

# Be Fit and Be Strong: Mastering Self-Regulation through Regulatory Fit

JIEWEN HONG  
ANGELA Y. LEE\*

This research examines the effect of regulatory fit on self-regulation. People experience regulatory fit when their strategy of goal pursuit fits (vs. conflicts) with their regulatory focus. Four experiments provide support for the hypothesis that regulatory fit improves whereas regulatory nonfit impairs self-regulatory performance. These results were obtained across multiple self-regulatory tasks that included a handgrip exercise to test physical endurance (experiment 1), a choice between a healthy and a decadent snack to test willpower in the face of temptation (experiments 2 and 3), and a health-related compliance decision to demonstrate self-regulation (experiment 4). Intensified motivation seems to be the mechanism underlying the regulatory fit effect.

Imagine Susan and Jim searching online for a new cellular phone. Susan wants to find a phone that ensures her calls get through even when the signals are patchy, whereas Jim's goal is to get a phone that makes him stand out and look good. Both Susan and Jim make their selection based on an analysis of the features of the phones and place their orders. An interesting question that this research addresses is whether Susan and Jim are more or less likely to head out to the gym for a workout when they log off—would their online shopping experience affect a subsequent behavior that requires self-regulation?

Consumer self-regulation or the lack thereof has captured the interest and attention of researchers in the last decades. Research has examined how consumers engage in impulse buying (e.g., O'Guinn and Faber 1989; Rook 1987; Vohs and Faber 2007), make decisions based on affective versus cognitive response (e.g., Drolet and Luce 2004; Shiv and Fedorikhin 1999), and indulge in hedonic rather than utilitarian consumptions (Kivetz and Simonson 2002). More recently, researchers have begun to examine factors that influence self-regulation. In particular, consumer self-regu-

lation has been shown to be influenced by mortality salience (Ferraro, Shiv, and Bettman 2005), availability of self-regulatory resource (Vohs and Faber 2007), and consumers' lay theories of self-control (Mukhopadhyay and Johar 2005). However, most of these studies focus on defining moderators of self-regulation, and a good understanding of what strategies consumers could adopt to strengthen self-regulation is still lacking.

The objective of this research is to examine how a match between the consumers' goal pursuit strategies and their regulatory orientation, referred to as regulatory fit, may affect their subsequent self-regulation successes and failures. We posit that consumers can enhance self-regulation by engaging in goal pursuit strategies that match versus conflict with their regulatory orientation. Further, this strategy match (or conflict) can happen outside the focal task and influence consumers' subsequent task performance that requires self-regulation. In particular, we examine the carryover effects of regulatory fit on self-regulation as they pertain to consumer behavior and choice. Our view is that people become more (less) motivated to self-regulate when they adopt goal pursuit strategies that fit (conflict) with their regulatory goal (Higgins 2000) and hence are more likely to succeed (fail) in their subsequent self-regulation.

That the effect of regulatory fit and nonfit can go beyond the focal task to influence subsequent tasks is noteworthy for at least two reasons. First, unlike task-related effects, which are induced by and directly linked to the focal task, carryover effects, such as those of ambient emotions that arise from incidental exposures or contextual factors like background music (Lerner, Small, and Loewenstein 2004), are in general more difficult to defend against because consumers are typically unaware of their influence (Han, Lerner,

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\*Jiewen Hong is a PhD candidate, Kellogg School of Management, Northwestern University, Evanston, IL 60208 (j-hong@kellogg.northwestern.edu). Angela Y. Lee is professor of marketing, Kellogg School of Management, Northwestern University, Evanston, IL 60208 (aylee@kellogg.northwestern.edu). The authors thank Wendi Gardner, the editor, the associate editor, and three reviewers for their very helpful comments. The authors contributed equally and are listed in alphabetical order. Correspondence concerning this article should be addressed to Angela Y. Lee (aylee@kellogg.northwestern.edu).

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and Keltner 2007), largely because there is no reason to expect why they should. This may have important consequences, especially with respect to the negative effect of regulatory nonfit, in that people's self-regulation may be unwittingly weakened by their goal pursuit strategy. Second, the fact that regulatory fit and nonfit can be experienced outside the focal task implies that intervention to boost performance of any self-regulation task is potentially possible. Thus, understanding the diffuse effects of regulatory fit has important policy as well as consumer well-being implications.

