviting users to participate in a decision-making study. Differently from Studies 4 and 5, Facebook advertisements were not used for data collection in this study. Initially, 372 individuals consented to take part in the study. However, six had their data excluded because they were less than 18 years old. Afterward, 33 were excluded because they answered attention-check questions incorrectly, as in Studies 1, 2, 4, and 5. Then, 30 had their data excluded because they answered less than 80% of

#### Figure 9

Hypothesized Mediational Model Integrating Worldviews, Social Attitudes, Corrupt Intention, and Attitudes Toward Corrupt People



the survey. Hence, the final sample was composed of 303 participants (89.1% males), whose ages ranged from 18 to 50 years old (M = 28.51; SD = 8.63). Section A of the Supplemental Materials provides detailed sample description.

#### Measures

We used the same measures considered in Study 5: the 16-item SDO<sub>7</sub> scale (Cronbach's  $\alpha = .89$ ), the 34-item ACT scale (Cronbach's  $\alpha = .87$ ), the five-item corrupt intention scale (Cronbach's  $\alpha = .84$ ), the 25-item affective thermometer scale focusing only on the "corrupt people" item,<sup>6</sup> and the 11-item versions of the DWB scale (Cronbach's  $\alpha = .80$ ).

## Data Analysis

Power estimations indicated that to conduct zero-order Pearson correlations between SDO, RWA, attitudes toward corrupt people, DWB and CWB with .05  $\alpha$  error probability, .80 statistical power, and effect size of .29 (the smallest significant correlation between these variables in the previous studies reported), at least 88 participants would be necessary. To test the hypothesized mediational model derived from Study 5, a latent SEM model could not be conducted due to power restrictions. This is because the model involves two mediations, five latent variables and 78 observed variables, and the sample reached would not be sufficient to obtain .80 statistical power, since the minimum recommended sample size for this analysis is 400 individuals (Fritz & Mackinnon, 2007). Hence, a path analysis was conducted instead. First, factor scores of all variables were obtained through the regression method. Then, a single model specifying both the mediational effect of SDO on the path between CWB and corrupt intention and the mediational effect of RWA on the path between DWB and attitude toward corrupt people was assessed. The DWLS estimation method was used instead of its robust variant (WLSMV) because we aimed to calculate standard errors based on 1,000 bootstrap resamplings, which is not possible through WLSMV (Rosseel, 2012). As recommended by Hayes (2017), we report unstandardized regression coefficients.

## Results

Table 8 presents the correlations among the variables considered in Study 6. As expected, corrupt intention was significantly associated with both SDO, r(301) = .14, p = .02, 95% CI [.03, .25], and CWB, r(301) = .34, p < .001, 95% CI [.24, .44], but not with RWA, r(301) =-.09, p = .12, 95% CI [-.20, .02], nor DWB, r(301) = .09, p = .14, 95% CI [-.02, .20]). Also according to our expectations, attitudes toward corrupt people were significantly correlated with both RWA, r(301) = -.30, p < .001, 95% CI [-.40, -.19], and DWB, r(301) =-.17, p = .003, 95% CI [-.28, -.06]. An unexpected significant correlation between SDO and attitudes toward corrupt people was observed, r(301) = -.16, p = .01, 95% CI [-.27, -.05], although it was not correlated with CWB, r(301) = .00, p = .95, 95% CI [-.11, .11]. Overall, these findings support our predictions and findings from previous studies, indicating differential predictions of SDO and RWA in relation to corrupt intention and attitudes toward corrupt people, but also expanding the findings to their underlying worldviews.

Then, path analysis assessing the proposed mediational effects were conducted and confirmed the hypothesized model, as shown in Figure 10. Corroborating the relationships proposed by the dual process model (Duckitt, 2001), CWB significantly predicted SDO (B = 1.07, p < .001, 95% CI [.67, 1.53], SE = .22) and DWB significantly predicted RWA (B = 1.72, 95% CI [2.16, 1.36], p < .001, SE = .20). Moreover, CWB had a key predictive role on corrupt intention such that the direct effect was statistically significant (B = .95, 95% CI [.55, 1.84], p = .006, SE = .34), and the indirect effect via SDO was not (B = -.25, 95% CI [-1.04, .03], p = .41, SE = .31). Indeed, the significant predictive association between SDO and corrupt intention found in previous studies disappeared when considering CWB in the model (B = .24, 95% CI [-.76, .03], p = .25, SE = .21), indicating that the competitive worldview is a key variable in the association between SDO and corrupt intention.

