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## Moments of Weakness: The Implicit Context Dependencies of Temptations

N. Pontus Leander, James Y. Shah, and Tanya L. Chartrand  
Duke University

### Abstract

The implicit appeal of temptations may vary by the social and self-regulatory contexts in which they are encountered. In each of four studies, participants were subliminally primed with the name of someone associated with either drug use or drug abstinence, after which their own motives toward drug use were assessed. Results indicate that the appeal of this temptation often depended on participants' chronicity of indulgence (Study 1), relationship closeness with the tempter (Study 2), self-regulatory effectiveness (Study 3), and goal disengagement tendencies (Study 4). Although the influence of tempters may be automatic, it is also a dynamic process and these findings suggest that the appeal of temptations varies both situationally and motivationally.

### Keywords

*temptation; goal priming; implicit social influence*

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I never resist temptation because I have found that things that are bad for me do not tempt me.

—George Bernard Shaw, *The Apple Cart*

The notion that people are inexplicably drawn to temptations despite the potential consequences of indulging in them has long been of interest to social psychologists (Mischel, Shoda, & Rodriguez, 1989). Recent research suggests that reactions to temptations may even be automatic (Fishbach & Shah, 2006), and yet it is still not entirely clear how people come to first identify and define what is tempting to them. What is a temptation exactly and to what extent are temptations defined absolutely? Intuition suggests that the pull of temptations can wax and wane; the temptation to leave work early, for instance, might be stronger on a Friday than on any other day of the week, especially if others are leaving early. But if a Monday deadline is looming or if others are working late, then the idea of leaving early may lose its appeal—if it comes to mind at all. This example suggests that the value and meaning of temptations may vary both situationally and motivationally.

Prior studies have highlighted the regulatory role of temptations and demonstrated that exposure to them can undermine people's subsequent efforts and self-regulatory functioning (Baumeister, Bratslavsky, Muraven, & Tice, 1998). However, the regulatory factors responsible for a temptation's immediate appeal are not entirely understood, meaning that it may not always be obvious why people are attracted to temptations. Moreover, exposure to motivational stimuli often goes unnoticed and people do not always know when they are

being influenced by contextual cues (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trotschel, 2001). Thus, reactions to temptations can often be spontaneous, uncontrollable, and unintentional. However, the implicit appeal of temptations—and thus their automatic influence—likely varies by their immediacy and self-regulatory relevance. This research explores this possibility by first reviewing literature suggesting the context dependencies of temptations and then presenting four studies that illustrate how various personal, interpersonal, and motivational factors often determine a temptation's appeal.

## Defining Moments of Temptation

Despite considerable research suggesting the importance of temptations and the challenges people face in overcoming them, the exact definition of a *temptation* remains elusive. Indeed, temptations are often only defined in terms of their conflict with more important pursuits. When two goals are competing (a common problem in self-regulation; Cantor & Blanton, 1996), the goal that is less essential to one's long-term interests tends to become regarded as the temptation and the other maintains its identity as a goal. Any goal may temporarily become a temptation when its immediacy intrudes on a more important pursuit (as noted by Fishbach, Friedman, & Kruglanski, 2003), such that the overriding goal in one context might become the temptation in another. Temptations may take the form of redefining an existing goal, such as lowering one's standards for success (e.g., cutting corners), or they might be discrete goals that have specific drawbacks (e.g., health, legal, or ethical implications). Activities such as drug use typify temptations because their regulatory benefits, despite being short lived, are immediate and their potential consequences are readily deferred (classic qualities of temptations; Mischel, Grusec, & Masters, 1969).

If people are to be momentarily drawn toward temptations, then the temptations must be both immediately available and motivationally self-relevant. This is evident in how the presence of junk food is more problematic for dieters than it is for nondieters (e.g., Muraven & Baumeister, 2000) and how relationships with drug-using peers are so risky to adolescents seeking social acceptance (Ary, Duncan, Duncan, & Hops, 1999). The importance of immediate availability is also evident in how men who associate sex with power become more sexually attracted to women when they are themselves primed with situational power (Bargh, Raymond, Pryor, & Strack, 1995). Thus, the momentary appeal of temptations may be moderated both by their self-regulatory relevance as well as the extent to which the social environment implies an immediate opportunity to indulge in those temptations. We test this possibility in this research.

## Social Appeals: Considering the Interpersonal Nature of Temptations

Temptations are often defined socially (e.g., drinking with friends vs. drinking alone), and some are entirely interpersonal (e.g., partying, risky sex). This means that some temptations may have inherent social qualities that are central to their identity and perceived availability. For example, social loafing may closely resemble mere procrastination but it has a social element to it that changes how that activity is defined. This might suggest that the real or imagined presence of a tempter—someone who represents the means to indulge in a temptation—might significantly affect a temptation's meaning and value.

Like other temptations, the influence of tempters may be spontaneous and automatic, mainly because people regularly adopt and pursue the goals they perceive others to have (Aarts, Gollwitzer, & Hassin, 2004; Shah, 2003a). This means that tempters do not always exert their influence explicitly, for mere exposure to them or their behaviors will often suffice for them to exert an influence nonconsciously (e.g., Corcoran, 1995). Yet people only catch goals from others that suit their own motivational priorities and preferences (Aarts et al., 2004), and the link between perceiving a goal and acting on it oneself is also moderated by

many social factors. For instance, the nature of people's relationships to tempters might affect how their associated temptations are construed and valued: Getting high alone or with strangers may not be as appealing as it is with friends. Furthermore, specific individuals might represent the opportunity to indulge in a temptation more strongly than others might, and thus the appeal of temptations might change depending on which relationship partners are immediately salient (e.g., Baldwin, Carrell, & Lopez, 1990; Shah, 2003b). Assuming that the identity and appeal of temptations is based partly on their association with others, subliminal cues in the environment that bring tempters to mind might suffice to increase motivation toward the temptations they represent.

Social cues can also increase the perceived immediacy of temptations, further enhancing their appeal. Marijuana, for instance, is illegal and, therefore, opportunities to indulge in it may seem relatively rare and short lived. Such urgency can be motivating (Leander & Shah, 2008; Shah, Brazy, & Jungbluth, 2008). However, even immediacy effects are moderated by self-regulatory factors: The enhanced sexual attractiveness perceived in other bar patrons at closing time, for instance, occurs mainly just among those who are single themselves and thus more motivated to find a partner (Madey et al., 1996). As suggested by the introductory quote, readily available temptations are only appealing when they serve one's current needs or chronic regulatory tendencies, which can vary personally, interpersonally, and motivationally (see also Kaplan, Martin, & Robbins, 1984; Stacy, Newcomb, & Bentler, 1992). The factors that could moderate a temptation's appeal are broadly reviewed next.

### **Personal Variation: Familiarity Is Appealing**

Frequently indulging in a temptation can automate one's behavior toward it and also increase its implicit appeal (Bradley, Mogg, Wright, & Field, 2003; Stacy, Ames, Sussman, & Dent, 1996). Along the same lines, chronically associating a temptation with a particular relationship partner may eventually cause that temptation to activate in memory whenever that person is brought to mind (Fitzsimons & Bargh, 2003). This suggests that the psychological presence of tempters can readily influence those individuals who already desire the temptation and routinely indulge in it socially (see also Fitzsimons & Bargh, 2004).