## THEORETICAL BACKGROUND

### Models of Self-Regulation

Self-regulation is commonly defined as the exercise of control over oneself to bring the self in line with a desirable outcome or goal (e.g., Baumeister et al. 1998; Carver and Scheier 1998; Mischel and Shoda 1995). For example, Carver and Scheier (1998) conceptualize self-regulation as goal-directed and feedback-controlled behaviors. Similarly, Mischel and Shoda (1995) posit that self-regulatory behaviors are constrained and guided by goals that are mentally represented within a connectionist network. And when it comes to attaining one's goals, there are few achievements that have not been accomplished through self-regulatory efforts and fewer failures that cannot point to self-regulatory breakdown as the cause.

Extant literature suggests three main approaches toward successful self-regulation. First, successful self-regulation may be the result of people strengthening their goal through automatic goal activation (Fishbach, Friedman, and Kruglanski 2003) and deliberate metacognitive strategies (Mischel and Shoda 1995) or the result of reinforcing goal-directed behavioral intentions (Gollwitzer and Brandstatter 1997). A second approach is through strengthening self-regulatory resources. According to the strength model of self-regulation (Baumeister et al. 1998), the effectiveness of self-regulation relies on the availability of self-regulatory resources. Unfortunately, all efforts of self-regulation draw upon the same limited pool of resources. Thus, in answer to the anecdotal quandary of why quitting smoking is known to make the temptations of junk food more difficult to resist, Baumeister and his colleagues explain that any initial execution of self-regulation can deplete this pool of resources, leading to impairments of subsequent self-regulatory efforts: the former smoker is simply too exhausted from resisting cigarettes to rally the strength to resist the Krispy Kreme. Finally, self-regulation success may be a function of motivation. For instance, Wright and Brehm (1989) suggest that individuals will mobilize their efforts when they are sufficiently motivated, in which case self-regulation is more likely to succeed. Indeed, prior research shows that people who are intrinsically motivated are more likely to successfully quit smoking (Curry, Wagner, and Grothaus 1990) and better able to suppress their racial bias (Devine et al. 2002). More recent research shows that motivation can even com-

pensate for the depletion of regulatory resources. In particular, Muraven and Slessareva (2003) find that participants who were depleted performed just as well in a subsequent self-regulatory task as those who were not depleted when they were motivated to persist in the task (e.g., by being told that their participation would help develop therapies for Alzheimer's patients). On the contrary, when people are demotivated, such as when they have been socially excluded, they show a deficit in self-regulation (Baumeister et al. 2005).

In this research, we examine the role of regulatory fit in self-regulation. We posit that the effectiveness of self-regulation can be influenced by the goal pursuit strategies that people use. People are more motivated when they pursue their goal in a manner that fits with their regulatory focus, which in turn facilitates self-regulation. In contrast, they are demotivated when they pursue their goal in a manner that conflicts with their regulatory focus, which undermines their efforts to self-regulate.

### Regulatory Fit and Self-Regulation

Regulatory focus theory (RFT; Higgins 1997) distinguishes between two distinct regulatory orientations: promotion focus and prevention focus. People with a promotion focus are sensitive to the absence and presence of positive outcomes; they are concerned with growth, accomplishments, and aspirations. In contrast, those with a prevention focus are sensitive to the absence and presence of negative outcomes; they are concerned with safety, responsibilities, and obligations. According to RFT, any goal may be pursued with a promotion or a prevention focus. For example, the goal of attaining an A in a class may be represented as the desire for personal accomplishment (i.e., a promotion focus) or as the fulfillment of an obligation toward one's parents (i.e., a prevention focus). Further, individuals may pursue the same goal using different strategies. With respect to the goal of getting an A, individuals may pursue the goal by, say, reading beyond the assigned articles, an eagerness strategy, or by carefully fulfilling all the course requirements, a vigilance strategy.

Central to the current research is the notion of regulatory fit. People experience regulatory fit when their strategy of goal pursuit fits versus conflicts with their regulatory focus (Higgins 2000). For example, given their concern for growth and accomplishments, promotion-focused individuals experience fit when they adopt eagerness strategies that strive toward gains and experience nonfit when they adopt vigilance strategies that guard against losses. In contrast, prevention-focused individuals experience fit when they adopt vigilance strategies to address their concern for safety and security and experience nonfit when they adopt eagerness strategies. Our view is that regulatory fit enhances self-regulation through a state of intensified motivation, whereas regulatory nonfit impairs self-regulation by reducing motivation.

