

**Resisting Temptation for the Good of the Group:
Binding Moral Values and the Moralization of Self-Control**

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Abstract

When do people see self-control as a moral issue? We hypothesize that the group-focused “binding” moral values of Loyalty/betrayal, Authority/subversion, and Purity/degradation play a particularly important role in this moralization process. Nine studies provide support for this prediction. First, moralization of self-control goals (e.g., losing weight, saving money) is more strongly associated with endorsing binding moral values than with endorsing individualizing moral values (Care/harm, Fairness/cheating). Second, binding moral values mediate the effect of other group-focused predictors of self-control moralization, including conservatism, religiosity, and collectivism. Third, guiding participants to consider morality as centrally about binding moral values increases moralization of self-control more than guiding participants to consider morality as centrally about individualizing moral values. Fourth, we replicate our core finding that moralization of self-control is associated with binding moral values across studies differing in measures and design—whether we measure the relationship between moral and self-control language across time, the perceived moral relevance of self-control behaviors, or the moral condemnation of self-control failures. Taken together, our findings suggest that self-control moralization is primarily group-oriented and is sensitive to group-oriented cues.

Keywords: self-control moralization, moral foundations theory, binding foundations.

Resisting temptation for the good of the group:

Binding moral values and the moralization of self-control

Self-control has been dubbed “the moral muscle” for its positive impact on moral behavior; self-control is required if people are to behave well when faced with obstacles, and avoid behaving badly when presented with temptation (Baumeister & Exline, 1999; Gino, Schweitzer, Mead, & Ariely, 2011; Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009; Muraven, Pogarsky, & Shmueli, 2006). However, little is known about the *moralization* of self-control, which can be defined as the process by which self-control preferences are converted into values (Rozin, 1999). Once moralized, self-control becomes an issue of right and wrong, with self-control viewed as a morally significant trait and self-control failures morally condemned (e.g., Graham et al, 2011; Horberg, Oveis, Keltner, & Cohen, 2011; Rozin, 1999; Skitka, Hanson, & Wisneski, 2016; Stahl, Zaal, & Skitka, 2016).

While it is clear that people can view self-control goals as matters of moral rightness and wrongness rather than as personal preferences (e.g., considering vegetarianism an issue of right or wrong versus merely liking/disliking meat consumption; Rozin, Markwith, & Stoess, 1997), the literature has not yet examined the processes by which self-control moralization occurs. For example, are self-control goals moralized because of concern about the purity of the body and soul, to protect individuals from harm, or due to group-focused concerns such as group loyalty and submission to authority? In the present research we explore these questions, using Moral Foundations Theory (MFT; Graham et al., 2013) to investigate how different sets of moral values contribute to the moralization of self-control.

The questions addressed in this manuscript are of theoretical as well as practical consequence. First, we move research beyond the mere observation that self-control can be moralized (Rozin, 1999; Rozin et al., 1997) by uncovering the specific determinants of self-control moralization. Testing the determinants of self-control moralization facilitates the

connection of the literatures on morality and self-control. Linking these literatures has implications for when, why, and how people moralize self-control as well as when, why, and how people are morally condemned for failing to exert self-control. Second, prior research has demonstrated that self-control is associated with better outcomes in a wide array of important life domains (e.g., saving for retirement, successful weight-loss, Baumeister, Heatherton, & Tice, 1994; Hofmann, Baumeister, Forster, & Vohs, 2012; Vohs & Faber, 2007) and that moral values can be motivating contributors to achieving self-control success and avoiding self-control failure (Heinrich, Oser, & Lovat, 2013; Rozin, 1997). If moralizing self-control contributes to self-control, then uncovering the specific moral values and concerns that contribute to moralization of self-control can also enable a better understanding of the *moral* factors that contribute to self-control success.

Moral Foundations Theory

Moral Foundations Theory proposes that moral systems are built on multiple dimensions, including Care/harm, Fairness/cheating, Loyalty/betrayal, Authority/subversion, and Purity/degradation (Haidt & Joseph, 2004; Haidt & Graham, 2007; Graham et al., 2013). These moral dimensions were in part derived from Shweder's (1997) theory of moral discourse (e.g., autonomy, community, and divinity), Fiske's (1991) model of interpersonal relationships, and Schwartz and Bilsky's (1990) theory of values. Moral Foundations Theory postulates the individual as the locus of moral concern for some moral dimensions (Care/harm and Fairness/cheating), and the group as the locus of moral concern for other moral dimensions (Loyalty/betrayal, Authority/subversion, and Purity/degradation). While initially it might appear that both individual and group moral focus are equally as likely to be associated with the moralization of self-control, a closer look suggests otherwise.

The Care/harm and Fairness/cheating dimensions emphasize the value of the individual over the collective; values built upon these foundations protect individuals from

being harmed, oppressed, or treated unfairly by others (i.e., they protect individuals' rights and autonomy). Hence, these foundations are referred to as the *individualizing* moral foundations. However, moralization comes with strong proscriptive and prescriptive norms (Horberg, Oveis, Keltner, & Cohen, 2009; Janoff-Bulman & Carnes, 2013; Janoff-Bulman, Sheikh, & Hepp, 2009). The moralization of self-control thus emphasizes restricting individuals' autonomy (e.g., one should be self-controlled and one shouldn't lose self-control), therefore diametrically opposing one of the autonomy-protecting functions of the individualizing foundations (Haidt & Graham, 2007; see also Shweder et al., 1997; on the "ethic of autonomy"). The implication is that individualizing foundations are unlikely to be strong predictors of self-control moralization and indeed, that in some situations, valuation of individualizing moral foundations might entail less rather than more moralization of self-control.

In contrast to individualizing foundations, the Loyalty/betrayal, Authority/subversion, and Purity/degradation foundations emphasize the value of the collective over individuals. These *binding* foundations serve to unite and bind individuals into tightly-knit collectives by emphasizing loyalty to in-group members, obedience to group authorities and traditions, and the importance of group standards, rituals, and activities associated with purity and decency (Durkheim, 1973/1925; Graham, Haidt, & Nosek, 2009; Haidt, 2012; Haidt & Graham, 2009). Loyalty/betrayal and Authority/subversion concerns thus emphasize the virtues of subordinates (e.g., obedience and respect for authority) paired with virtues of authorities (such as leadership and protection; de Waal, 1982). Purity/degradation concerns serves more than just hygienic functions (Kelly, 2011; Rozin, Haidt, & McCauley, 2000); practices focused on purity bolster group cohesion (Soler, 1973/1979) and help suppress the selfishness often associated with humanity's carnal nature (e.g., lust, gluttony, greed) by cultivating a more puritanical and spiritual mindset. From a purity perspective, people's immediate desires and

impulses may be perceived as threatening the sanctity of the body and soul, which must be preserved by self-restraint and self-control.

Literature to date led us to two possible predictions with regard to the binding foundations. One possibility, based on the notion that the Purity/degradation foundation revolves especially around suppressing carnal desires and impulses, is that the Purity/degradation foundation has a central contributing role in the moralization of self-control. Indeed, self-control has been theorized as the capacity to inhibit immediate personal desires in the service of long-term goals and values (Baumeister, Vohs, & Tice, 2007). Converting self-control from a mere personal preference, which can change as preferences change, into a moral value, which is more absolute and less subject to change, indeed seems especially important when aiming to suppress people's physical, material, and sexual impulses. In the moment, a person might want the extra cake, the new shoes, or the extra-marital affair, but if self-control is moralized, gluttony, greed, and adultery are simply wrong and need to be inhibited.

A second possibility is that the Purity/degradation foundation plays a role in the moralization of self-control as part of the cluster of binding foundations. This is based on the notion that the Purity/degradation foundation is a binding foundation that tends to cluster with the Loyalty/betrayal and Authority/subversion foundations (Graham et al., 2011). Previous research has indeed demonstrated that the Purity/degradation, Loyalty/betrayal, and Authority/subversion foundations emphasize in-group loyalty, obedience to authorities, and shared rituals of purity and decency as a way to bolster "coalitional psychology" and group-strength (Graham et al., 2013; Graham & Haidt, 2010; Haidt, 2012; DeScioli & Kurzban, 2013). Suppressing impulses and desires is one important way in which groups can bolster such group-strength (e.g., self-restraint makes individuals within groups less prone to conflict and more able to comply with group-norms and rules; DeBono, Shmueli, & Muraven, 2011;

DeWall, Baumeister, Gailliot, & Manor, 2008; DeWall, Baumeister, & Vohs, 2008; Joosten, van Dijke, van Hiel, & DeCremer, 2014). This suggests that all three group-focused *binding* foundations may significantly contribute to the moralization of self-control, a possibility that we explore in the present research.

