



## Only one small sin: How self-construal affects self-control

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Past research has shown that self-construal can influence self-control by reducing interdependent people's impulsivity in the presence of peers. We broaden these findings by examining the hypothesis that an interdependent (vs. independent) self-construal fosters self-control even in the absence of peers and for non-impulsive decisions. We further explore whether this effect could be mediated by the more interrelated (vs. isolated) processing style of interdependent (vs. independent) people. Such an interrelated (vs. isolated) processing style of temptations makes the impact of a single temptation more salient and can thereby increase self-control. Study 1 demonstrated that more interdependent participants show more self-control behaviour by refraining from chocolate consumption to secure a monetary benefit. Studies 2a and 2b highlighted a link between self-construal and trait self-control via the processing of temptations. Study 3 suggested that an interrelated (vs. isolated) perspective on temptations could mediate the effect of (primed) self-construal on self-control. Taken together, self-construal shapes self-control across various decision contexts.

In everyday life, people's self-control abilities are often challenged by minor, seemingly unproblematic temptations that bring immediate pleasure but are adverse to people's long-term goals (Hofmann, Baumeister, Förster, & Vohs, 2012; Hofmann, Friese, & Strack, 2009). Paradoxically, people often fail to resist such minor temptations precisely because the long-term costs of a single temptation seem negligible (Myrseth & Fishbach, 2009). Whereas one indulgence (e.g., one unhealthy snack) will not affect a person's goal progress to any measurable extent, repeated indulgence (e.g., many unhealthy snacks) will eventually have an impact. Therefore, one effective possibility to foster self-control is to increase the perceived costs of indulging in a given temptation, for instance by highlighting its relation to other, similar temptations and their accumulated costs. Research shows that when making a series of choices simultaneously, the costs of indulging in multiple temptations become more salient, and thus, people are more likely to resist (Kirby & Guastello, 2001; Read, Loewenstein, & Kalyanaraman, 1999). Similarly, adopting a wider perspective on tempting situations (e.g., thinking about a whole month instead of individual days) leads to more self-control (Myrseth & Fishbach, 2009). Thus, instead of focusing solely on the current temptation, looking at its interrelation to similar temptations is a powerful way to increase self-control. In the current research, we examined whether self-construal might be one influential factor that relates to such a self-

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control-promoting interrelated (vs. isolated) perspective. Note that we operationalized peoples' perspective on temptations as a single dimension (ranging from isolated to interrelated).

Despite the importance of isolated versus interrelated processing for self-control, little is known about which factors affect peoples' perspectives on temptations beyond the specific situational factors (i.e., making choices simultaneously and generally adopting a wider perspective on temptations) that previous research has identified (Kirby & Guastello, 2001; Myrseth & Fishbach, 2009; Read *et al.*, 1999). However, one fundamental psychological variable exists that critically affects the adoption of relational processing styles (Masuda & Nisbett, 2001; Nisbett, Peng, Choi, & Norenzayan, 2001): the expression of an interdependent and independent self-construal (Markus & Kitayama, 1991). This fundamental distinction capitalizes on essential differences in how individuals construe their identity, but also affects perception and information processing in general. The literature (e.g., Singelis, 1994) typically treats independent and interdependent self-construal not as a single dimension, but as two separate dimensions that are conceptually unrelated. In accordance, we also operationalize self-construal as a two-dimensional construct.

Concerning specific cognitive effects of self-construal that might affect whether people adopt a more isolated versus interrelated perspective on temptations, it has been shown that an interdependent self-construal leads to more holistic perception and contextual processing of information (Masuda & Nisbett, 2001; Nisbett *et al.*, 2001). In much the same vein, an interdependent self-construal fosters more situational, context-sensitive attributions of others' behaviour (Morris & Peng, 1994), because interdependent individuals allocate more attention to the perceptual context and also are more sensitive to contextual information (Ji, Peng, & Nisbett, 2000; Kim, Grimm, & Markman, 2007; Konrath, Bushman, & Grove, 2009). In contrast, individuals with a more independent self-construal tend to focus on a single target event and tend to disregard the context of this target event (Lam, Buehler, McFarland, Ross, & Cheung, 2005). Interdependent individuals even see stronger relations between mundane objects such as consumer goods and perceive these as more related to each other than independent individuals do (Mourey, Oyserman, & Yoon, 2013).

Taken together, an interdependent self-construal increases perceptions of relatedness not only regarding social targets, but also leads to more related, holistic thinking in general. Therefore, we expect a link between an interdependent self-construal and an interrelated (vs. isolated) perspective on temptations. Thus, self-construal may well be one factor that influences peoples' perspective on temptations, and might thereby affect self-control.

Past research has already linked self-construal to other psychological variables that are relevant for successful self-control. For instance, people with a more interdependent self-construal tend to adopt a prevention focus (Hamilton & Biehal, 2005), which typically fosters inhibitory self-control (Freitas, Liberman, & Higgins, 2002). Furthermore, interdependent individuals are more likely to seek the help of others for their goal pursuit (Chua, Carbonneau, Milyavskaya, & Koestner, 2014), another factor increasing self-control (Fitzsimons & Finkel, 2012). Furthermore, interdependent individuals have been shown to be less prone to self-regulatory depletion (Seeley & Gardner, 2003) and to be better at inhibiting impulses, especially in the presence of peers (Zhang & Shrum, 2009). Low levels of self-regulatory depletion as well as impulse inhibition capacities in turn foster self-control (Hofmann *et al.*, 2012). Regarding impulse inhibition, the literature has specifically shown that interdependent

participants have less positive attitudes towards impulsive actions (e.g., beer consumption) when peers are present and the motivation is high to suppress impulsive tendencies for the sake of social acceptance (Zhang & Shrum, 2009). These findings suggest that interdependent participants normatively inhibit impulses for social benefits.