RFT posits that regulatory fit makes people "feel right" about what they do and intensifies their motivation (Higgins

2000). When people experience regulatory fit, they become more motivated and are more engaged in whatever task is at hand (Idson, Liberman, and Higgins 2000). As they become more motivated, their attraction toward, as well as repulsion from, a target is magnified (Higgins 2006). That is, when the target is positive, regulatory fit increases the motivational intensity of attraction, and when the target is negative, fit increases the motivational intensity of repulsion. And in the context of self-regulation, regulatory fit thus leads to an increase in people's motivation to self-regulate toward desirable outcomes (e.g., approach virtues) and away from undesirable outcomes (e.g., reject vices). Consistent with this view, regulatory fit has been demonstrated to enhance people's performance across different tasks (Shah, Higgins, and Friedman 1998; Spiegel, Grant-Pillow, and Higgins 2004). For example, Spiegel et al. (2004) asked participants to imagine certain implementation steps they might take to write a report, and the implementation steps were framed as either eagerness or vigilance strategies. Participants who imagined implementation steps that fit with their focus were 50% more likely to turn in the report than those who imagined nonfit instructions. It has also been shown that participants presented with regulatory fit versus nonfit messages were more discerning between strong and weak arguments (Aaker and Lee 2001) and generated more support arguments (Lee and Aaker 2004). Although none of these studies directly examined the effects of regulatory fit on self-regulation, they provide the basis for our hypothesis that regulatory fit enhances self-regulatory performance through increased motivation.

We also hypothesize that regulatory nonfit impairs self-regulation by decreasing people's motivation. Our view is that when people adopt strategies that conflict with their regulatory goal, the task is less engaging and people become less motivated to self-regulate. In addition, people may expend self-regulatory resource to resolve the inherent conflict when they experience regulatory nonfit, the act of which is depleting (Kehr 2004). And this self-regulatory depletion may further decrease their motivation to self-regulate because expending resource is more costly to those who are depleted (Muraven and Baumeister 2000). Although regulatory fit studies have not offered direct support for this conjecture, research that examines process or goal conflicts presents results consistent with our hypothesis that regulatory nonfit reduces motivation and impairs self-regulation. In particular, recent research on interpersonal relationships shows that conflicts in interpersonal coordination lead to decreased motivation and deteriorated task performance (Finkel et al. 2006). Research on motivational systems also demonstrates that conflicts between implicit and explicit motives impair self-regulation (Kehr 2004). And to the extent that resisting temptation represents an internal conflict, data showing participants who resisted temptation performed poorly in subsequent self-regulatory tasks (Baumeister et al. 1998) offer further evidence that conflicts between goals and strategies impair self-regulation.

Taken together, these studies lend credence to the notion

that regulatory fit enhances whereas regulatory nonfit impairs self-regulatory performance. It is important to note that while improved task performance arising from regulatory fit has already been reported (Shah et al. 1998; Spiegel et al. 2004), the regulatory fit effect in these studies was observed within the same task through which fit was operationalized. That is, participants' performance on a task was enhanced when they adopted a fit versus nonfit strategy to accomplish that particular task. Thus, it is not clear whether regulatory fit simply renders the focal task more relevant and engaging or whether the state of intensified motivation arising from regulatory fit enhances self-regulation. To provide a clean test of the more general, ambient effects of regulatory fit on self-regulation, we operationalized regulatory fit across all four experiments outside the focal task so that the carryover effects of regulatory fit on self-regulation could be observed unambiguously.

## EXPERIMENT 1

### Overview and Design

To examine the effect of regulatory fit and nonfit on self-regulation, we used a handgrip task to measure participants' physical endurance as an indicator of their self-regulation. Squeezing a handgrip is a common measure of self-regulation since maintaining a grip requires one to self-regulate to overcome physical discomfort and resist giving up to relax one's hand muscles (Muraven, Tice, and Baumeister 1998). To control for individual differences in physical strength and to provide a strong test of our hypothesis that regulatory fit improves self-regulation, we measured participants' handgrip performance three times: the first time was at the beginning of the experiment to obtain an initial baseline measure; after which we asked participants to perform a thought suppression task to deplete their regulatory resource. This thought suppression task was implemented for two reasons: first, depleting the participants provides a more uniform self-regulation baseline across participants in the fit and nonfit conditions. Second, depleting the participants prior to the regulatory fit manipulation provides a stronger test of the facilitative effect of regulatory fit as we would be able to observe whether regulatory fit could overcome resource depletion effects. After the thought suppression task, we measured participants' handgrip performance a second time to obtain another baseline measure. This was followed by the regulatory fit manipulation, where we made the distinction between promotion and prevention fit to investigate whether the effect of fit may differ based on regulatory focus. Finally, we measured their handgrip performance for the third time to examine the effects of regulatory fit and nonfit. Thus, a 2 (regulatory fit: fit vs. nonfit)  $\times$  2 (regulatory focus: promotion vs. prevention)  $\times$  3 (handgrip performance: time 1 vs. time 2 vs. time 3) mixed design was used, with handgrip performance being a within-participant factor. Our prediction was that participants who experienced regulatory fit should exhibit improved performance in the third handgrip performance, even though their

self-regulatory resource had been depleted. In contrast, participants who experienced regulatory nonfit should show a further decline in their handgrip performance.