In sum, literature to date suggests three predictions about the relationship between moral concerns as operationalized in Moral Foundations Theory and moralization of self-control. Moralization of self-control should be weakly associated with individualizing moral concerns, and strongly associated with binding moral concerns generally or with one of the binding concerns (Purity/degradation) in particular.

Religiosity, Political Orientation, Group Identities, Collectivism

Our theorizing so far also has implications for the role of religion, political orientation, social identities, and collectivism. Indeed, while individualism focuses attention on individuals, with groups playing a secondary function of supporting individuals, collectivism and group identification focuses attention on groups, with individuals playing a secondary function of supporting groups (e.g. Ellemers, 2012; Morris & Chiu, 2015; Oyserman, 1993; 2017; Triandis & Gelfand, 1998). Similarly, while self-control can be useful in an individualistic context for the purpose of pursuing personal goals, self-control is a necessity in a collectivistic context, given that individuals must control themselves to fit in and do their share for the group (Oyserman, 2007). Just as collectivism and group identity is a group-focused (cultural) frame, religion and social conservatism can also be construed as group-focused cultural constructs, with religiosity and social conservatism binding individuals together into congregations (Graham & Haidt, 2010; Graham et al., 2011). Indeed, McCullough and Willoughby (2009) review evidence in support of the notion that religiosity increases achievement of self-control goals through the sanctification of such goals, which they define as the process by which goals are attributed to a sacred source (e.g., Emmons,

1999). Our theorizing connects with this previous research while proposing that an increased emphasis on binding morality explains why religious individuals moralize self-control goals in the first place.

Thus, theorizing to date suggests that religiosity, social conservatism, group identities, and cultural collectivism are positively related to the moralization of self-control by virtue of religious, conservative, and collectivistic individuals' endorsement of binding moral foundations. Religious, conservative, and collectivistic individuals may experience self-control as necessary for belonging to moral communities. This formulation of moralization of self-control via concern for group membership is consistent with emphasis on self-control behaviors such as celibacy, monogamy, and daily prayers among conservative and religious groups (McCullough & Carter, 2011; 2013). It is also consistent with collectivistic emphasis on regulating the self to fit in and get along (e.g., Oyserman, 2007; Triandis & Gelfand, 1998). Our theorizing builds on this previous research by proposing that to understand why religious, collectivistic, and conservative individuals moralize self-control goals in the first place, it is necessary to focus on binding morality. We predict that situations that increase emphasis on binding morality are situations in which religious, collectivistic, and conservative individuals moralize self-control. Hence, the literature on group identities, religiosity, social conservatism, and cultural collectivism modifies our three predictions by implying that binding moral foundations generally or purity/degradation concerns in particular will be the proximal mediators of the effects of religiosity, political conservatism and cultural collectivism on moralization of self-control.

Overview of Studies

We tested our predictions using three methodologies (Google Ngram word association analyses, and correlational and experimental methods with human participants) and three participant pools (Mechanical Turk participants, yourmorals.org volunteers, college students).

We proceeded in four steps. First, we investigated the general relationship between moral language and self-control language in historical texts (Study 1) and people's natural perceptions (Study 2). Second, we investigated the perceived moral relevance of self-control and the moral condemnation of self-control failures (Studies 3, 4, 5, 6, and 7) in a variety of behavioral domains (e.g., money, exercise, food). Third, we examined the mediating role of moral foundations for religiosity, political ideology (Study 4), collectivism and social identification (Study 5). Fourth, we examined an alternative explanation of the association of moral foundations and moralization of self-control—namely, that effects were due to self-interest (Study 6). Finally, we tested the causal role of the binding foundations by activating a cognitive focus on binding vs. individualizing foundations (Studies 7, 8, and 9). The current manuscript thus operationalizes self-control moralization as the perceived moral significance of self-control as a trait and behavior, and the moral condemnation of self-control failures. This approach is consistent with most research on moralization in the social psychological literature (e.g., Graham et al, 2011; Horberg et al., 2011; Rozin, 1999; Skitka et al., 2016; Stahl et al., 2016). In each study we report how we determined our sample size, any data exclusions, all manipulations, and all measures. We obtained approval from the Institutional Review Board of the University of Southern California under code UP-12-00475 entitled Preferences and Decisions.

STUDY 1

In Study 1, we capitalized on a rich and novel source of data that captures societal values and social change: Google Ngram (Greenfield, 2013; Iliev, Hoover, Dehghani, & Axelrod, 2016; Kesebir & Kesebir, 2012). Using Google Ngram, we investigated the general relationship between self-control language and moral language in the digitized corpus of English language books published between the year 1800 and 2000. Specifically we tested (a) whether there is a relationship between self-control language and moral language in the first

place (e.g., it is possible that people do not associate self-control with morality at all) and (b) the associations between the usage of moral words indicative of specific moral foundations and self-control words.

Method

Procedure

We used the online search engine Google Ngram Viewer to analyze the associations between moral foundation words (i.e., a dictionary of words intended to assess the five moral foundations) and self-control words in Google's depository of printed sources. Google Ngram Viewer charts frequencies of any words used in up to 5 million printed sources such as books. Google Ngram provides data on how often a word was used each year, by dividing the number of times the word was used by the total number of other words used that year (Greenfield, 2013; Kesebir & Kesebir, 2012).

We first created six variables designed to assess how frequently words indicative of self-control and the five moral foundations were used each year. Following the recommendations of previous research, we only assessed word counts in years 1800-2000, due to Ngram's limits outside this timeframe (Greenfield, 2013). We focused on words taken from the Moral Foundations Dictionary (see www.moralfoundations.org for the full dictionary, and see Graham et al., 2011; Dehghani, et al., 2016 for its application). Each foundation was measured using a list of four virtue words (e.g., kindness, fairness, loyal, obey, sacred) and four vice words (e.g., suffer, cheat, betray, subversion, unnatural; see Appendix A for the full list). Words from the Care and the Fairness foundations were combined to create an individualizing dictionary, and words from the Loyalty, Authority, and Purity foundations were combined to create a binding dictionary. Finally, to measure self-control concerns, we created a dictionary consisting of five terms—self-control, self-controlled, discipline, disciplined, and willpower.

Results and Discussion

We regressed self-control simultaneously on the five moral foundations using Cochrane-Orcutt's estimation method (Cochrane & Orcutt, 1949; Durbin, 1959), which adjusts linear models for serially correlated error terms through remodeling the residual terms. This allowed us to control for shifts in the use of moral language through time (i.e., correlated error terms) and for overlapping variance between the five moral foundations. This analysis indicated¹ that self-control word usage was positively associated with Authority/subversion ($\beta = .62, t[200] = 7.45, p < .001$), Purity/degradation ($\beta = .33, t[200] = 2.39, p = .018$), and Fairness/reciprocity ($\beta = .19, t[200] = 3.02, p = .003$). Loyalty/betrayal was not significantly associated with self-control word usage ($\beta = .00, t[200] = .04, p = .97$) and Care/harm was associated with less self-control word usage ($\beta = -.32, t[200] = -2.38, p = .018$). Thus, three of the five foundations showed a positive association with self-control. Given our predictions that, as a whole, the individualizing foundations would show a weaker relationship with self-control than the binding foundations, we conducted the same analysis regressing self-control on the binding dictionary (i.e., Purity/degradation, Authority/subversion, and Loyalty/betrayal words combined) and the individualizing dictionary (i.e., Care/harm and Fairness/reciprocity words combined). These analyses yielded a main effect for binding words ($\beta = .61, t[200] = 7.09, p < .001$) and no significant effect for individualizing words ($\beta = .00, t[200] = .02, p = .99$).