When considering attitudes toward corrupt people, our expectations were also confirmed. DWB did not predict attitude toward corrupt people directly, as its direct effect was not statistically significant (B = -.07, 95% CI [-.54, .40], p = .76, SE = .24).

<sup>&</sup>lt;sup>6</sup> Although we only analyzed the "corrupt people" item, we also replicated the inclusion of attitudes toward corrupt people in the dangerous dimension through CFA in the Study 6 sample. It is reported in Section F of the Supplemental Materials.

#### Table 8

Bivariate Zero-Order Correlations Between SDO, RWA,	CWB, DWB, Corrupt Intention, and Attitude Toward
Corrupt People (Study 6)	

Variable	SDO	RWA	CWB	DWB	Corrupt intention
<ol> <li>SDO</li> <li>RWA</li> <li>CWB</li> <li>DWB</li> <li>Corrupt intention</li> <li>Attitude toward corrupt people</li> </ol>		.15* .48** 09 30**	.19* .34** .00	 09 17*	.14*

*Note.* SDO = social dominance orientation; RWA = right-wing authoritarianism; CWB = competitive worldview beliefs; DWB = dangerous worldview beliefs.

 $p^* p < .05. \quad \bar{*}^* p < .001.$ 

However, DWB had a predictive indirect effect on attitude toward corrupt people through RWA (B = -.48, 95% CI [-.79, -.17], p = .003, SE = .16). The predictive effect of RWA on attitudes toward corrupt people was also statistically significant (B = -.28, 95% CI [-.45, -.10], p = .001, SE = .09), further confirming our assumptions.

Although fit indices were not the focus of the study, it is worth noting that all paths were tested in a single model that presented inadequate fit to the data,  $\chi^2(7) = 61.63$ , p < .001,  $\chi^2/df = 8.80$ , CFI = .80, TLI = .60, RMSEA = .16. Modification indices suggested adding the covariance between SDO and RWA, and after adding it, fit indices became adequate,  $\chi^2/df = 1.50$ , CFI = .99, TLI = .97, RMSEA = .04, keeping all mediational paths unaffected.

#### **General Discussion**

Corruption is a regrettably salient issue across many nations with large estimated impacts on economic growth and inequality

## (Chêne, 2014). Prior social psychological work has investigated normative pressures on corrupt behavior, such as the impact of descriptive and injunctive norms (Köbis et al., 2015) and its importance to curb corruption in some contexts (Köbis et al., 2019). Here we provide the first systematic research examining the impact of social attitudes and worldviews on corruption intention and attitudes toward corrupt people to identify key individual difference variables that motivate corruption-related outcomes in the high corruption context of Brazil. Six studies testing preregistered hypotheses (see Section D of the Supplemental Materials for a description of the deviations from preregistration) supported our initial assumption that corrupt intention and attitudes toward corrupt people are differentially predicted by distinct social attitudes and worldviews: Study 1 indicates that corrupt intention is primarily predicted by SDO and not by the endorsement of general SJB; Study 2 indicates that SDO does not predict attitudes toward corrupt people but RWA does; cross-country data in Study 3 indicate

## Figure 10

Path Analysis Assessing Predictive Effects of SDO, RWA, CWB, DWB, Corrupt Intention, and Attitudes Toward Corrupt People (Study 6)



*Note.* SDO = social dominance orientation; RWA = right-wing authoritarianism; CWB = competitive worldview beliefs; DWB = dangerous worldview beliefs. a, b, c, and c' values correspond to B estimates; c corresponds to the direct effect; and c' corresponds to the indirect effect. Dashed lines depict nonsignificant (p > .05) paths. \*p < .05. \*\*p < .001.

that economic-hierarchical right-wing attitudes (a proxy measure for SDO) predict corrupt intention but social-cultural right-wing attitudes (a proxy measure for RWA) do not; Study 4 indicates that SDO predicts corrupt intention but RWA does not, whereas RWA predicts attitudes toward corrupt people but SDO does not; Study 5 indicates that when experimentally manipulating DWB, the levels of corrupt intention and CWB increase, whereas RWA, SDO, and attitudes toward corrupt people are not significantly affected; and finally Study 6 indicates that SDO does not mediate the relationship between CWB and corrupt intention, whereas RWA fully mediates the relationship between DWB and attitudes toward corrupt people.