Such automatization of one's behavior toward temptations might also exacerbate susceptibility to unwanted and accidental priming effects (see Shah & Kruglanski, 2002). That is, motivation to indulge in a temptation may be activated by social cues without conscious intent or awareness. Assuming that being able to detect temptation-related cues is fundamental to effective self-regulation (especially in preventing substance use; Brownell, Marlatt, Lichtenstein, & Wilson, 1986), people who are less cognizant of temptation-related cues might also be less able to self-regulate when those cues are present, facilitating susceptibility to the temptation (Gailliot & Baumeister, 2007).

We conducted this research to illustrate that the strength of a temptation as well as self-regulatory effectiveness each moderates the implicit appeal of temptations. Like other goals, temptations are expected to be primed more strongly by relevant social cues among individuals with a long history of indulging in them. Unlike other goals, however, temptations are also expected to be primed more strongly among those who are ineffective self-regulators (Fishbach & Shah, 2006), specifically those who are chronically unable to monitor and control their own behavior around temptation-related social cues.

### **Interpersonal Variation: The Potential Bind of Social Ties**

The appeal of temptations such as drug use is often assumed to have social origins (e.g., Ary et al., 1999; Jessor & Jessor, 1977), but the self-regulatory underpinnings of social influence

are still being explored. What is known is that substance use is often perpetuated in social gatherings and among close friends (Hussong, 2000; Urberg, Degirmencioglu, & Pilgrim, 1997), suggesting that people may indulge in temptations as part of their everyday social self-regulation strategies.

This might also suggest that relying on tempters for self-regulatory guidance can affect the appeal of any temptations they represent. For instance, motivation toward temptations may increase in the company of relationally close tempters but not relationally distant ones (e.g., Shah, 2003b). This is because relationally close tempters may be sought out to fulfill important self-regulatory needs, and indulging in their temptations may be a means of acquiring the tempters' attention and support (e.g., Hussong & Hicks, 2003; Wills, Resko, Anette, & Mendoza, 2004). People also seek social acceptance from others (Baumeister & Leary, 1995), and as such people might indulge in temptations as a means of affiliating with their tempters. In this analysis, we assumed that relationship closeness with tempters represents a chronic regulatory reliance on them (Aron et al., 2005), and as such we test the hypothesis that the appeal of highly immediate temptations is moderated by the closeness shared between individuals and their tempters.

### **Motivational Variation: Taking Refuge in Temptations**

Temptations can also offer people relief from unpleasant circumstances by providing opportunities to disengage from unwanted motivational states (e.g., Baumeister, Heatherton, & Tice, 1994; Sayette, 2004). Goal failure, for instance, is a common source of negative affect (Carver & Scheier, 1981), and the immediate benefits of indulging in temptations may assuage those feelings (Baumeister & Scher, 1988; Cooper, Frone, Russell, & Mudar, 1995). Thus, people who are motivated to disengage from their threatened goals might be more drawn to temptations than might people who are instead preoccupied with those goals.

Research suggests that people's motivational dispositions toward goal disengagement and goal selection vary individually (Kruglanski et al., 2000; Kuhl, 1984), which might affect their likelihood of disengaging from difficult goals and reengaging in temptations. For instance, some people may disengage from their moral goals more readily than others, removing the social restrictions placed on a variety of appealing behaviors (see Bandura, 1996, for a brief review). People's chronic tendencies to disengage from failing goals, then, might predict how appealing a temptation is to them.

### **Current Studies**

As reviewed above, the identification and implicit appeal of temptations may be moderated by both their immediacy and their self-regulatory relevance. More specifically, we expect that individuals' automatic attraction to temptations will increase in the presence of temptation-related social cues, especially among those who can easily integrate indulging in the temptation with their ongoing self-regulation.

In this research, we first provide pilot data to clarify our conceptualization of a temptation and also to suggest that people's attraction to temptations, such as marijuana use, may have different motivational origins than their attraction to other goals. Study 1 illustrates how subliminal cues suggesting a tempter's presence can trigger individuals' preexisting motives toward marijuana use. In Study 2 we sought to demonstrate that temptations are more appealing in the immediate presence of relationally close (but not distant) tempters. Study 3 was conducted to differentiate temptation-related priming effects from goal priming effects generally by demonstrating that the influence of highly immediate and relationally close tempters is especially strong among ineffective self-regulators—those who typically fail to detect temptation-related social cues and thus fail to exert self-control when necessary.

Finally, in Study 4 we explored the motivational dynamics of temptations by investigating how chronic goal disengagement tendencies are often served by temptations and also examining differences between being primed with someone merely unassociated with a temptation and someone who strongly opposes it. In these studies, it was hypothesized that the temptation to use marijuana would be more appealing when it was both highly immediate and highly concordant with the individual's self-regulatory needs, preferences, and tendencies.

## PILOT STUDY

Although temptations may have a rather fluid definition in the literature and in the self-regulatory process, they are expected to differ in important ways from long-term goals and unequivocally positive goal states. As such, and for the present research to specifically demonstrate the implicit context dependencies of temptations (and not of goals generally), we first sought to ensure that most individuals generally perceived marijuana use as a temptation, both in an intuitive sense (e.g., regarding it as a vice behavior) and also in recognizing its potential self-regulatory limitations and drawbacks (e.g., has short-term value, conflicts with other goals).

Twenty-nine pilot study participants rated marijuana use and other activities in terms of their ethicality (from  $-2 = \textit{vice}$  to  $+2 = \textit{virtue}$ ), focus (from  $-2 = \textit{has short-term benefits but long-term costs}$  to  $+2 = \textit{has long-term benefits but short-term costs}$ ), and inherent conflict with more important pursuits (from  $1 = \textit{no conflict}$  to  $5 = \textit{conflicts greatly}$ , reverse coded and centered). Responses to these items were summed and ranked such that lower scores indicated temptations and higher scores indicated long-term goals. These activities (and their mean scores, in order) are as follows: Marijuana use ( $-3.24$ ), having casual sex ( $-3.07$ ), eating fast food ( $-2.75$ ), drinking alcohol ( $-2.34$ ), watching television ( $-1.14$ ), dieting ( $1.76$ ), being in a committed relationship ( $2.66$ ), graduating ( $3.76$ ), studying ( $4.03$ ), and exercising ( $4.10$ ). As expected, marijuana use scored at the opposite extreme of activities related to academic achievement and physical fitness. Furthermore, paired-samples  $t$  tests found that mean scores for marijuana use differed significantly ( $p < .001$ ) from all activities except eating fast food and having casual sex ( $ps > .25$ ), two activities typically regarded as temptations in the extant literature. Marijuana use differed marginally from drinking alcohol ( $p < .06$ ), but drinking alcohol still differed significantly from all those it was rated lower than ( $p < .03$  or better).

These results indicate that the temptation to use marijuana might have different motivational qualities than other goals: It was regarded by pilot study participants as a vice behavior providing mainly short-term benefits but long-term costs and conflicts. Thus, the appeal of temptations might vary situationally. The next four studies examine the personal, interpersonal, and self-regulatory factors that moderate people's attraction to them.