Study 1 indicated that self-control words in historical texts were related to moral language and most strongly associated with words related to two of the three binding foundations: Authority/subversion and Purity/degradation. Two opposing patterns were found for the individualizing foundations; a positive association with Fairness/reciprocity and a negative association with Care/harm. When words related to the binding or individualizing foundations were combined into two separate scales, binding but not individualizing

foundations was significantly associated with self-control word usage. These findings thus suggest that discussion of self-control is associated with some if not all elements of moral foundations and lends support to our prediction that binding foundations are most likely to be associates of self-control moralization.

STUDY 2

In Study 2, we directly measured the extent to which people considered self-control as morally relevant. We correlated these judgments with people's adherence to the five moral foundations. This allowed us to test how people's adherence to the moral foundations related to their tendency to moralize self-control.

Method

Participants

A total of 1,380 participants (879 men; $M_{age} = 35.13$ years, $SD_{age} = 14.79$) were recruited from yourmorals.org, a website where volunteers can complete personality measures typically related to moral constructs (see Graham et al., 2011). We did not have a pre-determined sample size; instead, we aimed to collect a sample size as large as possible.

Moral Foundations Questionnaire. Participants first read, "When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking?" The MFQ is a 30-item questionnaire designed to assess five types of moral concerns outlined by Moral Foundations Theory. Past research supports the MFQ's validity and reliability (Graham et al., 2011). In the current study, Cronbach's alphas were 0.76 (Care), 0.83 (Fairness), 0.89 (Loyalty), 0.90 (Authority), and 0.79 (Purity).

Self-control moralization. Participants indicated the degree to which they considered "self-control and self-restraint" morally relevant on a seven-point scale, ranging from 0 (*not morally relevant at all*) to 6 (*extremely morally relevant*; $M = 4.99$, $SD = 1.82$).

Results and Discussion

Results supported our predictions. First, participants indeed moralized self-control at least somewhat, with the mean response significantly greater than the 0-point of the response scale ($M = 4.99$, $SD = 1.82$, $t(1381) = 101.92$, $p < .001$, $d = 5.49$). Second, the binding concerns, Purity/degradation ($r = .39$, $p < .001$), Loyalty/betrayal ($r = .29$, $p < .001$), and Authority/subversion ($r = .37$, $p < .001$) each correlated positively with self-control moralization. However, Care/harm ($r = .03$, $p = .36$) and Fairness/cheating ($r = .01$, $p = .98$) did not. Since the five foundations are correlated, we conducted a multiple regression analysis regressing self-control simultaneously on the five moral foundations, which allowed us to examine net effects of endorsing each foundation. This analysis showed that self-control moralization was positively associated with Purity/degradation ($\beta = .26$, $t[1380] = 7.79$, $p < .001$, $r_{sp} = .21$), Authority/subversion ($\beta = .19$, $t[1380] = 4.86$, $p < .001$, $r_{sp} = .13$), and Loyalty/betrayal ($\beta = .05$, $t[1380] = 1.77$, $p = .08$, $r_{sp} = .05$), but not with Fairness/reciprocity ($\beta = .02$, $t[1380] = 0.66$, $p = .51$, $r_{sp} = .02$) or Care/harm ($\beta = -.03$, $t[1380] = -1.14$, $p = .25$, $r_{sp} = .03$). Given that our prediction focused on individualizing and binding foundations more generally, we then regressed self-control moralization on the binding foundations combined into one scale ($\alpha = .81$) and the individualizing foundations combined into one scale ($\alpha = .72$). Self-control moralization was significantly predicted by the binding foundations ($\beta = .40$, $t[276] = 16.34$, $p < .001$, $r_{sp} = .40$) but not by the individualizing foundations ($\beta = .01$, $t[276] = 0.55$, $p = .58$, $r_{sp} = .02$).

Study 2 supports our prediction that binding foundations are more strongly associated with the moralization of self-control than individualizing foundations. Specifically, Study 2 provides evidence for the notion that the effects of the binding foundations are not solely driven by the Purity/degradation foundation but by all three binding foundations.

STUDY 3

In Study 3, we assessed the extent to which people associated self-control words with words indicative of the binding foundations and individualizing foundations. If the moralization of self-control indeed occurs primarily through the binding foundations, then people should associate self-control more strongly with binding foundation words (e.g., authority, loyalty, purity) than individualizing foundation words (e.g., care, fairness, justice).

Method

Participants

In exchange for \$0.50, 152 participants (84 women; $M_{\text{age}} = 32.48$ years, $SD_{\text{age}} = 9.82$ years) were recruited from the Mechanical Turk website (see Buhrmester, Kwang, & Gosling, 2011, and Hauser & Schwarz, 2015 for a discussion of Mechanical Turk as a research tool). Our sample size was determined by an a-priori power analysis that we conducted using G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007). Based on a small to medium effect size ($d \approx .30$), this power analysis indicated that we needed at least 90 participants to achieve 80% power. To make sure that we ran a sufficiently powered study, we opted to run 150 participants.

Procedure

Participants were informed that they would see a number of word pairs (e.g., "toy" and "overeat") and that, for each word pair, they would indicate which word they thought was more strongly associated with self-control. Participants were informed that if they were presented with, for instance, the words "toy" and "overeat" they would likely choose the word "overeat," because they more strongly associate self-control with the word "overeat" than with the word "toy". Participants were presented with eighty word pairs, contrasting a single binding word (e.g., fidelity, respect, authority) with a single individualizing word (e.g., rights, compassion, kindness; see Appendix B for the full list of word-pair contrasts). These words were taken from the Moral Foundations Dictionary. Each binding word was presented once

with each individualizing word. Both the position of the words (i.e., top or bottom) and the order in which word pairs were presented to participants were randomized. For each word pair, participants indicated which word they associated more strongly with the word *self-control*. Participants' choices for individualizing words were coded as 0, whereas choices for binding words were coded as 1. If there was no association between self-control and binding or individualizing words, then participants' choices should approximate a value of 0.50. Values significantly above or below 0.50 thus indicate the relative associative strength of self-control with binding versus individualizing words.

Results and Discussion

Results demonstrated that participants associated binding words, compared to individualizing words, more strongly with self-control ($M = 0.63$, $SD = 0.22$; $t(151) = 7.01$, $p < .001$, $d = 1.14$). Additionally, words for each separate binding foundation (Loyalty/betrayal, Authority/subversion, and Purity/degradation) were more strongly associated with self-control than words for each separate individualizing foundation (Care/harm and Fairness/cheating; see Table 1). Observed effect sizes were largest for the contrasts between the individualizing foundations and Loyalty/betrayal and Authority/subversion foundations, contrary to the prediction that Purity/degradation would be most strongly associated with self-control moralization.

Taken together, Studies 1 to 3 support the prediction that binding foundations are more strongly associated with the moralization of self-control than individualizing foundations and fail to provide consistent support for the prediction of a weak positive relationship with individualizing foundations or for the prediction that Purity/degradation is the only binding foundation that predicts self-control moralization. In Studies 4 to 9 we test the robustness of these findings, first asking if binding foundations mediate the relationship between collectivism, religiosity, conservatism, and self-control moralization, and then testing

the causal role of binding vs. individualizing foundations in evoking moralization of self-control.

STUDY 4

Our theorizing implies that religiosity, political conservatism, and cultural collectivism are positively related to the moralization of self-control via religious, conservative, and collectivistic individuals' endorsement of binding moral foundations. Consequently, in Study 4, we tested whether the binding moral foundations will be proximal mediators of the effects of *religiosity* and *political conservatism* on the moralization of self-control. We also extended breadth of operationalization of self-control moralization by measuring moralization of self-control *behaviors* in six domains: money (e.g., overspending), work (e.g., procrastinating), food (e.g., overeating), substances (e.g., drug use), exercise (e.g., laziness), and relationships (e.g., losing patience with others) validated in prior research (Tsukayama, Duckworth, & Kim, 2012). We predicted that the binding foundations would be associated with the moralization of self-control behaviors in each of these six domains.

Method

Participants

In exchange for \$0.50, 313 participants (194 women; $M_{\text{age}} = 32.99$ years, $SD = 11.36$) were recruited from Amazon's Mechanical Turk website. We determined sample size with an a-priori power analysis using G*Power 3 (Faul et al., 2007). Based on a small to medium effect size ($r \approx .30$), power analysis indicated that we needed at least 190 participants to achieve 80% power. To make sure that we ran a sufficiently powered study, we opted to run 300 participants.