First, it is worth noting that whereas there might be a direct relationship between endorsement of SJB and corrupt intention (Tan et al., 2016, 2017), Study 1 presents a relatively weak association between these variables. Hence, the endorsement that "society is fair," "the political system operates as it should," and "most policies serve the greater good" (Kay & Jost, 2003) might not entail higher or lower corrupt intention. Indeed, in addition to studies suggesting that corruption is hardly seen worldwide as justified and beneficial (e.g., Gilman & Lewis, 1996; Husted et al., 1996; Miller, 2006; Widmalm, 2008), our Study 1 findings show that even in a country with endemic corruption as Brazil (see Transparency International, 2021a), corruption is not primarily predicted by a motivation to sustain the status quo. Rather, the primary predictor of corrupt intention in Study 1 was SDO indexing support for hierarchy between groups in society.

Second, while SDO was the main predictor of corrupt intention in Study 1, in the second study, attitudes toward corrupt people were predicted by RWA but not SDO. These attitudes were clustered in the dangerous dimension in Study 2 as well as in all data available (see Section F of the Supplemental Materials), indicating that corrupt people are seen as threatening but not low on status or competitive (Duckitt, 2001), being thus predicted by RWA but not SDO (Duckitt & Sibley, 2007). Moreover, although politicians are often linked to corruption (Almeida, 2015; Netto, 2016), attitudes toward politicians did not present factor loadings above .30 in any of the dimensions, indicating that the pattern of attitudes toward them might be different than toward corrupt people.

Third, Study 3 replicates the direct association between SDO and corrupt intention found in Study 1 and advances this proposal by showing that economic-hierarchical right-wing attitudes as proxy for SDO predict corrupt intention, whereas social-cultural rightwing attitudes as proxy for RWA do not. Although the meta-analysis pointed out significant cross-cultural variability in the correlations between corrupt intention, economic-hierarchical right-wing attitudes, and social-cultural right-wing attitudes, their hypothesized differential predictive effect on corrupt intention was supported by multilevel regressions when the predictors were included together.

Fourth, Study 4 corroborates in a single model what had been shown separately in the previous studies: SDO predicts corrupt intention but not attitudes toward corrupt people, whereas RWA predicts attitudes toward corrupt people but not corrupt intention. These findings confirm the assumed independence of corrupt intention and attitudes toward corrupt people, as they were distinctly predicted by relatively independent social attitudes.

Fifth, findings from Study 5 indicate that when DWB is experimentally manipulated as proposed by Duckitt and Fisher (2003), not only DWB levels significantly increase but also CWB levels and corrupt intention. Notably, RWA, SDO, and attitudes toward corrupt people remained unchanged, suggesting that the competitive *worldview* is the key variable in the relationship between SDO and corrupt intention, whereas RWA (a *social attitude*) is the key variable in the relationship between DWB and attitudes toward corrupt people. This provides novel insights into the DPM that will be discussed in the following sections.

Finally, Study 6 tests the mediational associations suggested by the results of Study 5 in a single model. It confirmed that SDO does not mediate the relationship between CWB and corrupt intention, whereas RWA fully mediates the relationship between DWB and attitudes toward corrupt people. Moreover, the previously found predictive effect of SDO on corrupt intention disappeared when considering CWB in the model, indicating that CWB was entangled between SDO and corrupt intention in previous studies. It is worth noting that despite the fact that this mediation model follows experimental findings, a causal mediation cannot be assumed based on Study 6 data. As we did not manipulate the mediators of the model, our results only support statistical mediation, leaving potential suppression or confounding effects unclear and providing only initial speculative evidence about causal mediations (Bullock et al., 2010). Nevertheless, after all these steps, we proposed a model that successfully filled a gap in the social psychological literature about the association between corruption, worldviews, and social attitudes.