## STUDY 1

People whose history with a temptation indicates a strong preexisting desire for it are expected to show increased motivation toward that temptation when a tempter is present (see Aarts et al., 2004; Zajonc, 1968). Indeed, chronic cognitive accessibility of a temptation likely facilitates being primed by temptation-related social cues (Higgins & Brendl, 1995). In contrast, those who have historically abstained from a temptation should be more vigilant against it when a tempter is present because these individuals appraise that situation as more of an opportunity to reinforce their long-term goal commitments (Fishbach et al., 2003).

Participants in this initial study provided the name of someone who had a goal to use marijuana (a "tempter") as well as the names of people who did not. Participants also

reported their own chronic marijuana use. Next, they were either subliminally primed with the name of the tempter or not, after which their motives and behavior toward the temptation were assessed. It was hypothesized that subliminally presented social cues indicating high immediacy of a temptation would trigger motivation toward that temptation among those who chronically indulge in it and away from the temptation among those who chronically abstain from it.

## Method

**Participants**—Thirty-seven Duke University undergraduate students (age  $M = 19.8$ , 35% female) participated in return for \$5. Gender had no singular or interactive effect on the presented results.

**Procedure**—Participants completed the experimental procedure on personal computers and they were given as much time as needed to do so. As part of an initial battery of questionnaires, participants provided the first name of someone who was likely to have intentions to use marijuana in the next month as well as the names of other people believed to have no such intentions. Participants were firmly instructed to provide only first names. Participants answered a variety of questions regarding their relationships to those they named both to ensure the accuracy of the names provided and to minimize suspicions regarding the nature of the study.

Chronic marijuana use was assessed via three questions asking how many times participants used marijuana in the past 30 days (free response), 6 months (scale response, 0 = *no use* to 8 = *more than once per day*), and lifetime (0 = *never* to 8 = *100+ times*). Responses to these items were standardized and summed to form a Chronic Use score ( $\alpha = .89$ ).

Participants then completed the subliminal priming procedure, similar to the one used by Shah (2003b): Participants engaged in a focal task that kept their attention at the center of the screen while critical stimuli were subliminally presented in random quadrants of the screen. The focal task in this experiment was a lexical decision task. In each of 10 practice and 96 test trials, a string of asterisks (\*\*\*\*\*) first appeared to direct attention to the center of the screen, after which a string of letters appeared that either formed words (e.g., *bridge*) or not (e.g., *foat*). Participants were instructed to press the *F* key if the letter string was a word and the *J* key if it was not a word. Importantly, and before each letter string appeared, approximately half the participants were subliminally primed with the name of the person associated with marijuana use (50ms, forward and backward masked), and the rest were subliminally primed with either another name or a random letter string. Participants received a 5s break every 32 trials.

**Motivation to indulge in temptation:** Participants' motives to use marijuana were assessed using a 15-item questionnaire modified from Cooper and colleagues' (Cooper, Russell, Skinner, & Windle, 1992) three-dimensional measure of drinking motives. Participants were instructed to think about the possible reasons that might (or do) influence their choices to use marijuana. Each item began with "*I use (or would use) pot*" followed by either a social, coping, or enhancement-related motive (e.g., "*because it makes social gatherings more fun*"). Participants indicated their agreement on 5-point scales (1 = *almost never*; 2 = *rarely*; 3 = *sometimes*; 4 = *often*; 5 = *almost always*). Responses to these items were standardized and summed to form a motivation score ( $\alpha = .97$ ).

**Interest in preventing drug use:** Participants then received a drug-prevention manual and were instructed that it was for their interest only and thus they were not obligated to read it. The manual was presented on screen and included several slides brimming with advice from

the National Institute on Drug Abuse ([www.nida.gov](http://www.nida.gov)). The computer recorded the total amount of time these slides remained on screen—assumed to be the amount of time participants spent reading them. Those who were motivated to indulge in the temptation were expected to spend less time reading the slides.

Suspicious regarding the nature of the study were assessed before participants were thanked and fully debriefed as to extinguish any residual effects of the priming manipulation (Williams, Fitzsimons, & Block, 2004).

## Results and Discussion

No significant differences were observed between those subliminally primed with random letter strings and those primed with a name unrelated to marijuana use, so these conditions were combined to form a single control condition. One participant guessed the specific hypothesis and another did not follow instructions when entering names, so both were excluded from the analysis.<sup>1</sup>

**Effects on Motivation to Indulge in Temptation**—Participants' motivation to use marijuana was regressed over priming condition (tempter prime vs. other prime), chronic use, and the interaction of these two variables. Results indicated a positive effect of chronic use,  $B = 0.95$ ,  $F(1, 31) = 16.44$ ,  $p < .001$ , and a positive two-way interaction of priming condition and chronic use,  $B = 0.49$ ,  $F(1, 31) = 4.40$ ,  $p < .05$ . As predicted, simple effects analysis revealed a positive effect of priming condition among more chronic users,  $B = 1.33$ ,  $F(1, 31) = 4.21$ ,  $p < .05$ , and a negative trend of priming condition among less chronic users,  $B = -0.64$ ,  $F(1, 31) = 2.04$ ,  $p < .17$ . As illustrated in Figure 1,<sup>2</sup> subliminal cues suggesting high immediacy of a temptation can activate preexisting motives to indulge in it.

**Effects on Interest in Preventing Drug Use**—The amount of time participants spent reading the manual was first log transformed to minimize the effect of outliers (Fazio, 1990) and then regressed over priming condition (tempter prime vs. other prime), chronic use, and the interaction of these two variables. A negative crossover interaction was found,  $B = -0.45$ ,  $F(1, 31) = 4.58$ ,  $p = .04$ . Simple effects analysis revealed a negative trend of priming condition among more chronic users,  $B = -0.98$ ,  $F(1, 31) = 2.79$ ,  $p < .11$ , and a positive effect of priming condition among less chronic users,  $B = 0.84$ ,  $F(1, 31) = 4.29$ ,  $p < .05$ . As illustrated in Figure 2, tempter-primed more chronic users spent relatively less time reading the drug prevention manual, indicating attentional inhibition, whereas tempter-primed less chronic users spent relatively more time reading the drug prevention manual, indicating attentional facilitation. Such attention toward the drug prevention manual indicates vigilance (and, potentially, activation of an overriding goal; Fishbach et al., 2003).

These results suggest that people's preexisting motives to indulge in a temptation can moderate their implicit reactions to the immediacy of that temptation's availability. Indeed, motivation toward marijuana use as a function of a tempter's immediacy increased primarily just among those who had a preexisting desire for the drug and were thus highly familiar with it already.

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<sup>1</sup>Only the participant who guessed the specific hypothesis significantly altered the presented results when included in the analysis.

<sup>2</sup>In all presented results, predicted values were calculated at one standard deviation above and below the means of the relevant independent variables (Aiken & West, 1991). Simple effects for the three-way interaction in Study 3 were computed using the online tools provided by Preacher and colleagues (Preacher, Curran, & Bauer, 2006).

## STUDY 2

Familiarity with temptations can exist not only in the form of people's history of indulging in them but also in the form of their familiarity with the tempters themselves. Results from Study 1 suggest that the appeal of temptations often depends on one's preexisting motives toward or away from them, yet sometimes the appeal of temptations might instead depend on the perceived quality and self-relevance of the social cues (e.g., the people) that bring them to mind. Specifically, the extent to which a social cue is a familiar source of self-regulatory guidance might predict the appeal of any temptations associated with that cue. In this second study, familiarity and social reliance is being represented by interpersonal closeness. Indeed, the closeness shared between an individual and a tempter might represent their overlapping regulatory needs and interests (Aron et al., 2005) and, thus, the extent of their relational overlap might moderate how appealing a temptation becomes to that individual in the tempter's presence (see also Shah, 2006).