Procedure

Moral Foundations Questionnaire. Participants filled out the MFQ (alphas: 0.76 Care, 0.83 Fairness, 0.89 Loyalty, 0.90 Authority, and 0.79 Purity).

Self-control moralization. Participants read the following directions:

People often differ from one another in whether they attach moral significance to various activities. We would like to know which of the following activities you regard as being morally relevant. We do not want you to tell us whether you think the activities are moral or immoral, we want you to tell us whether they are relevant to morality at all.

Participants then completed forty-eight items taken from the Domain-Specific Impulsivity scale (Tsukayama et al., 2012) and rated how morally relevant each item was (0 = *not morally relevant at all*, 6 = *extreme morally relevant*; $M = 2.69$, $SD = 0.73$; $\alpha = .95$). We included all items from the Domain-Specific Impulsivity scale, except four items that asked about illegal activity because illegal activity is generally considered immoral (e.g., committing crimes). Sample items included, “doing work at the last minute”, “losing my temper”, “getting high on drugs”, “snacking on junk food”, “avoiding physical exercise”, and “buying things on impulse”. For each item, participants indicated the extent to which they considered each of the following general domains of self-control behaviors to be morally relevant: spending money ($M = 2.38$, $SD = 1.05$; $\alpha = .90$), using addictive substances ($M = 2.78$, $SD = 1.13$; $\alpha = .92$), consuming food ($M = 1.76$, $SD = 0.78$; $\alpha = .91$), exercising versus remaining sedentary ($M = 2.22$, $SD = 0.99$; $\alpha = .86$), and acting appropriately in relationships ($M = 3.86$, $SD = 0.77$; $\alpha = .85$) and at work ($M = 2.59$, $SD = 0.04$; $\alpha = .94$).

Religiosity. Following DeWall and colleagues (2014) we assessed religiosity with two questions “How often do you attend religious services?” (1 = *several times a week*, to 9 = *never*, reverse-coded) and “How important is religion in your life?” (1 = *not at all important*, to 9 = *extremely important*). The two items were correlated ($r = .78$, $p < .001$), and formed a two-item religiosity scale ($M = 3.18$, $SD = 2.22$).

Political ideology. Following Graham and colleagues (2011) and Mooijman and Stern (2016) we assessed political ideology with the question: “When it comes to politics, do you usually think of yourself as liberal, moderate, conservative, or something else?”. Response

options ranged from 1 (*Very Liberal*) to (7) (*Very Conservative*), 8 (*Don't Know*), 9 (*Libertarian*), and 10 (*Other*). Don't Know, Libertarian, and Other responses (total $n = 8$) were excluded from analysis, yielding a mean score at the midpoint between very liberal and very conservative ($M = 4.02, SD = 2.29$). Religiosity and political conservatism were positively correlated ($r = .36, p < .001$).

Results and Discussion

Purity/degradation ($r = .36, p < .001$), Loyalty/betrayal ($r = .36, p < .001$), and Authority/subversion ($r = .33, p < .001$) correlated positively with the moralization of self-control behaviors, whereas Care/harm ($r = .09, p = .10$) and Fairness/cheating ($r = .05, p = .42$) did not. This effect held for every self-control behavioral domain except for the relationship domain, as detailed in the Supplemental Materials, (Care/harm and Fairness/cheating were correlated with moralization of self control in relationships). To control for overlapping variance, we regressed the moralization of self-control behaviors on all five foundations simultaneously. Self-control moralization was significantly predicted by Loyalty ($\beta = .20, t[313] = 2.74, p = .007, r_{sp} = .15$), and Purity ($\beta = .20, t[313] = 2.54, p = .012, r_{sp} = .14$). Authority ($\beta = .04, t[313] = 0.46, p = .65, r_{sp} = .03$), Care ($\beta = .07, t[313] = 1.09, p = .28, r_{sp} = .02$), and Fairness ($\beta = -.01, t[313] = -.17, p = .86, r_{sp} = -.01$) were not independent predictors². We then regressed self-control moralization on the three binding foundations combined in one scale ($\alpha = .83$) and the two individualizing foundations combined in one scale ($\alpha = .74$): Self-control moralization was significantly predicted by the binding scale ($\beta = .39, t[313] = 7.42, p < .001, r_{sp} = .39$) but not by the individualizing scale ($\beta = .06, t[276] = 1.15, p = .25, r_{sp} = .07$), even after controlling for age, gender, political ideology, and religiosity (binding: $\beta = .35, t[313] = 5.16, p < .001, r_{sp} = .29$; individualizing: $\beta = .06, t[313] = 0.98, p = .33, r_{sp} = .06$).

Religiosity predicts self-control moralization through endorsement of the binding foundations. Religiosity and political orientation did not account for the relationship between the binding foundation and self-control moralization. However, we did find a relationship between these constructs and moralization of self-control when we looked at simple correlations (religiosity, $r = .25$, $p < .001$; political conservatism, $r = .10$, $p = .065$). When we regressed self-control moralization on religiosity and political conservatism simultaneously, only religiosity ($\beta = .24$, $t[313] = 4.14$, $p < .001$, $r_{sp} = .24$) but not political conservatism ($\beta = .03$, $t[313] = 0.46$, $p = .64$, $r_{sp} = .03$) emerged as a significant predictor.

We then tested the degree to which the binding foundations or individualizing foundations mediated the relationship between religiosity and self-control moralization. A bootstrapping analysis using Model 4 in PROCESS with 5,000 resamples demonstrated the mediating effect of the binding foundations scale ($b = 0.07$, $SE = 0.02$, 95% CI [0.04, 0.10]) but not the individualizing foundations scale ($b = 0.00$, $SE = 0.01$, 95% CI [-0.01, 0.01]). Similar results were obtained with the binding scale mediating the relationship between conservatism and self-control moralization (binding foundations: $b = 0.02$, $SE = 0.01$, 95% CI [0.01, 0.04]; individualizing foundations: $b = -0.01$, $SE = 0.01$, 95% CI [0.01, 0.04]).

Results of Study 4 indicated that the binding foundations predicted moralization of self-control behaviors in a variety of self-control domains, even when controlling for age, gender, religiosity, and conservatism. In addition, although we cannot draw causal inferences from these analyses, religiosity and conservatism were positively related to the moralization of self-control by virtue of religious and conservative individuals' endorsement of binding moral foundations. These findings are consistent with our theorizing and with the notion that the binding foundations, similar to religiosity and conservatism, are focused on group moral values.

STUDY 5

In Study 5, we aimed to replicate and expand the findings from Study 4, shifting from investigating the role of religiosity and conservatism, to the role of collectivism and group identification in the moralization process. Indeed, because of the possible overlap between binding moral concerns and collectivism and group identification, we aimed to control for collectivism and group identification while also exploring possible relationships between these two related constructs and moralization. If self-control moralization occurs primarily to bind individuals together in collectives, then endorsement of collectivistic values and the tendency to identify oneself as a group member should increase moralization. In addition, the binding foundations could be the proximal mediators of the effects of cultural collectivism and group identification on the moralization of self-control.

Method

Participants

A total of 1,486 participants (989 men; $M_{\text{age}} = 34.17$ years, $SD = 13.41$) were recruited from yourmorals.org. We did not have a pre-determined number of participants; instead, we aimed to collect a sample size as large as possible.

Procedure

Moral Foundations. Participants completed the MFQ (alphas: 0.72 Care, 0.85 Fairness, 0.63 Loyalty, 0.81 Authority, and 0.75 Purity).

Self-control moralization. Participants completed the same self-control moralization scale as in Study 4 (Overall: $M = 3.13$, $SD = 1.09$, $\alpha = .97$; Money: $M = 2.95$, $SD = 1.52$, $\alpha = .97$; Substances: $M = 2.78$, $SD = 1.53$, $\alpha = .92$; Food: $M = 1.95$, $SD = 1.08$, $\alpha = .91$; Exercise: $M = 2.56$, $SD = 1.50$, $\alpha = .86$; Relationships: $M = 4.66$, $SD = 1.13$, $\alpha = 0.85$; Work: $M = 3.21$, $SD = 1.42$, $\alpha = .94$).