The question arises whether there are other, less socially normative processes by which self-construal also influences self-control. If this is indeed the case, self-construal affects self-control even in situations where no peers are present to judge, or where no clear social norms prevail, or where impulsivity has little influence. After all, many of people's daily self-control decisions are made alone (Hofmann *et al.*, 2012), and as a result of non-impulsive decision-making. Recent literature highlights the relevance of self-control that is independent of impulse inhibition by showing that individuals who are high in self-control are better at avoiding temptations and thus exert more preventive self-control, instead of merely being better at inhibiting impulses (De Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012; De Witt Huberts, Evers, & De Ridder, 2014). In fact, successful self-control has many facets that are unrelated to impulse inhibition (Fujita, 2011), such as pre-commitment to desired behaviour (Ariely & Wertenbroch, 2002) or the substitution of external control with self-control (Fishbach & Trope, 2005). Taken together, the literature shows that self-control is a much more complex concept than mere impulse inhibition. Yet, previous research on self-construal and self-control has been limited to demonstrating a relation with impulse inhibition (Zhang & Shrum, 2009). We set out to provide a broader picture on the relation between self-construal and self-control more generally.

Following that an interdependent (vs. independent) self-construal increases related (vs. isolated) information processing, we also expect a relation between an interdependent self-construal and an interrelated (less isolated) perspective on temptations. Thereby, we expect self-construal as one core psychological aspect of the self to affect peoples' ability to resist temptations.

### **The current research**

We report four studies that examined our hypothesis that self-construal affects self-control and tested for the mediating role of an isolated versus interrelated perspective on temptations. In all studies, we attempted to minimize the potential influence of peers (who especially affect interdependent people's behaviour, Zhang & Shrum, 2009). Additionally, we focused on less impulsive self-control decisions (e.g., the planned return of chocolate in Study 1, trait self-control in Study 2b) to provide a more comprehensive understanding of how processing of temptations might connect self-construal and self-control.

In Study 1, we tested whether self-construal affects self-control behaviour. Specifically, we offered participants a small amount of money if they return a specific chocolate bar uneaten. We expected that interdependent participants are more successful at exerting self-control to receive the money. In studies 2a and 2b, we showed a link between self-construal and processing of temptations (Study 2a), which in turns correlated with participants' self-control abilities (Study 2b). In Study 3, we primed self-construal to provide a more rigorous test of the specific effects of self-construal. We measured participants' propensity to indulge or resist with a self-control scenario and examined processing of temptations as a mediator. We reported all manipulations and measures. The data and materials can be found at: <https://osf.io/mwy9x/>

## STUDY 1

Study 1 investigated whether an interdependent self-construal facilitates self-control behaviour. To assess self-construal, participants completed a well-established scale (Singelis, 1994). To assess self-control, we presented participants with a typical dilemma: choosing between a small reward now (a bar of chocolate) and a larger reward later (a bar of chocolate plus a small amount of money). Such a task resembles measures of future discounting, which capture differences in self-control abilities (Duckworth, Tsukayama, & Kirby, 2013; Meier & Sprenger, 2012). More specifically, participants received a chocolate bar of their choice, with the option to present this chocolate (uneaten) a week later to receive a small amount of money (Nordgren, van Harreveld, & van der Pligt, 2009). The temptation was to refrain from eating the selected chocolate that is already in one's possession, and to go through the cumbersome exercise to return it to a specific place and time. When adopting a more isolated perspective on the small monetary reward, delaying consumption of the chocolate may not seem worth the effort. However, if seeing this situation in an interrelated way, as one of potentially many situations that offer small rewards, one may instead wait and collect the money.

Note that we did not measure participants' chocolate consumption, but whether participants returned a specific chocolate bar for a financial incentive. We could have given participants any other token (e.g., a piece of paper) to obtain the same measure of self-control (the ability to go through the cumbersome exercise of returning later for a small amount of money). However, using tempting (because self-chosen) chocolate as the token, we maximized the conflict between something small but rewarding now (or at any time during the week) and something larger later.

## Method

### Participants and design

We recruited 84 (35 female<sup>1</sup>,  $M_{\text{age}} = 25.07$  years,  $SD = 4.40$ ) student participants at a large German university for an alleged pre-test of participants' willingness to return chocolate a week later. We predetermined a sample size of at least 80 participants, based on power analysis of an  $R^2$  of .07 (see Singelis, Bond, Sharkey, & Lai, 1999) and a desired power of .80 with an alpha level of .05. No participant was excluded from analyses.

### Materials and procedure

Participants first worked on a German translation (van Horen, Pöhlmann, Koeppen, & Hannover, 2008) of the self-construal scale (Singelis, 1994), consisting of two subscales (7-point scale from 1 = *agree not at all* to 7 = *fully agree*) that measured interdependent ( $\alpha = .79$ ) and independent ( $\alpha = .56$ ) self-construal, each with twelve items. A typical item for interdependent self-construal is as follows: 'I often have the feeling that my relationships with others are more important than my own accomplishments'. A typical item for independent self-construal is as follows: 'I am comfortable with being singled out for praise or rewards'. The interdependent and independent subscales are typically

<sup>1</sup> We found no effect of participant gender on the dependent variable in any of our studies,  $ps > .268$ , and thus do not further discuss gender effects.

uncorrelated (Singelis, 1994; Singelis *et al.*, 1999) and were also uncorrelated in our sample,  $r = .142$ ,  $p = .196$ .