Participants in Study 2 provided the name of someone who used marijuana as well as the name of someone who did not, and they rated the closeness of each relationship. Participants were then subliminally primed with one of those names, after which their motives and cognitive accessibility of the temptation were assessed.

### Method

**Participants**—Sixty-four Duke University undergraduate students (age  $M = 20.7$ , 59% female) participated in return for \$6.

**Procedure**—Participants completed the experimental procedure on personal computers and they were given as much time as needed to do so. After completing filler questionnaires lasting approximately 5 minutes, participants were instructed to enter the first name of someone thought to be most likely to smoke marijuana as well as the name of someone thought to be least likely to do so.

Participants then answered several questions regarding each relationship to ensure the accuracy of their responses while minimizing suspicions regarding the nature of the study. Embedded among these questions was the Inclusion of Other in the Self scale (Aron, Aron, & Smollan, 1992). This one-item measure of closeness presented participants with seven pairs of overlapping circles. Each pair included a circle labeled “self” and a circle labeled “other.” The seven pairs overlapped to different extents (rated 1 = *no overlap* to 7 = *almost complete overlap*), and participants indicated which pair best represented each aforementioned relationship.

Participants then completed the same subliminal priming procedure used in Study 1, during which they were primed with one of the two names provided earlier (a tempter or some other person).

**Motivation to indulge in temptation:** After a brief filler task, participants completed the same 15-item motives questionnaire from Study 1 (Cooper et al., 1992). Responses to these items were standardized and summed to form a single motivation score ( $\alpha = .97$ ).

**Temptation accessibility:** Word-association tasks used in previous research have found that being able to generate more marijuana-related words from relatively ambiguous stimuli is associated with greater cognitive accessibility of that temptation (Stacy, 1995; Stacy et al., 1996). Using a similar paradigm, participants were instructed to generate as many euphemisms for the word *marijuana* as possible (e.g., *weed*, *reefer*). The number of



euphemisms generated by participants represented the accessibility of the temptation in memory.

Suspensions regarding the nature of the study were then assessed before participants were thanked and fully debriefed.

## Results and Discussion

**Effects on Motivation to Indulge in Temptation**—Participants' motivation to use marijuana was regressed over priming condition (tempter prime vs. other prime), relationship closeness (self-other overlap), and the interaction of these two variables. The two-way interaction of priming condition and relationship closeness was significant,  $B = 0.29$ ,  $F(1, 60) = 4.43$ ,  $p = .04$ . Simple effects analysis revealed a positive marginal effect of priming condition at higher closeness,  $B = 0.37$ ,  $F(1, 60) = 3.79$ ,  $p < .06$ , and no effect at lower closeness,  $p > .25$ . As illustrated in Figure 3, participants who were subliminally primed with the name of a relationally close tempter reported stronger motivation to indulge in that temptation than did those primed with a relationally distant tempter or those primed with some other name.

**Effects on Temptation Accessibility**—The number of euphemisms generated by participants was regressed over priming condition, relationship closeness, and the interaction of these two variables. Results yielded a positive effect of relationship closeness,  $B = 0.89$ ,  $F(1, 60) = 4.83$ ,  $p < .04$ , and a positive two-way interaction of priming condition and relationship closeness,  $B = 1.04$ ,  $F(1, 60) = 6.56$ ,  $p < .02$ . Simple effects analysis revealed a positive effect of priming condition at higher closeness,  $B = 1.67$ ,  $F(1, 60) = 8.45$ ,  $p < .01$ , and no effect at lower closeness,  $p > .25$ . Women generated more euphemisms than men,  $B = 0.31$ ,  $F(1, 62) = 7.55$ ,  $p < .01$ , but gender did not affect the presented results when included as a moderator or covariate. As illustrated in Figure 4, participants who were subliminally primed with the name of a relationally close tempter generated more euphemisms than did those primed with a relationally distant tempter or those primed with some other name.

These results suggest that the implicit appeal of temptations depends on the regulatory self-relevance of the social cues that bring them to mind. Being primed with a relationally close tempter increased participants' desire for the temptation and also its cognitive accessibility. These findings indicate that highly immediate temptations represented by highly self-relevant social cues can influence both motivation and cognition.

Important to consider is that constant exposure to relationally close tempters may potentially increase familiarity with a temptation and thus increase its appeal (e.g., Berger & Fitzsimons, 2008; Zajonc, 1968). Relationally close tempters may also be more accessible (either physically or in memory) in moments when people are least vigilant against their influence. As discussed earlier, some individuals may be especially susceptible to subliminal social influences because they do not readily detect cues that suggest the need to exert self-control. The next study explores how the immediacy of relationally close tempters can be especially tempting to those who are relatively ineffective self-regulators, setting the effects observed in these studies apart from goal priming effects generally.

## STUDY 3

The implicit appeal of temptations may be more a function of failing to effectively self-regulate than succeeding at it. That is, in contrast to how high self-regulatory effectiveness can facilitate long-term goal attainment (Tangney, Baumeister, & Boone, 2004), low self-regulatory effectiveness instead facilitates susceptibility to temptations (Fishbach & Shah,

2006). Therefore, those who are unable to detect temptation-related social cues and adjust their behavior accordingly may be highly susceptible to temptations that are immediate, self-relevant, and subliminally cued.

Participants in Study 3 first provided the name of someone who used marijuana as well as the name of someone who did not, and they rated the closeness of each relationship. For the measure of self-regulatory effectiveness, participants rated their ability to detect social cues that suggest the need to exert self-control—adapted from a measure already associated with predicting marijuana use (Brown, Baumann, Smith, & Etheridge, 1997). Participants were then subliminally primed with one of the names they had provided, after which their motives and cognitive accessibility of the temptation were assessed. It was hypothesized that highly immediate and self-relevant temptations would be more appealing to relatively ineffective self-regulators than to relatively effective self-regulators.

## Method

**Participants**—Seventy-three Duke University undergraduate students (age  $M = 20.6$ , 48% female) participated in return for cash payment.<sup>3</sup> Gender had no singular or interactive effect on the presented results.

**Procedure**—The procedures were almost identical to those used in Study 2, except that as part of an initial questionnaire battery participants' self-regulatory effectiveness was assessed through their agreement with statements such as “It's hard for me to notice when I've `had enough' (alcohol, food, sweets)” or “Most of the time I don't pay attention to what I'm doing” (rated 1 = *not at all* to 7 = *extremely*; adapted from Brown, Miller, & Lawendowski, 1999). These eight items were standardized and summed to form a self-regulatory effectiveness score ( $\alpha = .70$ ), higher scores indicating a greater ability to detect temptation-related social cues and subsequently exert self-control.

Participants entered the names of the two people they thought were most and least likely to use marijuana and reported the closeness of their relationship to those individuals (Aron et al., 1992). Participants then completed the subliminal priming procedure, during which they were primed with one of the two names they provided earlier (either a tempter or some other person). Participants' motives to indulge in the temptation ( $\alpha = .97$ , standardized and summed) and the temptation's cognitive accessibility were used as dependent measures.

Suspicious regarding the nature of the study were then assessed before participants were thanked and fully debriefed.