Group identification. A subset of participants ($N = 694$) completed adapted versions of the 7-item group-identification scale (e.g., “I tend to identify with groups”; Ellemers,

Kortekaas, & Ouwerkerk, 1999) and the 7-item Gomez and colleagues (2011) identity-fusion scale (sample item: “I tend to feel immersed with groups”). These two scales were combined; response options ranged from 1 = *completely disagree* to 7 = *completely agree* ($M = 3.61$, $SD = 1.23$; $\alpha = .87$).

Collectivism and Individualism. A subset of participants ($N = 662$) completed Singelis, Triandis, Bhawuk, and Gelfand’s (1995) 16-item measure of collectivism ($M = 3.50$, $SD = 0.77$; $\alpha = 0.82$) and individualism ($M = 4.08$, $SD = 0.57$; $\alpha = 0.71$). Collectivism and individualism are correlated negatively ($r = -.26$, $p < .001$). Sample items included, “To me, pleasure is spending time with others” and “My personal identity, independent of others, is very important to me”. Response options ranged from 1 = *completely disagree* to 7 = *completely agree*.

Results

Purity/degradation ($r = .36$, $p < .001$), Loyalty/betrayal ($r = .33$, $p < .001$), Authority/subversion ($r = .33$, $p < .001$), and Care/harm ($r = .11$, $p < .001$) correlated positively with the moralization of self-control behaviors, whereas Fairness/cheating ($r = .03$, $p = .20$) did not. The effect of the binding foundations on self-control moralization held for each of the self-control domains (see Supplemental Materials). Consequently, we regressed self-control moralization simultaneously on the binding foundations combined in one binding scale ($\alpha = .91$) and the individualizing foundations combined in one individualizing scale ($\alpha = .77$). Self-control moralization was significantly predicted by the binding scale ($\beta = .49$, $t[1486] = 21.79$, $p < .001$, $r_{sp} = .49$). It was also predicted, but to a lesser extent, by the individualizing scale ($\beta = .12$, $t[1486] = 5.14$, $p < .001$, $r_{sp} = .13$). The difference in slopes between the binding and individualizing foundations was in itself statistically significant ($p < .001$). This effect held even after controlling for age, gender, group identification, collectivism, and individualism³ (binding: $\beta = .41$, $t[491] = 8.79$, $p < .001$, $r_{sp} = .37$;

individualizing: $\beta = .13$, $t[491] = 2.95$, $p < .001$, $r_{sp} = .13$). Follow up analyses demonstrated that the individualizing scale primarily correlated with the moralization of self-control in the domains of relationships and money (see Supplemental Materials).

Collectivism predicts self-control moralization through the binding foundations.

Collectivism, individualism, and group identification did not account for the relationship between the binding foundation and self-control moralization. However, we did find a relationship between collectivism and group identification (but not individualism) and moralization of self-control when we looked at simple correlations (collectivism, $r = .42$, $p < .001$; individualism, $r = -.02$, $p = .69$; group identification, $r = .27$, $p < .001$). When we regressed self-control moralization on group identification and collectivism simultaneously, self-control moralization was significantly predict by collectivism ($\beta = .34$, $t[516] = 6.99$, $p < .001$, $r_{sp} = .30$) and by group identification ($\beta = .10$, $t[516] = 2.05$, $p = .041$, $r_{sp} = .09$). A bootstrapping analysis using Model 4 in PROCESS with 5,000 resamples demonstrated the mediating effect of the binding foundations scale ($b = 0.21$, $SE = 0.04$, 95% CI [0.14, 0.30]) and to a lesser degree the individualizing foundations scale ($b = 0.06$, $SE = 0.03$, 95% CI [0.01, 0.11]). Similar results were obtained with the binding scale mediating the relationship between group identification and self-control moralization (binding foundations: $b = 0.02$, $SE = 0.01$, 95% CI [0.03, 0.11]; individualizing foundations: $b = -0.01$, $SE = 0.01$, 95% CI [-0.02, 0.01]).

Study 5 provides additional support for our theorizing. Indeed, collectivism and group identification can be conceptualized as controlling the self to fit into the group (e.g., Ellemers, 2012; Oyserman, 2017). Since the binding foundations also focus on group concerns, we find that cultural collectivism is associated with self-control moralization primarily by virtue of collectivistic individuals' endorsement of binding moral foundations. No effect was found for

the individualism scale, fitting our finding that group-oriented moral foundations are associated with moralization of self-control.

STUDY 6

In Study 6, we tested the replicability of the binding foundation to moralization of self-control link, this time while controlling for self-interest (i.e., the degree to which people consider self-control failures bad for themselves). We also diversified our measurement of self-control moralization by measuring the extent to which participants considered self-control failures such as overeating and overspending *immoral*. If the effect of the binding foundations on self-control moralization is due to the motivation to bind individuals together, then the binding foundations should predict the moral condemnation of self-control failures even when adjusting for the degree to which participants consider self-control to be in their self-interest.

Method

Participants and design

A total of 104 undergraduate students (76 women; $M_{\text{age}} = 20.34$ years, $SD = 2.47$) participated for course credit. We did not have a pre-determined number of participants; instead, we aimed to collect a sample size as large as possible within the allotted time frame of 2 weeks.

Procedure

Moral foundations. Participants completed the MFQ (alphas: 0.67 Care, 0.69 Fairness, 0.57 Loyalty, 0.72 Authority, 0.66 Purity, 0.82 binding foundations scale, 0.72, individualizing foundations scale).

Self-control moralization. Participants read 12 items and indicated on a six-point scale (0 = *not at all morally wrong*, to 6 = *extremely morally wrong*) the extent they considered failing to exercise self-control as immoral ($M = 2.49$, $SD = 0.85$; $\alpha = .79$). Each of

the six domains (money, substances, food, exercise, relationships, and work) was measured with two items. Sample items included, “doing work at the last minute”, “losing my temper”, “getting high on drugs”, “snacking on junk food”, “avoiding physical exercise”, and “buying things on impulse”.

Self-control self-interest. Participants read the following directions:

We would like to know about the degree to which you think each of the following activities would have a negative impact on you or your life if you performed them. Please choose the most appropriate option between "*No negative impact on me at all*" to "*Extremely negative impact on me.*" For instance, if you got fired from a job, this would have a negative impact on your life, so you would probably choose "Extremely negative impact on me." If you did volunteer work for a charity, this would not likely have a negative impact on your life, so you would probably choose "No negative impact on me at all".

Participants read the same 12 items used in the moralization scale and indicated on a six-point scale (0 = *No negative impact on me at all*, to 6 = *extremely negatively impact on me*) the extent they considered failing to exert self-control would impact them negatively ($M = 3.89$, $SD = 0.80$, $\alpha = .86$).

Results and Discussion

The binding foundations positively correlated with moralization of self-control: Loyalty/betrayal ($r = .33$, $p = .001$), Authority/subversion ($r = .28$, $p = .004$), and Purity/degradation ($r = .25$, $p = .014$). The individualizing foundations did not: Care/harm ($r = -.03$, $p = .78$) and Fairness/cheating ($r = -.05$, $p = .65$). We then regressed self-control moralization simultaneously on the binding ($\beta = .35$, $t[100] = 3.59$, $p = .001$, $r_{sp} = .34$), individualizing ($\beta = -.25$, $t[100] = -2.51$, $p = .013$, $r_{sp} = .23$), and self-interest ($\beta = .17$, $t[100] = 1.72$, $p = .089$, $r_{sp} = .16$) scale scores.

These results show that when considered together, higher endorsement of binding foundations and lower endorsement of individualizing foundations are associated with self-control moralization, while self-interest does not add to the prediction of self-control moralization above and beyond moral foundations. Taken together, Study 6 results are

consistent with the results of Studies 1 to 5 in that binding morality is particularly important to the moralization of self-control. Effects for the individualizing foundations are more heterogeneous, sometimes suggesting null effects, other times weak positive effects, but in Study 5 suggesting negative effects.