Participants then chose a chocolate bar (one of seven different flavours) as compensation. These chocolate bars were visibly marked with an adhesive sticker to ensure that participants would return that specific chocolate bar instead of buying and returning another one. Participants were then offered the opportunity to return the uneaten chocolate bar in the following week, in which case they would receive 4 EUR ( $\approx 5$  USD) in addition to the chocolate. To identify those participants who returned the chocolate, participants provided an anonymous eight-digit code, consisting of information they could easily retrieve (e.g., the first and last letters of their mother's first name). The instructions made clear to participants that not returning the chocolate was perfectly acceptable and that there was no obligation to do so (in fact, the majority of participants did not return the chocolate). To further prevent feelings of social obligation to a particular person, participants were told to return the chocolate to a different person at a different location on campus. When returning the chocolate bar a week later, participants reported their eight-digit code, so that the information whether they had returned the chocolate bar or not (1 = returned, 0 = not returned) could be added to participants' previous data while maintaining their anonymity.

## Results and discussion

We expected that higher scores on the interdependent self-construal measure (Singelis, 1994) predict higher likelihood of returning the chocolate. Of 84 participants, 27 (32.1%) returned the uneaten chocolate 1 week later. A binary logistic regression yielded a significant positive effect of interdependent self-construal ( $M = 4.96$ ,  $SD = 0.61$ ) on the likelihood of chocolate returns,  $\text{Exp}(B) = .553$ ,  $\text{CI}_{\text{Exp}(B)} = [0.312; 0.982]$ ,  $p = .043$ ,  $R^2 = .071$ . Independent self-construal ( $M = 4.43$ ,  $SD = 0.85$ ) was not a significant predictor on the likelihood of chocolate returns,  $p = .520$ .

In this study, an interdependent self-construal fostered behavioural self-control. Because the sample was predominantly German, a rather individualistic culture (Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009), independent self-construal might be more of a cultural default. Consequently, only variation in interdependent (but not independent) self-construal affected self-control. Such a lack of effect of the culturally congruent self-construal is consistent with previous self-construal research (Gardner, Gabriel, & Lee, 1999).

The results of Study 1 are open to alternative explanations. For instance, interdependent participants might have returned the chocolate out of feelings of obligation towards the experimenter. However, we made it very clear to participants that either behaviour (returning the chocolate or not) was perfectly acceptable and we had them return the chocolate to a stranger waiting in a different place. The nature of the dependent variable (delaying chocolate consumption and remembering to go to a specific place at a specific time) further renders it unlikely that participants would make such an effort simply to please a stranger they have never met. Nevertheless, in studies 2a and 2b, there was no experimenter involved to minimize feelings of obligation.

## STUDY 2a

In Study 2a, we examined one potential mechanism underlying the effects of an interdependent self-construal on self-control. Specifically, as interdependent participants

typically adopt more related information processing styles (e.g., Mourey *et al.*, 2013), we tested whether interdependent participants' perspective on temptations is more interrelated (and thus less isolated).

## Method

### Participants and design

We recruited 100 participants on Amazon's Mechanical Turk in exchange for \$0.20 (44 female,  $M_{\text{age}} = 34.02$ ,  $SD = 11.47$ ). Three additional participants terminated their participation without completing the study. As in Study 1, we decided before data collection to recruit at least 80 participants for a correlational design, and ended up recruiting more participants because we had more funds available. No participant was excluded from analyses.

### Materials and procedure

As in Study 1, participants first completed the interdependent ( $\alpha = .86$ ) and independent self-construal ( $\alpha = .82$ ) subscales of the Singelis (1994) scale. In this study, we unexpectedly found a weak positive correlation between the two subscales,  $r = .198$ ,  $p = .046$ . Next, participants worked on three items assessing their perspective on temptations (9-point scale from 1 = *certainly not* to 9 = *certainly yes*,  $\alpha = .74$ ): 'Little sins add up, and can hinder my progress on my long-term goals'; 'When I'm tempted by something, I often think to myself: "One little sin might be one of many"'; 'When I'm craving something, I tell myself: "If I indulge now, I might be tempted to indulge again tomorrow"'. Higher values indicated a more interrelated (and thus less isolated) perspective on temptations.

## Results and discussion

As expected, a more interdependent self-construal ( $M = 4.77$ ,  $SD = 0.97$ ) was related to a more interrelated perspective on temptations ( $M = 5.11$ ,  $SD = .11$ ),  $\text{Exp}(B) = 0.608$ ,  $\text{CI}_{\text{Exp}(B)} = [0.194, 1.023]$ ,  $p = .004$ ,  $R^2 = .070$ . In line with the findings of Study 1, an independent construal of the self ( $M = 5.11$ ,  $SD = 0.88$ ) was unrelated to participants' perspective on temptations,  $p = .847$ . Taken together, Study 2a suggested that interdependent participants have a more related (and thus less isolated) perspective on temptations.