## **Implications for Research on Corruption**

Comprehensively, our results advance research on predictors of corruption. First, to the best of our knowledge, this is the first study to present empirical data that provides an individual differences explanation for a phenomenon that is usually addressed at a contextual level-the coexistence of endemic corruption and widespread negative attitudes toward corrupt people (DaMatta, 1997; Oliveira, 2014; Romeiro, 2017). Based on the independent motivational goals of competitiveness and social control underlying SDO and RWA, respectively (Duckitt, 2001), it has been shown that corrupt intention and attitudes toward corrupt people also seem to be independent. Indeed, they were not only primarily associated with distinct social attitudes and worldviews, but their correlations were rather low across studies (Pearson's r ranging from .14 to .16). It might be unsurprising that some people could express very negative attitudes toward corrupt people and simultaneously engage in corrupt behavior. In fact, as those with higher levels of SDO tend to be more dishonest and manipulative (Cozzolino & Snyder, 2008), these individuals might express strong negative attitudes against corrupt people as a way of attaining a socially dominant position, and when this position has been achieved, they might engage in corrupt behaviors themselves.

The independent motivational goals underlying CWB/SDO and DWB/RWA also possibly explain the distinct mediations between worldviews, social attitudes, and corruption indicated by Studies 5 and 6. For instance, although SDO was a key predictor of corrupt intention when not considering CWB (Studies 1, 3, and 4), the belief that the world is a competitive jungle might have been the most important predictor of accepting bribes because the vignette used to assess corrupt intention depicts a competition over an international contract (Mazar & Aggarwal, 2011). Winning the contract is a way of achieving a social status that does not require the direct

exploration of subordinate groups, so endorsing hierarchy and dominance (i.e., SDO) in this case becomes secondary.

The same process does not hold when considering RWA, DWB, and attitudes toward corrupt people though. If individuals believe that the world is a dangerous place (i.e., DWB) and corrupt people are one of the threatening groups in society, the goal of having social control is not satisfied just by holding negative attitudes toward this group. Negative attitudes do not interfere in the behavior of corrupt people, but one possible way to control them is through harsher coercive measures. This is in line with the finding that the endorsement of harsher coercive measures (indexed by RWA) fully mediates the relationship between DWB and attitudes toward corrupt people.

Finally, the lack of predictive effect of SDO on corrupt intention when considering CWB does not entail that SDO is negligible. Rather, it indicates that CWB might be more central in situations involving competition, but SDO might be a primary predictor of corruption in other scenarios without competition, such as bribing a police officer to avoid a fee, embezzling public money for one's own benefit, or employing members of the family on the public sphere, as indicated by Ferreira et al. (2012). It is also worth noting that individuals who are socially marginalized do not have many opportunities to embezzle public money or employ members of the family on the public sphere due to their high unemployment rate or constant precarious work conditions (International Labor Rights Forum, 2021). As those with lower social status tend to have lower SDO levels (Ho et al., 2015), SDO might be particularly predictive of these petty forms of bribery. In fact, the corruption scenario in our studies depicted a corporate context which some participants might not be familiarized with, so future studies should try to assess other specific forms of corruption (as recommended by Köbis & Huss, 2018), which we consider that might be at least partially accounted for by our model.

## Implications for the Dual Process Motivational Model of Ideology and Prejudice

Our results, especially in Study 5, also have significant implications for the Dual Process Motivational Model of Ideology and Prejudice (Duckitt, 2001). First, it is worth noting that the manipulation framing a dangerous scenario significantly increases not only DWB as predicted but also CWB, which was overlooked by previous studies that usually assess only DWB (e.g., Duckitt & Fisher, 2003) or only CWB (e.g., Radkiewicz, 2020). It remains unclear whether there is an experimental manipulation that does not have a dual influence on both DWB and CWB, which could be explored in future studies.

Despite the significant increase in CWB and DWB across threat conditions, SDO and RWA levels remained unchanged. Although we analyzed RWA from a unidimensional perspective, and Duckitt and Fisher (2003) split the items into "conservative attitudes" (e.g., "Obedience and respect for authority are the most important virtues children should learn") and "authoritarian attitudes" (e.g., "Our country will be destroyed someday if we do not smash the perversions eating away at our moral fiber and traditional beliefs"), DWB had a direct influence in both dimensions in their study. Future studies should thus assess the differential predictive effect of DWB on RWA considering its most recent multidimensional perspective, comprising "Authoritarianism," "Conservatism," and "Traditionalism" (Duckitt et al., 2010). Interested researchers could use our publicly available data to start examining this question, which was not critical for our present research.