## Results and Discussion

**Effects on Motivation to Indulge in Temptation**—Participants' motivation to use marijuana was regressed over priming condition (tempter prime vs. other prime), relationship closeness, self-regulatory effectiveness, and all possible interactions. Results indicated a negative effect of self-regulatory effectiveness,  $B = -0.47$ ,  $F(1, 65) = 12.93$ ,  $p < .001$ , a positive two-way interaction of priming condition and relationship closeness,  $B = 0.34$ ,  $F(1, 65) = 7.05$ ,  $p = .01$ , and a negative three-way interaction of priming condition, relationship closeness, and self-regulatory effectiveness,  $B = -0.30$ ,  $F(1, 65) = 4.32$ ,  $p < .05$ . Simple effects analysis revealed a positive effect of priming condition at lower self-regulatory effectiveness and higher closeness,  $B = 0.65$ ,  $F(1, 65) = 4.10$ ,  $p < .05$ , a negative effect of priming condition at lower self-regulatory effectiveness and lower closeness,  $B = -0.63$ ,  $F(1, 65) = 6.78$ ,  $p < .02$ , and no effect at higher levels of self-regulatory effectiveness

<sup>3</sup>Data were collected at two separate locations wherein participants were paid \$6 or \$10. This did not affect the presented results.

irrespective of closeness,  $ps > .25$ . Supporting our hypothesis and as illustrated in Figure 5, ineffective self-regulators who were primed with a relationally close tempter reported stronger motivation to indulge in that temptation than did more effective self-regulators who were given the same prime or other participants who were primed with some other name.

**Effects on Temptation Accessibility**—The number of euphemisms generated by participants was regressed over priming condition (tempter prime vs. other prime), relationship closeness, self-regulatory effectiveness, and all possible interactions. Results indicated a positive effect of relationship closeness,  $B = 1.34$ ,  $F(1, 65) = 9.19$ ,  $p < .005$ , a negative effect of self-regulatory effectiveness,  $B = -1.175$ ,  $F(1, 65) = 6.67$ ,  $p < .02$ , a positive two-way interaction of priming condition and relationship closeness that approached marginal significance,  $B = 0.21$ ,  $F(1, 65) = 2.42$ ,  $p < .13$ , and a negative three-way interaction of priming condition, relationship closeness, and self-regulatory effectiveness,  $B = -1.23$ ,  $F(1, 65) = 5.85$ ,  $p < .02$ . Simple effects analysis revealed a positive marginal effect of priming condition at lower self-regulatory effectiveness and higher closeness,  $B = 2.18$ ,  $F(1, 65) = 3.73$ ,  $p < .06$ , a negative effect of priming condition at lower self-regulatory effectiveness and lower closeness,  $B = -1.65$ ,  $F(1, 65) = 4.05$ ,  $p < .05$ , and no effect at higher levels of self-regulatory effectiveness irrespective of closeness,  $ps > .25$ . As illustrated in Figure 6, ineffective self-regulators who were primed with the name of a relationally close tempter generated more euphemisms than more effective self-regulators who were given the same prime or other participants who were primed with some other name.

These results indicate that self-regulatory effectiveness moderates people's social sensitivity to temptations in that those who cannot readily detect temptation-related cues or exert self-control when necessary tend to be implicitly drawn toward highly immediate and self-relevant temptations. Interestingly, ineffective self-regulators were not invariantly drawn toward temptations—they actually seemed to be pushed away from the temptation when primed with a relationally distant tempter, perhaps indicating their greater susceptibility and reactivity to social cues generally. Nevertheless, this study highlights the importance of self-control when considering the implicit appeal of temptations.

Indulging in temptations involves relinquishing self-control, and these studies indicate that such relinquishment may be quite likely to occur when social cues suggest the presence of a relationally close tempter. Self-control can be difficult to sustain generally, particularly among those who are feeling threatened by the state of their focal goal pursuits. More specifically, people who have trouble perseverating on their troubled goal pursuits may perceive a temptation as an opportunity to relinquish self-control because it allows them to disengage from their failing pursuits and reengage in temptations instead. This possibility is explored in a final study.

## STUDY 4

The appeal of temptations may often vary by people's chronic tendencies toward goal disengagement. Although people who stay focused on their long-term pursuits may be automatically shielded against the pull of temptations (Shah, Friedman, & Kruglanski, 2002), those who are motivated to disengage from their goals may be quite drawn toward temptations. People differ in their chronic disengagement tendencies (Kuhl, 1984), meaning that some people may be more attracted to temptations than others would because those temptations represent opportunities to disengage from their unfulfilled long-term goals and instead reengage in more enjoyable and attainable pursuits.

In Study 4 we also sought to demonstrate that the temptation effects being documented herein are more than just a function of the primed other's cognitive association with marijuana—that these effects are indeed motivational. Someone who explicitly opposes indulging in a particular temptation may exert a different kind of influence than someone who is merely unassociated with that temptation. These individuals are still cognitively associated with a temptation; only their motivational association differs. Those who represent social institutions that oppose drug use, for instance, may trigger prevention motives in individuals (see Shah, 2003b) that heighten vigilance against drug-related stimuli, thus increasing the temptation's cognitive accessibility but not motivation toward it. Similar to how Study 1 demonstrated that temptation priming increases time spent reading a drug prevention manual among people who chronically do avoid drug use (indicating heightened accessibility of the temptation in their minds), Study 4 sought to demonstrate that being primed with the name of someone who represents avoiding drug use can also increase its cognitive accessibility. Those primed with someone who is simply unassociated with marijuana are not expected to show any vigilance effects.

Participants in Study 4 provided the name of someone who endorsed marijuana use, someone who was neutral toward marijuana, and someone who strongly opposed marijuana use. Participants were later primed with one of those names. Individual differences in chronic goal disengagement were also assessed, and it was hypothesized that individuals with higher chronic goal disengagement tendencies would become either more motivated to indulge in the temptation when given the tempter prime or more vigilant against it when given the social institution prime, using the motivationally neutral (other) prime as the control in each analysis.

## Method

**Participants**—Ninety-six Duke University undergraduate students (age  $M = 19.3$ , 61% female) participated in return for course credits.

**Procedure**—Participants completed the experimental procedure on personal computers and were given as much time as needed to do so. They provided the names of three people: one who endorsed marijuana use, one who did not use marijuana but did not care if others did, and a third who represented a social institution that strongly opposed marijuana use (e.g., parent or other authority figure). The same subliminal priming procedure from preceding studies was used. After a brief filler task, participants indicated their motives to indulge in the temptation.<sup>4</sup>

As the measure of chronic goal disengagement, participants completed a 12-item subscale of the Action Control Scale, which assesses chronic regulatory tendencies to disengage from failing goal pursuits (Kuhl, 1994). For each item, participants first imagined a goal-related threat (e.g., “When I have put all my effort into doing a really good job on something and the whole thing doesn't work out”), and then they indicated whether their likely response would be one of disengagement from the goal (e.g., “I don't have too much difficulty starting something else”) or preoccupation with it (e.g., “I have trouble doing anything else at all”). These items were summed to form a disengagement score ( $\alpha = .75$ ).

Participants then completed the euphemisms-listing task used in previous studies as the measure of the temptation's cognitive accessibility. Suspicions regarding the nature of the study were assessed before participants were thanked and fully debriefed.