## STUDY 2b

In Study 2b, we further examined whether a relation exists between people's perspective on temptations and their self-control. Such a relation has already been suggested by the literature (e.g., Myrseth & Fishbach, 2009). Participants completed a measure of their perspective on temptations similar to Study 2a. However, this time we designed the measure so that higher values indicated a more isolated perspective on temptations. Because we developed both measures specifically for these studies, we use two different versions to test our hypothesis with a greater variant of methods. As the dependent variable, participants responded to a trait self-control scale (Tangney, Baumeister, & Boone, 2004). This scale captures individual differences in self-control abilities and is a

valid, reliable, and a meaningful assessment of participants' self-control over time (Duckworth & Seligman, 2005). Importantly, trait self-control operates largely without impulse inhibition (De Ridder *et al.*, 2012), thus allowing us to further examine the relation of self-construal and processing style on non-impulsive self-control. If one's perspective on temptations correlates with one's general ability to control oneself, this, together with Study 2a, would lend (indirect) support to the notion that one's perspective on temptations is one important mechanism by which self-construal affects self-control.

## Method

### *Participants and design*

We recruited 101 participants on Amazon's Mechanical Turk in exchange for \$0.15 (47 female,  $M_{\text{age}} = 34.85$ ,  $SD = 11.73$ ). Two additional participants terminated their participating without completing the study. As in studies 1 and 2a, we decided before data collection to recruit at least 80 participants for a correlational design, and ended up recruiting more participants because we had more funds available. No participant was excluded from analyses.

### *Materials and procedure*

First, we measured whether participants generally adopted a more isolated (vs. more interrelated) perspective on temptations in general with three items (9-point scale from 1 = *certainly not* to 9 = *certainly yes*,  $\alpha = .66$ ), for example, 'When I'm tempted by something, I sometimes think to myself: "Once doesn't count"'; 'One tempting dessert every once in a while does not really affect my health and diet'; 'When I'm craving something, I tell myself: "I'll just have one"'. Higher values indicated a more isolated (and thus less interrelated) perspective on temptations.

To test whether this perspective on temptations is related to self-control, we measured participants' self-control by having them respond to the Brief Self-Control Measure (Tangney *et al.*, 2004). The scale consisted of 13 items (5-point scale from 1 = *not at all* to 9 = *very much*,  $\alpha = .90$ ), for example, 'I refuse things that are bad for me'. Higher values indicated higher trait self-control.

## Results and discussion

As expected, a more isolated perspective on temptations negatively correlated with participants' self-control,  $\text{Exp}(B) = -0.125$ ,  $\text{CI}_{\text{Exp}(B)} = [-0.209, -0.041]$ ,  $p = .004$ ,  $R^2 = .072$ . Taken together, Study 2a showed that interdependent participants have a more related perspective on temptations. Study 2b then showed that a more isolated (less interrelated) perspective on temptations is associated with lower general self-control abilities. Thereby, studies 2a and 2b suggest that the link between self-construal and self-control might result from people's perspective on temptations.

## STUDY 3

In Study 3, we primed self-construal to isolate the specific effects of self-construal on self-control, to further exclude the possibility that other, related concepts, such as adherence to perceived social obligations, were responsible for our results (as might have been the

case in Study 1). Additionally, we tested in one study whether the effects of self-construal on self-control might be mediated by processing of temptations. Thereby, Study 3 conceptually replicated our previous studies while adding validity by using a different operationalization of self-construal as well as of self-control.

## Method

### Participants and design

We recruited 92<sup>2</sup> student participants (45 female,  $M_{\text{age}} = 20.83$  years,  $SD = 1.89$ ) at a large North American university. We predetermined a sample size of at least 45 participants per condition, based on power analysis of an estimated effect size of .45 (see Oyserman & Lee, 2008) and a desired power of .80 with an alpha level of .05.

### Materials and procedure

To prime participants with interdependent and independent self-construal, respectively, we used an experience-based priming procedure (Gunia, Sivanathan, & Galinsky, 2009). Participants recalled an experience of working on something together with others (interdependence-prime) or alone (independence-prime). At the end of the study, participants responded to two items checking for the effectiveness of the manipulation. Specifically, we asked: ‘*In the experience you described in the beginning, how independent did you feel?*’ (9-point scale from 1 = *not at all independent* to 9 = *very independent*); and ‘*In the experience you described in the beginning, did you feel as part of a group?*’ (9-point scale from 1 = *not at all* to 9 = *very much*). Both items revealed an effect of our manipulation. Participants in the independence-prime condition felt more independent in the experience they described,  $M_{\text{independent}} = 7.70$ ,  $SD = 1.85$ , vs.  $M_{\text{interdependent}} = 5.63$ ,  $SD = 2.28$ ,  $t(89) = 4.726$ ,  $p < .001$ ,  $CI = [1.201; 2.944]$ . Conversely, participants in the interdependence-prime condition reported that they felt more as part of a group,  $M_{\text{independent}} = 2.72$ ,  $SD = 2.09$ , vs.  $M_{\text{interdependent}} = 5.69$ ,  $SD = 2.89$ ,  $t(89) = 5.559$ ,  $p < .001$ ,  $CI = [1.906; 4.027]$ . The primes did not differ in valence (*How good or bad did the experience make you feel?* 9-point scale),  $M_{\text{independent}} = 6.70$ ,  $SD = 2.14$ , vs.  $M_{\text{interdependent}} = 6.85$ ,  $SD = 2.19$ ,  $t(89) = 0.343$ ,  $p = .732$ ,  $CI = [-1.062; 0.749]$ .