Possible cross-cultural differences of the experimental manipulations should also be considered in future studies, especially when researching countries with high rates of violence. The experimental manipulation successfully increased DWB levels in our Brazilian sample, providing confidence of its effectiveness. However, considering that more than 50,000 homicides are committed per year in Brazil since 2008 (Instituto de Pesquisa Econômica Aplicada [IPEA], 2021), the magnitude of the increase might be different in comparison to relatively safer countries such as New Zealand where the Duckitt and Fisher (2003) study was originally conducted, which had only 1,125 homicides in the 2004-2019 period (Police National Headquarters, 2020). For instance, the description of the threat scenario proposed by Duckitt and Fisher (2003, p. 216) depicts a future New Zealand as a country where "muggings occur everywhere," "gangs of violent thugs, often armed with knives and sometimes with guns, seem to control large areas of cities," and "the police simply seems incapable of doing much." This future scenario could be a possibility in New Zealand, but this depicted dangerous situation has been taking place in Brazil for decades. So, although there was a significant increase in DWB levels, it remains unknown to what extent the experimental manipulations differentially affect the variables assessed cross-culturally.

#### **Implications for Public Policies and Political Agendas**

The following implications for public policies and political agendas are especially important for countries with endemic corruption such as Brazil, which are facing a significant backlash in the last years on the combat against corruption (Stott, 2019). For instance, the Lava Jato scandal in 2014 arguably unraveled the biggest corruption scheme in the history of Brazil (Netto, 2016), leading to the conviction of 174 people on corruption-related charges and recovering more than 26 billion Brazilian Reais (approximately 5 billion U.S. Dollars), but many convictions were quashed in 2021 under the administration of Jair Bolsonaro (The Economist, 2021). In such contexts, our results might be even more important and provide novel insights to curb corruption.

One important aspect to be considered for public policies and political agendas is that the endorsement of harsh coercive social control might not reduce corruption, as indicated by the lack of significant association between RWA and corrupt intention. Distinct politicians have actively endorsed harsher punishments for corruption as an allegedly feasible way of curbing it; however, the promotion of this political agenda might not effectively hinder corruption. Instead, fostering the endorsement of harsher social control might only increase the negative attitudes toward corrupt people, leaving corruption rates unaffected.

Alternatively, promoting ideological opposition to inequality might be more effective in reducing corruption. Indeed, our results stress the prominent association between inequality and corruption, suggesting that not only country-level inequality increases corruption, as indicated previously (e.g., Jong-sung & Khagram, 2005), but the individual-level ideological endorsement of inequality also increases corrupt intention. Therefore, active opposition to inequality might be an effective form of reducing corrupt intention both at the country- and individual-level, pointing out another important role of political agendas against inequality.

It might be challenging to explain that although left-wing parties tend to explicitly oppose inequality in their manifestos and vote against policies that increase it (Tarouco & Madeira, 2013), some of these left-wing parties have been at the center of corruption schemes, as is the case of the Labor Party (Partido dos Trabalhadores) in Brazil (Netto, 2016) or the Socialist United Party (Partido Socialista Unido de Venezuela) in Venezuela (Suano, 2019). This might be explained by studies showing that SDO levels tend to increase when dominant social positions or political power is achieved (Guimond et al., 2003; Liu et al., 2008). Consequently, when left-wing political parties are elected to power, the SDO levels of party members might increase and consequently their corrupt intention, as suggested by the significant paths in our studies. An alternative explanation is that left-wing political parties frequently create political alliances when elected, and such alliances are often with well-established corrupt groups of politicians and business leaders.