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<sup>4</sup>Although prior studies used 5-point scales for the motives questionnaire, Study 4 asked the same questions using reverse-scored 7-point scales. They were analyzed as such but then converted to a 5-point metric for consistency.

## Results and Discussion

**Effects on Motivation to Indulge in Temptation**—Participants' motivation to use marijuana was initially regressed over priming condition (tempter prime vs. other prime), disengagement, and the interaction of these two variables. Gender and ethnicity were correlated with participants' motives scores in this study, so they were included as covariates.<sup>5</sup> A two-way interaction of priming condition and disengagement was found,  $B = 0.25$ ,  $F(1, 58) = 4.83$ ,  $p < .04$ . Simple effects analysis revealed a positive effect of priming condition at higher disengagement,  $B = 0.35$ ,  $F(1, 58) = 5.40$ ,  $p < .03$ , and no effect at lower disengagement,  $p > .25$ . A second regression analysis then determined that the two nontempter conditions were statistically equivalent in that the interaction reported above remained significant when comparing the tempter priming condition with the social institution priming condition,  $B = 0.38$ ,  $F(1, 60) = 7.46$ ,  $p < .01$ . As illustrated in Figure 7, participants with higher goal disengagement tendencies who were primed with the name of a tempter reported stronger motives to use marijuana than other participants.

**Effects on Temptation Accessibility**—The number of euphemisms generated by participants was initially regressed over priming condition (tempter prime vs. other prime), disengagement, and the interaction of these two variables. A two-way interaction of priming condition and disengagement was found,  $B = 0.88$ ,  $F(1, 58)^6 = 4.77$ ,  $p < .04$ . Simple effects analysis revealed a positive effect of priming condition at higher disengagement,  $B = 1.29$ ,  $F(1, 58) = 5.19$ ,  $p < .03$ , and no effect at lower disengagement,  $p > .25$ . Importantly, subsequent regression analyses found that this interaction was not significant when comparing the tempter priming condition with the social institution priming condition,  $p > .25$ , yet the interaction was significant when comparing the social institution priming condition with the other priming condition,  $B = -2.61$ ,  $F(1, 58) = 10.77$ ,  $p < .005$ . This means that participants with higher disengagement tendencies who received the social institution prime may have indeed become more vigilant against temptations, increasing the cognitive accessibility (but not motivation) of the temptation. As illustrated in Figure 8, participants with higher goal disengagement tendencies who were primed with the name of someone who either endorses or opposes marijuana use generated more euphemisms than other participants.

These results highlight the importance of considering people's own motivational tendencies as well as the motives of those who are psychologically present. The immediacy of a tempter was more influential among those with relatively strong (as opposed to weak) tendencies toward goal disengagement. Furthermore, the immediacy of those who represent motives to avoid a temptation might increase vigilance against the temptation, increasing its cognitive accessibility but not motivation toward it, extending the vigilance effect observed in Study 1. Overall, these results support the notion that goal disengagement can be adaptive as long as one doesn't re-engage in temptations (Wrosch, Scheier, Miller, Schulz, & Carver, 2003); regardless of the negative psychological consequences of goal-related failures (e.g., Lavalley & Campbell, 1995) and the potential bore of social institutions, putting up with them might keep one focused on long-term pursuits and thus shielded from the pull of temptations (Shah et al., 2002).

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<sup>5</sup>Male and Caucasian participants reported significantly lower motives than did female and non-Caucasian participants,  $B = -0.30$ ,  $F(1, 58) = 5.78$ ,  $p < .02$ , and  $B = -0.28$ ,  $F(1, 58) = 7.43$ ,  $p < .01$ , respectively. These variables did not significantly alter the results nor did they predict temptation accessibility.

<sup>6</sup>Data were missing from two participants.

## GENERAL DISCUSSION

These four studies demonstrate that the appeal of temptations often depends on their immediacy as well as their self-regulatory relevance. Although the influence of temptations may be automatic, these studies indicate that this influence is not invariant. Instead, their momentary appeal relies on several personal, interpersonal, and motivational factors. All four studies demonstrate increased motivation toward temptations not just when situational cues implicitly suggested social support for them but also when the temptation was appealing to the individual already (Study 1), when the source of the temptation was relationally close and thus readily relied upon (Study 2), among individuals who chronically failed to detect temptation-related social cues (Study 3), and among individuals who were chronically motivated to disengage from their focal goals (Study 4). Collectively, these studies illustrate the implicit context dependencies of temptations, meaning that a temptation's appeal and thus its identity changes situationally as well as motivationally.

People may not be aware of the ways in which they are vulnerable (or resistant) to the influence of tempters, nor are they necessarily aware of the effects of these influences on their behavior. The presented studies demonstrate that tempters can exert an influence nonconsciously and in their physical absence, consistent with theories suggesting that people are often affected by their own inner audiences—relationship schemas that are stored in memory (Baldwin et al., 1990; Morretti & Higgins, 1999). If people are not consciously aware of such influences or how those influences are affecting their behavior, they may not be able to implement appropriate self-regulation strategies that facilitate resistance to temptations (Baumeister et al., 1994; Brownell et al., 1986). Moreover, chronically indulging in temptations may also lead individuals to believe that they cannot resist the influence of tempters even if they wanted to (Wills, 1994), suggesting that the influences exerted by tempters can have a rather insidious quality about them.

Frequent, extensive exposure to tempters may have lasting consequences for social self-regulation. For instance, meeting new people who simply resemble known tempters might trigger patterns of responding that are reminiscent of the way one typically behaves around the tempters (e.g., Glassman & Andersen, 1999). Such transference processes may create a cyclical problem in that those who were once tempted by others might eventually (and nonconsciously) behave as tempters themselves. Chronic indulgers may also come to implicitly evaluate the quality of their relationships based on their relevance to the temptations (Fitzsimons & Shah, 2008), or they might unwittingly immerse themselves in social environments that only increase their exposure to tempters. For example, skipping an early-morning class not only undermines academic performance but doing so also potentially increases the time spent around a lazy roommate. These studies investigated how temptations are implicitly affected by one's relationships to others but future studies could explore how these “inner tempters” in turn affect their other relationships.

Although temptations are typically defined in terms of their conflict with other goals, the presented studies highlight several factors that can affect their identity and motivational appeal. Previous research has examined how the pursuit of long-term goals may lead people to develop counteractive self-control strategies that help them resist temptations (Trope & Fishbach, 2000), and these extend those findings by suggesting that relational distance and chronic self-regulatory tendencies can increase resistance as well. These findings are interesting because people may not always have a more important goal to pursue in temptation-laden social contexts, yet they may nonetheless benefit from the natural shielding provided by their chronic self-regulatory tendencies. The notion that contextual factors can suppress a temptation's appeal also illustrates the importance of developing regulatory

relationships that not only minimize one's exposure to temptations but also provide social contexts that promote vigilance against them.

This research suggests that temptations can emerge spontaneously to shape people's subsequent motivation, cognition, and behavior automatically. Temptations are defined both socially and by their self-regulatory relevance, and their elusiveness in definition only befits the potentially insidious nature of their motivational influence. Effective social and self-regulation, then, may be just as much about keeping temptations from becoming defined by individuals as it is about keeping temptations from defining what becomes of those individuals.