Next, participants were asked to imagine being on a diet (the higher-order goal). However, they also imagined encountering delicious doughnuts (the temptation). Then, participants reported whether they would indulge (i.e., not engage in self-control) or refrain from indulging (i.e., engaging in self-control). Specifically, we presented them with the following scenario: ‘On your way from work, you always come by your favorite donut shop that sells the most tempting and delicious donuts. You’re on a diet to eat healthier, but right now you also really want to sink your teeth into a fresh and tasty donut. You know you shouldn’t, but all you can think about at the moment is having one of these donuts’. We asked participants whether or not they would decide to have a doughnut that day (9-point scale from 1 = *certainly not* to 9 = *certainly yes*). Higher values indicated less self-control. In this scenario, a less isolated perspective might allow participants to perceive the temptation as one of potentially many more, so that indulgence might

<sup>2</sup>Data from one participant were excluded who answered the priming task with explicit sexual content. Inclusion of this participant does not change the results.



endanger the long-term dieting goal. Although the self-control decision in this particular study was hypothetical, a recent meta-analysis has demonstrated the validity of hypothetical self-control choices (Duckworth & Kern, 2011).

Subsequently, we measured whether participants adopted a more isolated (vs. more interrelated) perspective on temptations with the same three items as in Study 2b ( $\alpha = .61$ ). Again, higher values indicated a more isolated (and less interrelated) perspective on temptations.

## Results and discussion

We expected that priming an independent (vs. interdependent) self-construal decreased (increased) resistance to the temptation, mediated by a more isolated (interrelated) view of temptations in general. As expected, interdependence-primed participants ( $M = 4.27$ ,  $SD = 2.70$ ) were more likely to resist the doughnut than independence-primed participants ( $M = 5.47$ ,  $SD = 2.72$ ),  $t(90) = 2.12$ ,  $p = .037$ ,  $d = .44$ ,  $CI_{\text{difference}} = [0.075; 2.324]$ . Furthermore, interdependence-primed participants ( $M = 5.09$ ,  $SD = 1.60$ ) had a less isolated perspective on temptations ( $M = 6.09$ ,  $SD = 1.80$ ),  $t(90) = 2.79$ ,  $p = .006$ ,  $d = .58$ ,  $CI_{\text{difference}} = [0.286; 1.694]$ . This isolated perspective on temptations in turn correlated with decreased self-control in the scenario,  $\text{Exp}(B) = 0.359$ ,  $CI_{\text{Exp}(B)} = [0.260; 0.843]$ ,  $p < .001$ ,  $R^2 = .129$ . When controlling for perspective on temptations, the effect of self-construal became insignificant,  $\text{Exp}(B) = -0.131$ ,  $CI_{\text{Exp}(B)} = [-1.843; 0.404]$ ,  $p = .206$ , whereas perspective on temptations remained a significant predictor of self-control,  $\text{Exp}(B) = -0.309$ ,  $CI_{\text{Exp}(B)} = [0.165; 0.805]$ ,  $p = .003$ ,  $R^2 = .136$ . These results suggest that perspective on temptations mediated the effect of self-construal on self-control (95%  $CI_{\text{bootstrapping}} [-1.127; -0.147]$ , 1,000 bootstrapping samples).

At first glance, the results might seem affected by participants' post-hoc justifications of their choice. However, further mediation analyses revealed that self-control did not mediate the effect of self-construal on the perspective on temptations. In a regression analysis with the predictors self-construal (interdependent vs. independent) and self-control (likelihood to indulge) on the perspective on temptations, self-construal remained significant when controlling for self-control,  $\text{Exp}(B) = -0.217$ ,  $CI_{\text{Exp}(B)} = [-1.453; -0.070]$ ,  $p = .031$ . Although self-control also predicted the perspective on temptations,  $\text{Exp}(B) = 0.299$ ,  $CI_{\text{Exp}(B)} = [0.065; 0.316]$ ,  $p = .003$ , self-construal influenced the perspective on temptations over and above peoples' self-control decisions.

## GENERAL DISCUSSION

Resisting every day's array of temptations is crucial for pursuing many important goals in life. Yet, resisting small temptations with little immediate costs often seems not worth the effort. When adopting an interrelated perspective on such small temptations, however, the sum of their costs becomes salient, which facilitates self-control (Myrseth & Fishbach, 2009). We showed that one's self-construal is related to one's perspective on temptations, and thereby to one's self-control.

In Study 1, an interdependent self-construal predicted the ability to return tempting chocolate uneaten for a monetary benefit. In studies 2a and 2b, an interdependent self-construal was related to the processing of temptations, which in turn correlated with people's general self-control. In Study 3, interdependence-primed (vs. independence-

primed) participants were more likely to resist a temptation in a self-control scenario. This study further suggested perspective on temptations as an underlying mechanism. Taken together, we demonstrated that self-construal affects self-control and we provided correlational evidence of the mediating role of one's perspective on temptations.

Previous research has already established a link between self-construal and impulsivity especially in the presence of peers (Zhang & Shrum, 2009). Impulsivity is certainly one manifestation of self-control failure (Fujita, 2011). Our research further supports the existence of a link between self-construal and self-control and suggests another perspective on the relation between self-construal and self-control: Self-construal is related to the processes underlying self-control decisions (i.e., one's perspective on temptations and trait self-control, which operates mostly without impulse inhibition, De Ridder *et al.*, 2012), even in situations where peer influence is minimal.