Despite the involvement of left-wing political parties in corruption scandals, it is worth noting that corruption in the public sector is more likely to prevail when right-wing parties are in power (Hessami, 2011). This corresponds to our results in two distinct ways. First, right-wingers tend to present higher SDO levels than left-wingers (Ho et al., 2015; Vilanova et al., in press), so the ideology endorsed by them tends to increase corruption levels. Second, right-wingers tend to endorse the "value" of economic competition more than left-wingers, proposing that the more competition there is in a country, the higher its economic development (for thorough literature on the topic see Rothbard, 1978; Von Mises, 1912). The support for the economic competition is likely associated with CWB, another key predictor of corruption across our studies. Hence, right-wingers tend to hold social attitudes and worldviews that significantly increase corrupt intention, suggesting mediational paths for the relationship between political categorization and corrupt intention.

## Limitations and Concluding Remarks

It is worth mentioning that most samples assessed follow the guidelines of inclusiveness promoted by the American Psychological Association, since participants are from a non-WEIRD (Western, Educated, Industrialized, Rich, and Democratic) context. Although our studies provide significant advances, some limitations should also be considered. First, fit indices of the models were mixed across studies, with CFI and TLI values ranging from .66 (Study 4) to .94 (Study 2) and  $\chi^2/df$  values ranging from 1.39 (Study 1) to 8.80 (Study 6). One explanation for this is that SDO and RWA were assessed as unidimensional constructs, and previous studies have shown that these constructs are better conceptualized as multidimensional' (Duckitt & Bizumic, 2013; Duckitt et al., 2010; Ho et al., 2015; Jost & Thompson, 2000; Vilanova et al., 2020). Notwithstanding this observation, most of the measures we used are established in the international literature (see Sections F and G of the Supplemental Materials for further psychometric evidence) and it is worth noting that the focus of our work was on the relations among latent variables rather than the measurement properties of the measures themselves. Hence, even though measurement is important and the fit indices of our models to the data were fairly mixed, the focal hypothesized relationships were mostly confirmed through

adequate statistical techniques based on previous power calculations. Notably, we assessed the same latent relationships through item parceling (Little et al., 2002) in Section C of the Supplemental Materials, and the associations were confirmed even using this different method of assessment that improves model fit.

Another limitation is that only items assessing the Authoritarianism dimension of RWA were used in Study 2, while the selected items used as an index of social-cultural right-wing attitudes (as a proxy for RWA) in Study 3 only covers content related to Conservatism/Submission to Authority. This was accounted for in Study 4 by using scales that tap all RWA dimensions, but many unanswered questions are still to be addressed, especially regarding specific limitations related to Study 3. First, even though the proxy items used in Study 3---"cheating on taxes if you have a chance" and "someone accepting bribes in the course of their duties" (Haerpfer et al., 2020)-arguably tap our broad definition of corruption as "the misuse of entrusted power for private gain" (Ko & Samajdar, 2010, p. 535), only the endorsement of its actions was assessed and not the intention to engage in these behaviors itself. This measure is not an ideal operationalization of corrupt intention, so researchers should aim to use measures focused on the direct question of how likely it is that participants would accept bribes. Second, it is worth noting that the meta-analysis suggested a cross-cultural variation on the associations between these variables, since the Q value was statistically significant. For instance, correlations between economichierarchical right-wing attitudes and corrupt intention varied from .00 (Myanmar) to .29 (Iraq) and the correlations between socialcultural right-wing attitudes and corrupt intention varied from .00 (China) to -.21 (Chile). Hence, future studies should aim to analyze the possible cross-cultural moderators of the relationships between economic-hierarchical right-wing attitudes, social-cultural rightwing attitudes, and corrupt intention in different contexts, including nation-level variables such as Corruption Perceptions Index (Transparency International, 2021b), Human Development Indices (United Nations Development Programme, 2021), or coding countries as part of the North or Global South (Dados & Connell, 2012).

Still regarding Study 3, it is worth noting that the results for the Brazilian context contradict our findings in the other studies. For instance, the correlation between economic-hierarchical right-wing attitudes (the proxy for SDO) and corrupt intention in Brazil was .03 (see Table 3), whereas the correlation between social-cultural rightwing attitudes (the proxy for RWA) and corrupt intention was more than five times higher (-.16). This indicates that the proxy for SDO in the Brazilian context, contradicting the consistent higher correlations between SDO and corrupt intention obtained in Studies 4–6. Nevertheless, the meta-analyzed correlation coefficients still point out a weak but statistically significant (p < .05) association between our proxy for SDO and corrupt intention. We thus believe that our results comprehensively indicate a significant relationship between SDO and corrupt intention.