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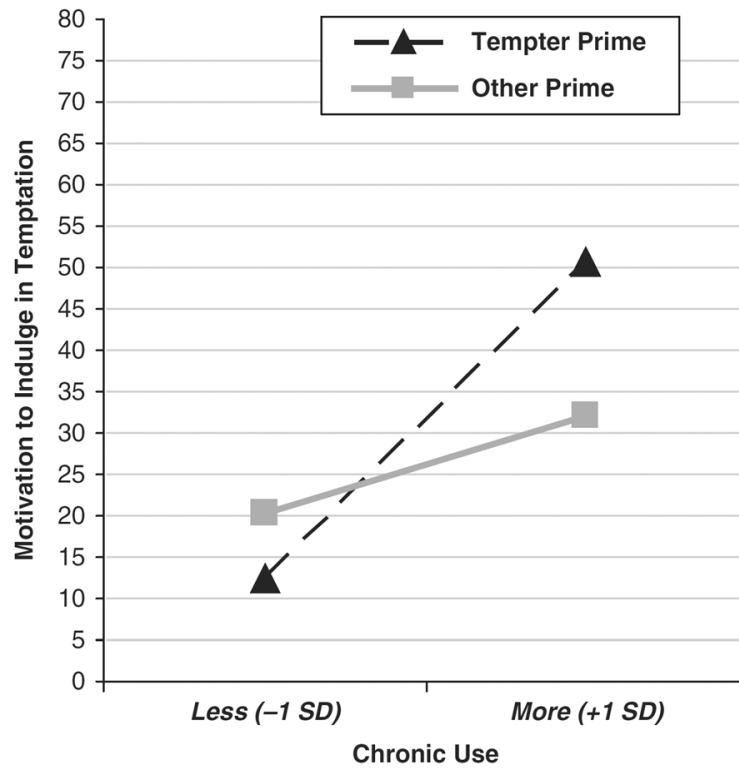
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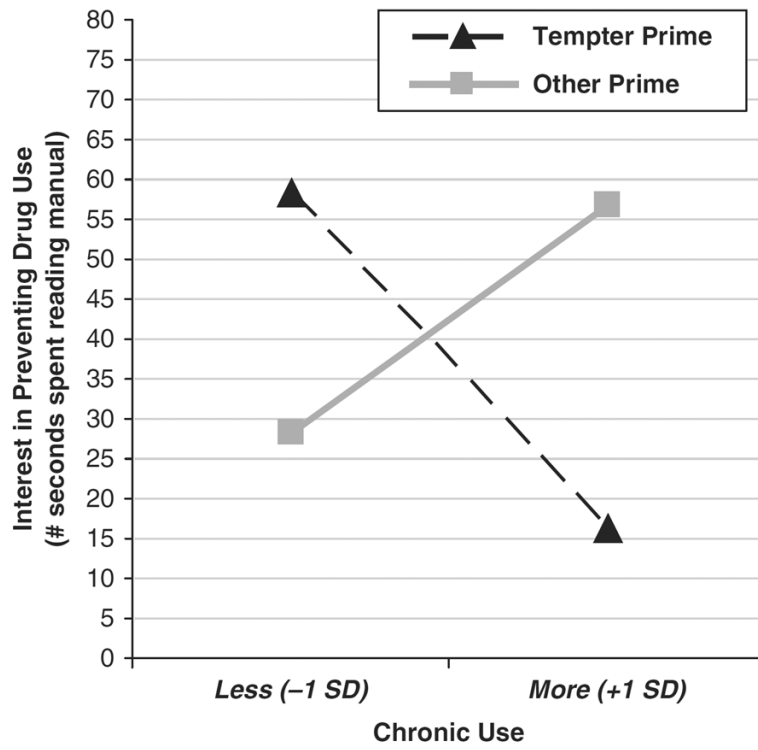


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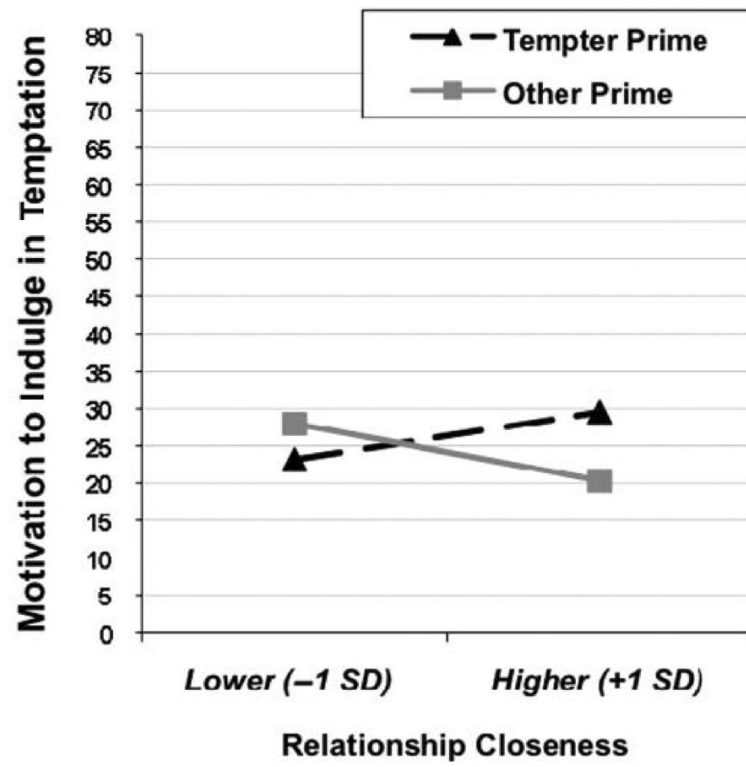
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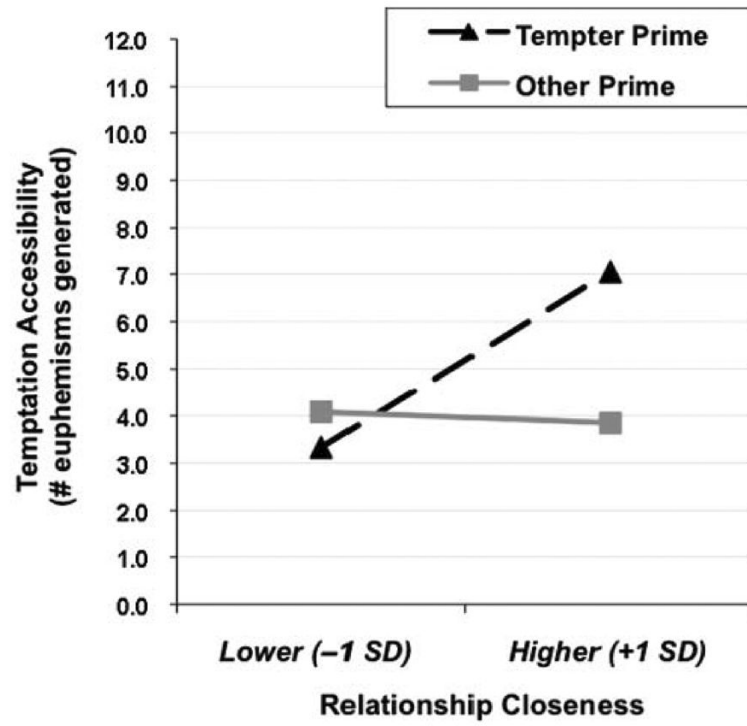
**Figure 1.**  
Study 1: Motivation to use marijuana by priming condition and participants' chronic use.