Self-construal might affect self-control also by other mechanisms. Specifically, self-construal might influence the abstract versus concrete construal of temptations, which has been shown to foster self-control (Fujita, Trope, Liberman, & Levin-Sagi, 2006). However, the exact predictions of a construal-level explanation are somewhat unclear. Interdependent participants tend to show lower level, contextualized thinking (Norenzayan, Choi, & Nisbett, 2002). Following from these findings, interdependent participants might adopt a more concrete representation of temptations, which would decrease (instead of increase, as we showed) self-control (Fujita *et al.*, 2006). At the same time, interdependent participants represent their future in more concrete, proximal terms (Lee, Lee, & Kern, 2011; Spassova & Lee, 2013), which might foster their self-control by making the future more salient. Thus, future proximity might be another mechanism by which self-construal can affect self-control, in general. Yet, in studies 2a and 2b, we showed that self-construal is linked to peoples' perspective on temptations, which in turn correlated with trait self-control (a measure which involves no present–future trade-offs). Thereby, we highlight the importance of peoples' perspective of temptations, independent of future proximity.

Our findings are not without limitations. On the level of the specific studies, some of the measures we used have relatively low reliability, as indicated by low Cronbach's alphas (e.g., the independence subscale in Study 1; the perspective on temptations measure in studies 2b and 3). In general, using scales with low reliability can pose a threat for the validity of results, because people's answers on low-reliability scales might not generalize across other measures and might be difficult to conceptually replicate. In particular, the independence subscale (Singelis, 1994) has previously been found to show low reliability (Singelis *et al.*, 1999), and other self-construal scales have been developed to address this issue (e.g., Cross, Bacon, & Morris, 2000). However, we chose the Singelis (1994) scale because it is well established in the self-construal literature and a valid German translation exists (van Horen *et al.*, 2008). Also our scale of perspective on temptations showed relatively low reliability. Yet, we have not found another measure of peoples' perspective on temptations in the literature. To address potential shortcomings of the scales we used, we employed a multimethod approach in our studies by priming as well as measuring self-construal, using two different versions of the perspective on temptations measure, and using different operationalizations of self-control. Although low reliabilities can undoubtedly pose problems for the validity of results, convergent findings with these different methods give us confidence in our results.

Note that in Study 3, the interdependent versus independent self-construal prime influenced participants' feelings of independence and feelings of being part of a group to a significant, albeit relatively small extent. Whereas priming can help to address potentially confounding individual differences between participants or cultural differences, effects of self-construal priming are mostly small to moderate (Oyserman & Lee, 2008). For example, in our Study 3, participants in the interdependent priming condition nevertheless reported feeling relatively independent (indicated by values above the scale mid-point). Thus, the results of Study 3 should be interpreted as relative differences between somewhat higher versus somewhat lower levels of interdependent versus independent self-construal, and should not be interpreted as a reflection of the full spectrum of potential variation in self-construal. Due to this limitation in scope, self-construal priming can hardly be used as a practical tool in everyday life to lastingly affect one's self-control. However, in our research, the results obtained through priming reflected the results obtained through measuring self-construal. In sum, these results support the notion that even small, relative differences in self-construal can influence people's self-control.

Another limitation of our findings might be that we conducted all studies in Western, individualistic cultures (i.e., Germany and the United States). We encourage future research to investigate whether the relation between self-construal and self-control is similar in Asian, collectivistic cultures. As previous research suggests (Gardner *et al.*, 1999), variation in the culturally non-dominant dimension of self-construal – interdependence in our case – can be the more psychologically influential factor. Therefore, in more collectivistic cultures, variation in independence may more meaningfully affect peoples' self-control. Thus, our findings can only speak to the relation between self-construal and self-control in the specific cultural settings we investigated, and cannot generalize to other cultures.

Given that interdependent and independent self-construals relate to the cultural dimension of collectivism versus individualism (Oyserman, Coon, & Kimmelmeier, 2002), one might speculate whether people in collectivist cultures have better self-control. Although one cannot equate an individual's self-construal to the cultural distinction between collectivism and individualism, these constructs certainly share some variance (Singelis *et al.*, 1999). And indeed, some preliminary evidence suggests that people from collectivist (e.g., East Asian) cultures show less impulsive consumption behaviour and less impatience (Chen, Ng, & Rao, 2005; Zhang & Shrum, 2009). However, impulsivity and impatience are by no means valid proxies for self-control in general (see Fujita, 2011). Similarly, our findings on self-construal are by no means valid proxies for corresponding cultural differences. Furthermore, self-construal is typically a two-dimensional construct (Singelis, 1994), whereas collectivism versus individualism is represented as a one-dimensional construct (Oyserman *et al.*, 2002). Thus, one can only speculate whether collectivism might foster self-control, individualism might decrease self-control, or both. To add complexity, the dimension of collectivism versus individualism represents only one of many possible dimensions by which cultures vary (Hofstede, 1980). Further research is needed to investigate whether people in collectivist (e.g., East Asian) cultures differ from people in individualist (e.g., North American) cultures in their levels of self-control, and whether the same mechanisms affect peoples' self-control in different cultures.

One small sin may be one too many. This simple fact, our research suggests, is more readily apparent for those who see themselves in relation to other people, and thus also see this one sin in relation to many other sins.