OVERVIEW OF STUDIES 7, 8, AND 9

Studies 1 to 6 demonstrated both semantic and conceptual associations between moral foundations and self-control moralization. Specifically, words relevant to binding foundations are associated with words relevant to self-control and endorsement of binding foundations is associated with endorsement of the moralization of self-control. However, because Studies 1 to 6 are correlational, they cannot address the question of whether using a binding morality lens to interpret experiences *increases* the moralization of self-control. In Studies 7, 8 and 9 we address this gap. We use methods developed within cultural psychology to study effects of momentarily accessible cultural mindsets on what people think about and how they think (Oyserman, 2016). In doing so, we draw on a broad situated social cognition literature which has documented that accessible information influences judgment (Higgins, 1989, 1996; Oyserman & Lee, 2008; Schwarz & Strack, 2016). That is, unless they have reason to exclude it, people tend to include accessible knowledge in their judgments; they are sensitive to what comes to mind but not sensitive to the specific source of this accessible information (Strack & Schwarz, 2016). Hence, information and feelings may carry over to inform judgment on subsequent tasks—even if the information or feelings on one’s mind are not relevant to the task at hand. For example, contextual cues about religion carry over to subsequent tasks, increasing pro-social behavior in some circumstances (Willard, Shariff, & Norenzayan, 2016).

To test the causal effect of moral foundations on moralization of self-control, in Studies 7 and 8 we randomized participants into three groups (control, binding foundation, and individualizing foundation) and in Study 9 we randomized participants into two groups

(binding foundation, individualizing foundation). We adapted cultural mindset priming methods—in Studies 7 and 8 a story about a Sumerian warrior (Oyserman & Lee, 2008; Trafimow, Triandis, & Goto, 1991) and in Study 9 self-generated responses to a persuasive essay stem (Oyserman & Lee, 2008; Trafimow et al., 1991). In our adaptation of the Sumerian warrior story, an ancient warrior was described with either no moral foundation content (control), or described with binding foundation virtues (e.g., loyalty, patriotism, purity), or described with participants individualizing foundation virtues (e.g., just, fair, compassionate). In our adaptation of the self-generated responses to a persuasive stem, participants commented on a persuasive framing of morality as focused on individuals or on groups. We predicted that participants in the binding foundation condition would be more likely to condemn self-control failures than participants in the individualizing condition and control conditions.

STUDY 7

Participants and design

A total of 384 Mturk participants (203 men; $M_{\text{age}} = 35.19$ years, $SD = 11.68$) were randomly assigned to a binding foundations, individualizing foundations, or control condition. Due to the subtle differences between the experimental conditions, it was crucial that participants paid attention. This experiment therefore also included an attention check. Specifically, an additional 39 participants took part of the experiment but failed the attention check and were therefore excluded. In determining our sample size, we complied with the recommendations of Simmons et al., (2011, 2013) to run at least 40-50 participants in every experimental condition. Specifically, we decided to run about 400 participants (100 participants in each experimental cell) to make sure that we ran a well-powered experimental study that minimized the risk of Type II errors.

Procedure

Binding versus individualizing prime. We adapted the commonly used Sumerian warrior prime manipulation from the literature on culture priming (Oyserman & Lee, 2008) to prime either binding morality or individualizing morality. Specifically, we used the words from the MFQ dictionary to either make salient the binding foundations or the individualizing foundations.

Participant in the binding [individualizing] morality condition read:

Sostoras was a great cultural hero of ancient Sumer. Sostoras was a decorated warrior, but more than anything, his fame derived from his reputation as a man of exceptional character. Throughout his life, Sostoras showed unwavering *loyalty* and *patriotism* [*concern for the well-being of others*], as well as a ceaseless respect for *traditions* [*justice and fairness*]. He was also considered a true holy man on account of his deep and lasting *piousness* and *chasteness* [..].

As a result of his superior moral standing in Sumer, Sostoras was eventually awarded a small kingdom of his own to rule. For 50 years, Sostoras worked tirelessly to *purify* [*improve*] himself and his kingdom by cultivating the character and virtuousness of himself and his citizens. When Sostoras finally died, his kingdom was known throughout Sumer as a bastion for *purity*, *respect for tradition*, and *loyalty* [*compassion, fairness, and equality*].

Participants in the control condition read:

Sostoras was a great cultural hero of ancient Sumer. Sostoras was a decorated warrior, but more than anything, his fame derived from his reputation as a man of exceptional character.

Self-control moralization. We simplified our self-control moralization scale to a 6-item measure, one item for each of the domains we assessed in our prior studies. Participants indicated how much they considered it immoral to: put off work that needed to get done, lose patience with others, consume too much food, spend too much money, avoid physical exercise, and drink too much beer (1 = *not immoral at all*, to 6 = *extremely immoral*, $M = 3.05$, $SD = 1.00$, $\alpha = .79$).

Results and Discussion

We conducted a univariate analysis of variance (ANOVA) with the three conditions as independent variables and self-control moralization as the dependent variable, $F[2, 381] =$

2.34, $p = .098$, $\eta^2_p = .012$. In the binding condition ($M = 3.19$, $SD = 1.01$), self-control failure was moralized more than in the individualizing condition ($M = 2.93$, $SD = 1.05$; $t[252] = 2.08$, $p = .038$, $d = 0.26$). No significant differences were observed between the individualizing and control condition ($M = 3.02$, $SD = 0.94$; $t[255] = 0.83$, $p = .41$, $d = 0.10$) and the binding and control condition ($t[255] = 1.37$, $p = .17$, $d = 0.17$).

Findings from Study 7 provided support for a causal path from salient binding vs. individualizing foundations to increased moralization of self-control failure. The control condition did not differ significantly from either of the experimental conditions, possibly because the control condition also primed morality by describing the warrior as a man of exceptional character. We aimed to resolve this issue by using a more neutral control condition in Study 8.

STUDY 8

Participants and design

A total of 142 participants (72 men; $M_{\text{age}} = 36.08$ years, $SD = 12.15$) were recruited from the Mechanical Turk website. Participants were randomly assigned to one of three conditions as in Study 7. We excluded 6 participants who failed the attention check. In determining our sample size, we complied with the recommendations of Simmons et al., (2011, 2013) to run at least 40-50 participants in every experimental condition (i.e., almost 50 in this case).

Procedure

Binding versus individualizing foundations. Participant in the binding [individualizing] morality condition were presented the same manipulation as in Study 7. Participants in the control condition, however, read:

Sostoras was a man who lived in ancient Sumer. Sostoras was a pottery producer. Throughout his life, Sostoras enjoyed talking about the events of the day with other people. As a result of living in Sumer, Sostoras was a Sumerian citizen. This gave him

the right to own, and cultivate, land. It is unclear to historians whether Sostoras took advantage of this right.

Self-control moralization. Scale and items were the same as Study 7 except that instead of rating how immoral the failings would be generally, they rated how immoral it would be for Sostoras to fail in each way ($M = 3.09$, $SD = 1.08$, $\alpha = .87$).

Results and Discussion

We conducted a univariate analysis of variance (ANOVA) with the three conditions as independent variables and self-control moralization as a dependent variable, $F[2, 138] = 7.99$, $p = .001$, $\eta^2_p = .10$. Figure 1 displays means by condition. As can be seen, participants in the binding condition moralized self-control to a greater extent than participants in the control condition ($t[92] = 4.49$, $p < .001$, $d = 0.93$) and individualizing condition ($t[93] = 1.96$, $p = .053$, $d = 0.41$). Individualizing condition participants moralized self-control (non-significantly) more than control condition participants ($t[94] = 1.84$, $p = .069$, $d = 0.38$).

Study 8 results support the prediction that salient binding morality increases the moralization of self-control and provides support for the *causal* impact of the binding foundations on people's tendency to see self-control in a moral light. Studies 7 and 8 relied on a particular way of guiding attention to binding versus individualizing moral foundations. To ensure that the results were not only a function of this particular operationalization, in Study 9 we used a different operationalization. Specifically, we guided attention to binding versus individualizing moral foundations by having participants provide their own examples, in a between subjects design, of how morality may be group-focused (or individual-focused).

STUDY 9

Method

Participants and design

A total of 103 participants (54 women; $M_{\text{age}} = 33.34$ years, $SD = 12.35$) were recruited from the Mechanical Turk website and randomly assigned to either group or individualizing

moral concern condition. No participants failed the attention check. In determining our sample size, we complied with the recommendations of Simmons et al., (2011, 2013) to run at least 40-50 participants in every experimental condition (50 in this case).