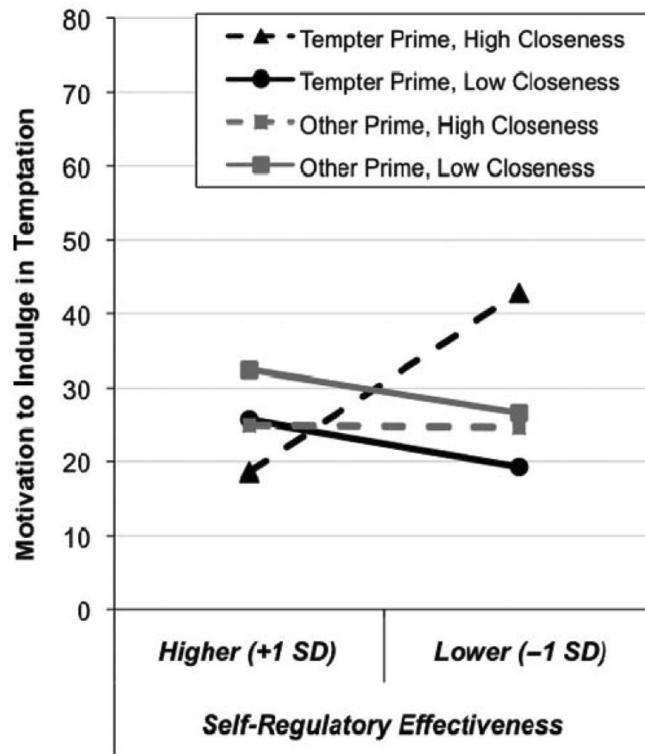
**Figure 2.** Study 1: Interest in drug prevention manual by priming condition and participants' chronic use.



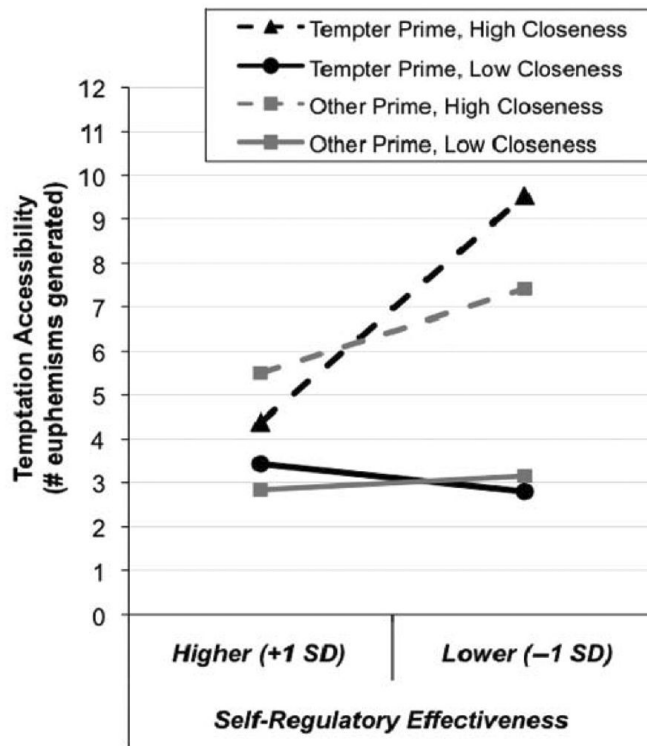
**Figure 3.**  
Study 2: Motivation to use marijuana by priming condition and relationship closeness.



**Figure 4.**  
Study 2: Temptation accessibility by priming condition and relationship closeness.

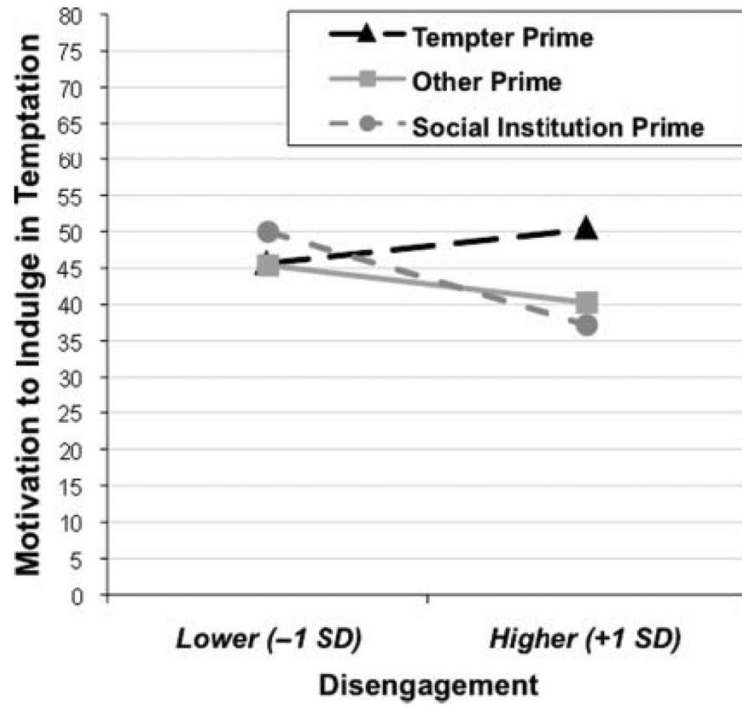


**Figure 5.** Study 3: Motivation to use marijuana by priming condition, relationship closeness, and self-regulatory effectiveness.

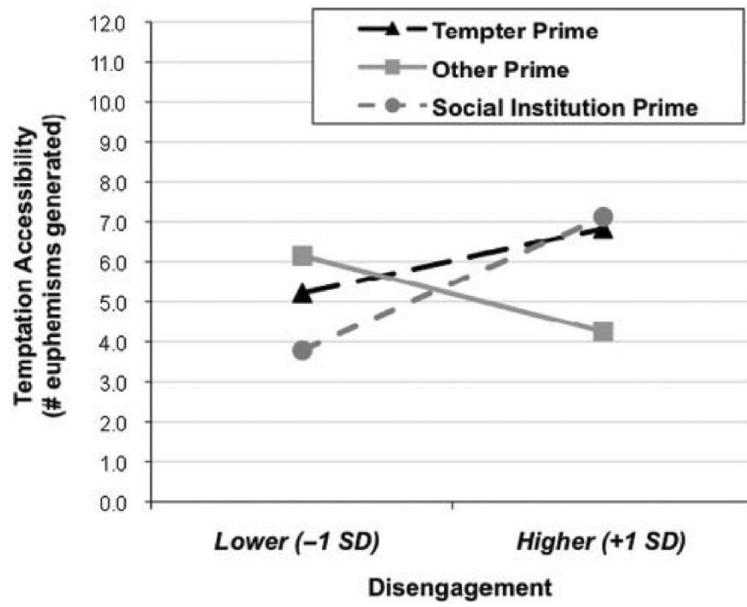


**Figure 6.** Study 3: Temptation accessibility by priming condition, relationship closeness, and self-regulatory effectiveness.





**Figure 7.** Study 4: Motivation to use marijuana by priming condition and disengagement.



**Figure 8.**  
 Study 4: Temptation accessibility by priming condition and disengagement.