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## References

- Ariely, D., & Wertenbroch, K. (2002). Procrastination, deadlines, and performance: Self-control by precommitment. *Psychological Science*, *13*, 219–224. <https://doi.org/10.1111/1467-9280.00441>
- Chen, H., Ng, S., & Rao, A. R. (2005). Cultural differences in consumer impatience. *Journal of Marketing Research*, *42*, 291–301. <https://doi.org/10.1509/jmkr.2005.42.3.291>
- Chua, S. N., Carbonneau, N., Milyavskaya, M., & Koestner, R. (2014). Beyond the self in self-control: The role of relational interdependent self-construal in goal pursuit. *Journal of Social and Personal Relationships*, *32*, 330–343. <https://doi.org/10.1177/0265407514533228>
- Cross, S. E., Bacon, P. L., & Morris, M. L. (2000). The relational-interdependent self-construal and relationships. *Journal of Personality and Social Psychology*, *78*, 791–808. <https://doi.org/10.1037/0022-3514.78.4.791>
- De Ridder, D. T., Lensvelt-Mulders, G., Finkenauer, C., Stok, F. M., & Baumeister, R. F. (2012). Taking stock of self-control. A meta-analysis of how trait self-control relates to a wide range of behaviors. *Personality and Social Psychology Review*, *16*, 76–99. <https://doi.org/10.1177/1088868311418749>
- De Witt Huberts, J. C., Evers, C., & De Ridder, D. T. D. (2014). “Because I am worth it”: A theoretical framework and empirical review of a justification-based account of self-regulation failure. *Personality and Social Psychology Review*, *18*, 119–138. <https://doi.org/10.1177/1088868313507533>
- Duckworth, A. L., & Kern, M. L. (2011). A meta-analysis of the convergent validity of self-control measures. *Journal of Research in Personality*, *45*, 259–268. <https://doi.org/10.1016/j.jrp.2011.02.004>
- Duckworth, A. L., & Seligman, M. E. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science*, *16*, 939–944. <https://doi.org/10.1111/j.1467-9280.2005.01641.x>
- Duckworth, A. L., Tsukayama, E., & Kirby, T. A. (2013). Is it really self-control? Examining the predictive power of the delay of gratification task. *Personality and Social Psychology Bulletin*, *39*, 843–855. <https://doi.org/10.1177/0146167213482589>
- Fishbach, A., & Trope, Y. (2005). The substitutability of external control and self-control. *Journal of Experimental Social Psychology*, *41*, 256–270. <https://doi.org/10.1016/j.jesp.2004.07.002>
- Fitzsimons, G. M., & Finkel, E. J. (2012). Outsourcing effort to close others. In L. Campbell, J. G. La Guardia, J. M. Olson & M. P. Zanna (Eds.), *The science of the couple: The Ontario symposium*, *12* (pp. 41–57). New York, NY: Psychology Press.
- Freitas, A. L., Liberman, N., & Higgins, E. T. (2002). Regulatory fit and resisting temptation during goal pursuit. *Journal of Experimental Social Psychology*, *38*, 291–298. <https://doi.org/10.1006/jesp.2001.1504>
- Fujita, K. (2011). On conceptualizing self-control as more than the effortful inhibition of impulses. *Personality and Social Psychology Review*, *15*, 352–366. <https://doi.org/10.1177/1088868311411165>
- Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2006). Construal levels and self-control. *Journal of Personality and Social Psychology*, *90*, 351–367. <https://doi.org/10.1037/0022-3514.90.3.351>
- Gardner, W. L., Gabriel, S., & Lee, A. Y. (1999). “I” value freedom, but “we” value relationships: Self-construal priming mirrors cultural differences in judgment. *Psychological Science*, *10*, 321–326. <https://doi.org/10.1111/1467-9280.00162>