Procedure

Binding versus individualizing prime. Participants were asked to read a short paragraph and were told that it was an excerpt from an essay written by a morality scholar.

The group [individual] condition paragraphs were:

“Morality is ultimately about what is good for society as a whole [individuals within society]. Though we naturally feel good when we do a nice thing for a specific individual [society as a whole], if this action does not help our society as a whole [specific individuals] then it cannot be considered good, moral and ethical.”

Then participants were asked: “please write a short paragraph on what aspect or aspects of this essay you agree with most strongly. If you strongly agree with everything in this essay, please elaborate on why you agree so strongly with it”.

Self-control moralization. Next, participants completed the same dependent variable as in Experiments 7 and 8 (2 items per domain; $M = 3.00$, $SD = 0.94$, $\alpha = .91$)⁴.

Results and Discussion

Replicating the results of studies 7 and 8, but with a different method of priming binding moral concerns, in Study 9 participants in the group morality condition moralized self-control to a greater extent ($M = 3.25$, $SD = 0.84$) than participants in the individualizing morality condition ($M = 2.81$, $SD = 0.98$; $t(93) = 2.32$, $p = .023$, $d = 0.48$). Self-control was moralized more after reading and writing about morality as a social good than after reading and writing about morality as an individual good. Taken together, results strongly suggest that moralization of self-control is more oriented toward group-level than individual-level concerns.

GENERAL DISCUSSION

While it is clear that people may view self-control goals as matters of right and wrong rather than as mere personal preference (e.g., “ethical vegetarianism,” Rozin et al., 1999), the processes by which this moralization occurs have not been well understood. In nine studies using varied methods, we predicted and showed that self-control is associated with morality, particularly the group-focused binding values of Loyalty, Authority, and Purity. Moreover, guiding people to consider binding elements of morality increases moralization of self-control successes and failures compared to people guided to consider individualizing elements of morality, as well as compared to people not guided to consider morality in any particular way. Our results converge across methods (text analysis, correlational, and experimental) and samples. The association of binding values and moralization of self-control was found controlling for religiosity, political conservatism, collectivism, group identity, and self-interest. Binding values mediated direct effects of some of these constructs as well. Moreover, using two different methods, making binding values salient increased moralization of self-control, highlighting a causal path. Each of these novel findings has implications for theory, as detailed next.

Theoretical and Practical Implications

Our studies move beyond the mere observation that self-control can be moralized and are, to our knowledge, the first studies to link moral foundations to people’s tendency to perceive self-control as a moral good and lack of self-control as a moral failure. We find that people emphasize self-control more when concerns about binding morality are salient (e.g., respect for authorities; loyalty to in-group members; standards of purity). Our inconsistent findings about the effects of salient individualizing morality concerns suggest that more needs to be done to understand when self-control is cued by the desire to prevent harm and unfairness to individuals (e.g., Hofmann & Van Dillen, 2012). Our findings are consistent

with the notion that self-control can be instrumental for binding individuals together in groups and promote group cohesion (see also DeWall et al., 2008).

Our results highlight that taking into account people's moral principles when investigating why people moralize self-control may provide important additional insights into how people perceive and construe self-control. For example, people commonly speak of lapses in their diets as *cheating* on their diets, but that kind of self-control failure, at least in our studies, feels more like moral failure when morality is considered a group-focused issue pertaining to loyalty, authority, and purity. People use the same phrase, cheating on, to describe infidelity—this kind of cheating clearly involves lapses in loyalty, in respect for tradition and authority, and degradation of purity. Perhaps use of cheating on a diet cues this binding frame. Recall that we had predicted that compared to the binding moral foundation link with moralization of self-control, individualizing moral foundations would show a weaker association. However, we did not find consistent associations between individualizing moral concerns of harm and fairness and moralization of self-control. Instead, we found that moralization of even seemingly personal self-control goals such as dieting, is more likely when binding concerns are at the forefront of one's thinking.

Thinking about self-control through a moral foundations lens also has implications for understanding factors that contribute to self-control success and failure. Previous research demonstrated that moralization of self-control goals may be able to facilitate self-control success but not how this occurs (Rozin, 1999; Rozin et al., 1997). Our results show that guiding people to consider their binding values may be an effective way of increasing moralization of self-control and potentially promoting self-control success. In addition, our studies are, to our knowledge, the first to link individual differences in religiosity, conservatism, and collectivism to the moralization of self-control, in each case showing mediation via binding moral concerns. We demonstrate that individuals who endorse

collectivistic values or who are religious are more likely to perceive self-control as a moral issue because of their higher endorsement binding foundations. Effects for conservatism show the same pattern. Collectivism and collectivistic mindset are associated with less impulsive behavior (Kacen & Lee, 2002), better control of emotional display (Matsumoto, Takeuchi, Andayani, Kouznetsova, & Krupp, 1998), and more practice with self-control generally (Oyserman, 2007; Seeley & Gardner, 2003). Being religious is associated with better self-control success at least in some domains, for example, with lower substance abuse (Benda, Pope, & Kelleher, 2006; Gartner, Larson, & Allen, 1991; Gorsuch, 1995; Johnson, Sheets, & Kristeller, 2008; Koenig, McCollough, & Larson, 2001). And conservatives have been shown to be better than liberals at tasks requiring self-control, such as attention regulation and persistence tasks (Clarkson et al., 2015). An important implication of our results that could be further studied is that religious (DeWall et al., 2014) and collectivistic (Oyserman, 2007) individuals' self-control success is rooted, at least in part, in their moralization of self-control (e.g., Graham & Haidt, 2010; Oyserman, Coon, & Kemmelmeier, 2002).

Our findings also have implications for recently proposed models of between-country differences in self-control. For example, self-control has been described as being due to the demands of harsh climate (lower regional temperatures, larger seasonal variation in climate, Van Lange, Rinderu, & Bushman, 2016). Our findings contribute to this discussion by suggesting that a variety of distal causal factors may be proximally mediated by binding moral concerns. If, for whatever reason, binding moral concerns are made salient, moralization of self-control is increased. If moralizing self-control enhances self-control success, then individuals and groups who associate binding values with self-control will be better at controlling themselves. Future research could investigate this proposition using, for instance, data on between-country differences in moral beliefs and self-control.

The results of our experiments demonstrate that guiding people to consider particular moral foundations can be an effective way of experimentally investigating the causal impact of people's moral concerns. Research on Moral Foundations Theory typically relies on correlational paradigms, thereby limiting researchers' ability to draw causal inferences. However, social cognitive research has shown that judgments can be impacted by what is made salient at the moment of judgment, if it feels relevant to the judgments at hand (Higgins, 1989, 1996; Schwarz & Strack, 2016; Strack & Schwarz, 2016). Our experimental paradigms connect moral foundations research to the social cognition literature and culture as situated cognition theory (Oyserman, 2017), and suggest that the endorsement of moral foundations is more flexible and more determined by social context than previously assumed (see also Feinberg & Willer, 2013). Our results demonstrate that moral concerns can be made cognitively salient and that these salient moral concerns matter, separate from the explicit endorsement of particular moral concerns that is typically measured with morality questionnaires. Our experimental paradigms could be used in future research investigating the causal impact of the moral foundations.

Possible Limitations and Future Research Directions

We built on prior literature about self-control and attempted to include the most important domains of self-control (e.g., money, substances, food, exercise, relationships, and work; Tsukayama et al., 2012) in our studies. However, in doing so we may have omitted other domains (e.g., behaviors that revolve around the environment, such as taking long showers) that might have different relationships with moral foundations. To address this limitation, future research is needed to consider if there are any self-control domains that would be more influenced by individualizing moral concerns. Moreover, given our starting point in prior literature about self-control, our studies focused on self-reported moralization. We attempted to rule out self-interest as an alternative explanation and included a wide

variety of self-control measurements such as self-control language, specific self-control behaviors, and the behaviors of others as dependent variables. These findings suggest that participants would also moralize self-control for themselves (e.g., I am immoral if I do not have self-control); yet we cannot say with certainty if people considered themselves or others in their responses⁵. Future research examining more behavioral measures of moralization of self-control would add to the robustness of our current findings.