In addition to the limitations in Study 3, we also identified other limitations such as an unexpected significant correlation between SDO and attitudes toward corrupt people (r = -.16) in Study 6,

<sup>&</sup>lt;sup>7</sup> It is also worth noting that the Cronbach's  $\alpha$  values of our measures should be carefully interpreted. As most of the scales used were composed of many items, their Cronbach's  $\alpha$  tend to be inflated even if the correlations between the items are low.

indicating that the more one endorses hierarchies in society, the more negative are the attitudes toward corrupt people. This result does not compromise our propositions about the differential predictive effect of SDO and RWA because RWA was still associated with attitudes toward corrupt people (r = -.30) with a marginally significant higher magnitude than SDO (Fisher's z = 1.94, p = .05), but this should still be addressed in future studies. Furthermore, future studies should address how each dimension of SDO and RWA relates to corrupt intention. As they were assessed as unidimensional constructs, the particular effect of each dimension might be distinct and overlooked, as indicated by previous studies (e.g., Duckitt & Bizumic, 2013; Kteily et al., 2015). For instance, the Authoritarianism dimension might be unrelated to corrupt intention, whereas the Traditionalism dimension might be negatively related to it due to the "anti-delinquency" potential of support to traditional moral values (i.e., Alencar, 2019; Oosterhoff et al., 2017). Again, interested researchers could use our publicly available data to start this investigation.

It should also be pointed out that the Brazilian sample of Study 6 was slightly different from the others; that is, mostly composed of men (89.1%) whose mean ages were lower (M = 28.51) than those in the previous studies. The mediational effects assessed in this study should be thus replicated with a more gender-balanced sample to verify if the associations hold. Moreover, we stress that the samples of Studies 1, 2, 4, and 5 are not representative of the Brazilian population in terms of educational level and socioeconomic class, which is probably a bias resulting from the data collection using Facebook—an issue that we further discuss in Section A of the Supplemental Materials.

Another important issue that should be considered is the reliance on the same vignette across our studies to assess corrupt intention. This is potentially problematic considering the recent recommendations to use dissimilar stimuli that are theoretically related to the same construct (Judd et al., 2012), so future studies should aim to use other vignettes such as the ones proposed by Ferreira et al. (2012). Furthermore, future studies could aim to develop an instrument assessing attitudes toward corrupt people to increase the reliability of its assessment. As these attitudes were assessed through a single observable indicator, a questionnaire comprising different items could increase its reliability and provide novel insights. In this regard, it is also worth noting that due to the lack of an instrument that assesses attitudes toward corrupt people through multiple items, there is a clear difference between the vagueness of the assessment of attitudes toward corrupt people and the precision of the assessment of corrupt intention. Notably, whereas corrupt intention was measured by indicating the concrete act of active bribery in a business context through five items, the assessment of attitudes toward corrupt people remained without further specification. Hence, it is possible that their differential associations might stem from these measurement distinctions-an issue to be addressed by future studies as well.

Despite the aforementioned limitations, we believe that our dual process model might account for petty (i.e., bribing a police officer to avoid a fee) and grand forms of corruption (i.e., leading a criminal organization to embezzle public money) and provides a starting point to further systematic investigations of the motivations underpinning corrupt intention and attitudes toward corrupt people. Furthermore, the independence between corrupt intention and attitudes toward corrupt people might hold even if the latter is assessed through multiple items. In fact, the key distinction that might take place in our model is the predictive role of SDO or CWB in predicting corrupt intention, which might largely depend on the competitiveness of the depicted situation. For instance, if the depicted situation involves competition over a contract (as the one we used in our studies), CWB might be the main predictor. On the other hand, if the depicted situation does not involve competition but rather an opportunity to obtain more money (e.g., embezzlement of public money), SDO might be the main predictor.

As a concluding remark, our results stress that the ideological defense of hierarchies and its underlying worldview is not negligible when seeking to reduce corruption. Although corruption is often linked to politicians and the political context in general, the role of ideology has been paradoxically overlooked by most studies on corruption. Hence, studies on the social psychology of corruption could be significantly improved by addressing the consequential role of ideological variables and their underlying worldviews. This might sparkle more feasible and effective public policies seeking to curb corruption.

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