- Gunia, B. C., Sivanathan, N., & Galinsky, A. D. (2009). Vicarious entrapment: Your sunk costs, my escalation of commitment. *Journal of Experimental Social Psychology, 45*, 1238–1244. <https://doi.org/10.1016/j.jesp.2009.07.004>
- Hamilton, R. W., & Biehal, G. J. (2005). Achieving your goals or protecting their future? The effects of self-view on goals and choices. *Journal of Consumer Research, 32*, 277–283. <https://doi.org/10.1086/432237>
- Hofmann, W., Baumeister, R. F., Förster, G., & Vohs, K. D. (2012). Everyday temptations: An experience sampling study of desire, conflict, and self-control. *Journal of Personality and Social Psychology, 102*, 1318–1335. <https://doi.org/10.1037/a0026545>
- Hofmann, W., Friese, M., & Strack, F. (2009). Impulse and self-control from a dual-systems perspective. *Perspectives on Psychological Science, 4*, 162–176. <https://doi.org/10.1111/j.1745-6924.2009.01116.x>
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.
- Ji, L. J., Peng, K., & Nisbett, R. E. (2000). Culture, control, and perception of relationships in the environment. *Journal of Personality and Social Psychology, 78*, 943–955. <https://doi.org/10.1037/0022-3514.78.5.943>
- Kim, K., Grimm, L. R., & Markman, A. B. (2007). Self-construal and the processing of covariation information in causal reasoning. *Memory & Cognition, 35*, 1337–1343. <https://doi.org/10.3758/BF03193605>
- Kirby, K. N., & Guastello, B. (2001). Making choices in anticipation of similar future choices can increase self-control. *Journal of Experimental Psychology: Applied, 7*, 154–164. <https://doi.org/10.1037/1076-898X.7.2.154>
- Kitayama, S., Park, H., Sevincer, A. T., Karasawa, M., & Uskul, A. K. (2009). A cultural task analysis of implicit independence: Comparing North America, Western Europe, and East Asia. *Journal of Personality and Social Psychology, 97*, 236–255. <https://doi.org/10.1037/a0015999>
- Konrath, S., Bushman, B. J., & Grove, T. (2009). Seeing my world in a million little pieces: Narcissism, self-construal, and cognitive–perceptual style. *Journal of Personality, 77*, 1197–1228. <https://doi.org/10.1111/j.1467-6494.2009.00579.x>
- Lam, K. C., Buehler, R., McFarland, C., Ross, M., & Cheung, I. (2005). Cultural differences in affective forecasting: The role of focalism. *Personality and Social Psychology Bulletin, 31*, 1296–1309. <https://doi.org/10.1177/0146167205274691>
- Lee, S., Lee, A. Y., & Kern, M. C. (2011). Viewing time through the lens of the self: The fit effect of self-construal and temporal distance on task perception. *European Journal of Social Psychology, 41*, 191–200. <https://doi.org/10.1002/ejsp.765>
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253. <https://doi.org/10.1037/0033-295X.98.2.224>
- Masuda, T., & Nisbett, R. E. (2001). Attending holistically versus analytically: Comparing the context sensitivity of Japanese and Americans. *Journal of Personality and Social Psychology, 81*, 922–934. <https://doi.org/10.1037/0022-3514.81.5.922>
- Meier, S., & Sprenger, C. D. (2012). Time discounting predicts creditworthiness. *Psychological Science, 23*, 56–58. <https://doi.org/10.1177/0956797611425931>
- Morris, M. W., & Peng, K. (1994). Culture and cause: American and Chinese attributions for social and physical events. *Journal of Personality and Social Psychology, 67*, 949–971. <https://doi.org/10.1037/0022-3514.67.6.949>
- Mourey, J. A., Oyserman, D., & Yoon, C. (2013). One without the other. Seeing relationships in everyday objects. *Psychological Science, 24*, 1615–1622. <https://doi.org/10.1177/0956797613475631>
- Myrseth, K. O. R., & Fishbach, A. (2009). Self-control. A function of knowing when and how to exercise restraint. *Current Directions in Psychological Science, 18*, 247–252. <https://doi.org/10.1111/j.1467-8721.2009.01645.x>

- Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, *108*, 291–310. <https://doi.org/10.1037/0033-295X.108.2.291>
- Nordgren, L. F., van Harreveld, F., & van der Pligt, J. (2009). The restraint bias: How the illusion of self-restraint promotes impulsive behavior. *Psychological Science*, *20*, 1523–1528. <https://doi.org/10.1111/j.1467-9280.2009.02468.x>
- Norenzayan, A., Choi, I., & Nisbett, R. E. (2002). Cultural similarities and differences in social inference: Evidence from behavioral predictions and lay theories of behavior. *Personality and Social Psychology Bulletin*, *28*, 109–120. <https://doi.org/10.1177/0146167202281010>
- Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, *128*, 3–72. <https://doi.org/10.1037//0033-2909.128.1.3>
- Oyserman, D., & Lee, S. W. (2008). Does culture influence what and how we think? Effects of priming individualism and collectivism. *Psychological Bulletin*, *134*, 311–342. <https://doi.org/10.1037/0033-2909.134.2.311>
- Read, D., Loewenstein, G., & Kalyanaraman, S. (1999). Mixing virtue and vice: Combining the immediacy effect and the diversification heuristic. *Journal of Behavioral Decision Making*, *12*, 257–273. [https://doi.org/10.1002/\(SICI\)1099-0771\(199912\)12:4<257:AID-BDM327>3.0.CO;2-6](https://doi.org/10.1002/(SICI)1099-0771(199912)12:4<257:AID-BDM327>3.0.CO;2-6)
- Seeley, E. A., & Gardner, W. L. (2003). The “selfless” and self-regulation: The role of chronic other-orientation in averting self-regulatory depletion. *Self and Identity*, *2*, 103–117. <https://doi.org/10.1080/15298860309034>
- Singelis, T. M. (1994). The measurement of independent and interdependent self-construals. *Personality and Social Psychology Bulletin*, *20*, 580–591. <https://doi.org/10.1177/0146167294205014>
- Singelis, T. M., Bond, M. H., Sharkey, W. F., & Lai, C. S. Y. (1999). Unpackaging culture’s influence on self-esteem and embarrassment: The role of self-construals. *Journal of Cross-Cultural Psychology*, *30*, 315–341. <https://doi.org/10.1177/0022022199030003003>
- Spassova, G., & Lee, A. Y. (2013). Looking into the future: A match between self-view and temporal distance. *Journal of Consumer Research*, *40*, 159–171. <https://doi.org/10.1086/669145>
- Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, *72*, 271–324. <https://doi.org/10.1111/j.0022-3506.2004.00263.x>
- van Horen, F., Pöhlmann, C., Koeppen, K., & Hannover, B. (2008). Importance of personal goals in people with independent versus interdependent selves. *Social Psychology*, *39*, 213–221. <https://doi.org/10.1086/669145>
- Zhang, Y., & Shrum, L. J. (2009). The influence of self-construal on impulsive consumption. *Journal of Consumer Research*, *35*, 838–850. <https://doi.org/10.1086/593687>

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