We built on prior work on Moral Foundations Theory in building our set of predictions. We hope that this approach inspires more research on how, when, and why people moralize self-control. For instance, other theories on morality suggest that the difference between proscriptive (i.e., what one shouldn't do) and prescriptive (i.e., what one should do) morality matters (e.g., Model of Moral Motives; Janoff-Bulman & Carnes, 2013; Janoff-Bullman, Sheikh, & Hepp, 2009). Interestingly, both proscriptive and prescriptive morality can be aimed at binding individuals together in groups (Janoff-Bullman & Carnes, 2016). As such, we see no strong reason to expect that either form of morality would be less beneficial for binding individuals together in groups⁶. Hence, our finding that binding morality predicts moralization of self-control can be further unpacked. Our untested assumption is that binding morality involves both proscriptive and prescriptive beliefs and that it predicts the moralization of self-control. Disentangling prescriptive and proscriptive moral concerns embedded in, for instance, the individualizing and binding foundations in future research could also provide insight into when individualizing concerns cue moralization of self-control.

Concluding Remarks

Prior research implies that moralizing self-control improves success of self-control. In the current studies, we document that the binding-group aspects of morality facilitate the moralization of self-control. Specifically, using correlational, experimental, and text analysis

procedures, we demonstrated that when people moralize their self-control successes and failures they do so primarily when concerns about the group rather than individuals within that group are on their minds. We believe that these findings will be generative of future research that can illuminate the complexities of why, how, and by whom self-control becomes moralized.

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Footnotes

1. Linear regression analysis revealed the same pattern of results. In addition, we reran the analyses while separating the binding vice, binding virtue, individualizing vice, and individualizing virtue words. Results demonstrate that both the binding virtue *and* binding vice words are positively predictive of self-control word usage ($B = 0.28, p < .001$ and $B = 0.18, p < .001$, respectively), whereas the individualizing vice words are negatively and the individualizing virtue words are positively predictive of self-control word usage ($B = -0.31, p < .001$ and $B = 0.13, p < .001$ respectively).

2. The Authority dimension did not uniquely predict self-control moralization in Study 4; however, Authority can be construed as part of the binding foundations. The three binding foundations can be distinguished from each other but there is substantial overlap and multicollinearity (e.g., Authority and Loyalty are closely related constructs with overlapping variance). In fact, the binding foundations correlate highly ($r_s > 0.65$); and previous research suggests that a two-factor model with binding versus individualizing foundations fit the underlying structure of the Moral Foundations Questionnaire well (Graham et al., 2011). The lack of unique effect in Study 4 is thus consistent with the overall premise of the paper that the binding foundations *as a whole* explain the self-control moralization process.

3. We also measured Social Dominance Orientation and Right-Wing Authoritarianism. Controlling for SDO and RWA did not significantly change the results.

4. We also investigated the extent to which the manipulation affected people's explicit preference for groups over individuals with a three-item scale; e.g., "If an action does not benefit society as a whole, it cannot be considered moral"; $\alpha = .71$). The manipulation of group ($M = 4.62, SD = 2.22$) versus individual ($M = 4.27, SD = 1.63$) morality did not significantly impact explicit preferences ($t[101] = 0.97, p = .34, d = 0.19$).

5. Some preliminary evidence comes from an additional study we ran on Mturk ($N = 100$). We measured participants' adherence to the moral foundations with the Moral Foundations Questionnaire and self-control moralization focused on the self (e.g., I feel immoral when I fail to exert self-control; losing self-control makes me feel immoral). The binding foundations ($r = .41$) correlated significantly with moralization, whereas the individualizing foundations did not ($r = .03$).

6. We re-analyzed our Moral Foundations Questionnaire data from Studies 2, 4, 5, and 6, this time splitting the items into two categories—those that were phrased in a proscriptive manner (e.g., I think it's morally wrong that rich children inherit a lot of money while poor children inherit nothing) and those phrased in a prescriptive manner (e.g., When the government makes laws, the number one principle should be ensuring that everyone is treated fairly). We then tested the relationship between both types of items and self-control moralization. Results from a regression analysis (in which we included both these pro- and prescriptive worded items) consistently replicated the impact of the binding foundations for both the pro- ($r_s > 0.35$) and prescriptive worded items ($r_s > 0.34$), whereas the individualizing foundations remained weak predictors ($r_s < 0.11$).

Table 1. Binding/individualizing contrast results for Study 3.

Contrast	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
Loyalty vs. Care	0.60	0.23	5.39	< .001	0.88
Loyalty vs. Fairness	0.64	0.27	6.48	< .001	1.05
Purity vs. Care	0.57	0.32	2.57	= .011	0.42
Purity vs. Fairness	0.54	0.29	1.82	= .071	0.30
Authority vs. Care	0.70	0.26	9.59	< .001	1.56
Authority vs. Fairness	0.69	0.21	11.09	< .001	1.80

Note. *M* indicates mean binding-individualizing difference, with positive numbers indicating more association of self-control with binding than individualizing morality words.

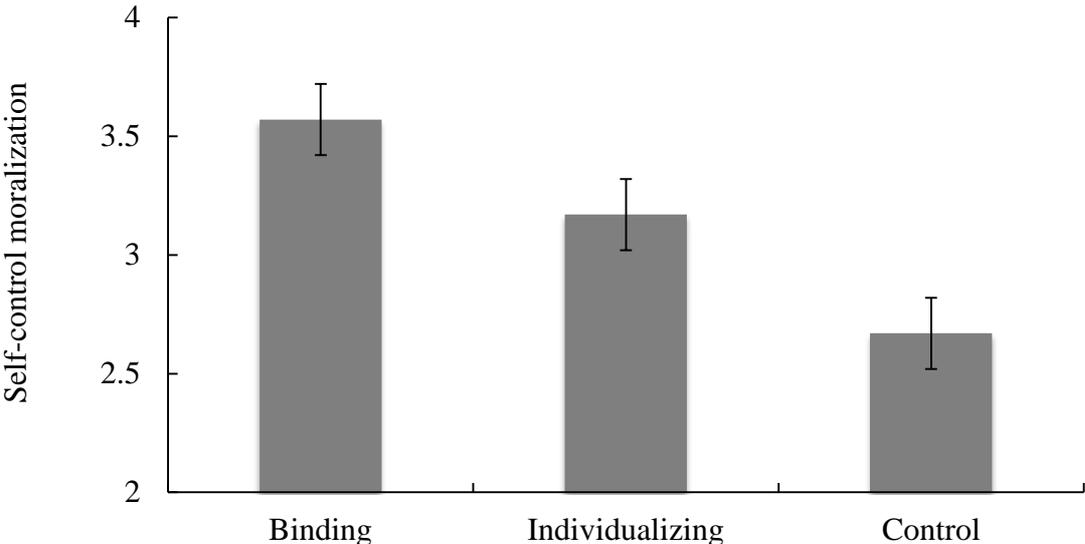


Figure 1. Self-control moralization as a function of group and individualizing moral concern for Study 8.

Appendix A

Moral foundations	Virtue words	Vice words
Care/harm	kindness, compassion, nurture, empathy	suffer, cruel, hurt, harm
Fairness/cheating	fairness, equality, justice, rights	cheat, fraud, unfair, injustice
Loyalty/betrayal	loyal, solidarity, patriot, fidelity	betray, treason, disloyal, traitor
Authority/subversion	authority, obey, respect, tradition	subversion, disobey, disrespect, chaos
Purity/degradation	purity, sacred, wholesome	impurity, depravity, degradation, unnatural

Appendix B

Foundation Contrast	Binding words	Contrast words
Loyalty vs. Care	Loyal Patriot Fidelity Solidarity	Kindness; Compassion; Nurture; Empathy
Loyalty vs. Fairness	Loyal Patriot Fidelity Solidarity	Fairness; Equality; Justice; Rights
Purity vs. Care	Purity Purity Sacred Wholesome	Kindness; Compassion; Nurture; Empathy
Purity vs. Fairness	Purity Purity Sacred Wholesome	Fairness; Equality; Justice; Rights
Authority vs. Care	Authority Obey Respect Tradition	Kindness; Compassion; Nurture; Empathy
Authority vs. Fairness	Authority Obey Respect Tradition	Fairness; Equality; Justice; Rights