## Method

Forty-eight undergraduate students (33 female) from Northwestern University took part in the study. They were randomly assigned to one of the four regulatory fit conditions and were individually tested in a private room.

Participants were given the cover story that they would be participating in a series of unrelated studies, one of which was on strength and endurance. Participants were asked to squeeze the handgrip and hold it for as long as they could, and the duration was measured in milliseconds using a stopwatch (time 1). A wad of paper was inserted between the two handles so that when the participant relaxed the grip, the paper would fall out. The duration of squeezing was measured from the time the paper was held between the handles to when the paper fell out. Participants were not allowed to look at their watch during the task, in order to prevent them from working toward a specific goal.

Participants then performed a thought-listing task for 6 minutes. They were instructed to “write down whatever you are thinking, but to help direct your thoughts on this task, please do not think of a white bear” (Wegner et al. 1987). Thought suppression requires significant self-regulation, and the procedure has been successfully used as a regulatory resource depletion manipulation in previous research (e.g., Muraven et al. 1998). Immediately after the thought-listing task, participants were asked to squeeze the handgrip for the second time (time 2).

After the second handgrip task, participants received the regulatory fit manipulation by completing the regulatory fit questionnaire (Freitas and Higgins 2002). Participants were first asked to list one of their current aspirations (to induce promotion focus) or obligations (to induce prevention focus) and then write down five ways to achieve the aspiration or fulfill the obligation. Participants in the promotion fit condition were asked to list eagerness means to achieve their aspiration (“What are some of the things you can do to make sure everything goes right?”), and those in the prevention fit condition were asked to list vigilance means to fulfill their obligation (“What are some of the things you can do to avoid anything that could go wrong?”). Participants in the promotion nonfit condition were asked to list vigilance means to achieve their aspiration, and those in the prevention nonfit condition were asked to list eagerness means to fulfill their obligation. A 2 (regulatory fit)  $\times$  2 (regulatory focus) ANOVA showed that the number of listings did not differ across the conditions ( $M = 5.31$ ;  $F_s < 1$ ).

Immediately following the regulatory fit manipulation, participants rated their mood on two seven-point scales (1 = bad, negative; 7 = good, positive). They were then asked to squeeze the handgrip for the third time (time 3). Participants then indicated how difficult each of the three handgrip tasks was (1 = very easy, very effortless; 7 =

very difficult, very effortful). Participants were then thanked and debriefed.

## Results

**Self-Regulatory Depletion.** To examine the effect of the thought suppression task on self-regulation, a 2 (regulatory fit)  $\times$  2 (regulatory focus)  $\times$  2 (handgrip performance: time 1 vs. time 2) repeated-measures ANOVA was performed, with handgrip performance being a within-participant factor. The results showed a significant main effect of handgrip performance ( $F(1, 44) = 30.76$ ,  $p < .001$ ). As expected, participants’ handgrip performance after the thought suppression task ( $M = 45.2$  seconds) deteriorated relative to their initial performance ( $M = 68.0$  seconds), suggesting that our resource depletion manipulation was successful. No other effects were significant ( $p_s > .20$ ). Participants’ performance across the fit and nonfit conditions did not differ at time 1 ( $M_{\text{fit}} = 66.8$  seconds vs.  $M_{\text{nonfit}} = 69.3$  seconds;  $F < 1$ ) or at time 2 ( $M_{\text{fit}} = 40.8$  seconds vs.  $M_{\text{nonfit}} = 48.3$  seconds;  $F < 1$ ), providing us with the confidence that the two groups were equivalent.

**Hypothesis Testing.** To test our prediction that regulatory fit improves self-regulation even when self-regulatory resource is depleted, a 2 (regulatory fit)  $\times$  2 (regulatory focus)  $\times$  2 (handgrip performance: time 2 vs. time 3) repeated-measures ANOVA was performed. Consistent with our prediction, the regulatory fit  $\times$  handgrip performance interaction was significant ( $F(1, 44) = 15.5$ ,  $p < .001$ ; table 1). No other effects were significant ( $F_s < 1$ ).

To better understand the interaction effect, we conducted separate 2 (regulatory focus)  $\times$  2 (handgrip performance) repeated-measures ANOVAs for the fit and nonfit conditions. As predicted, participants’ performance in the fit condition improved at time 3 after the regulatory fit manipulation ( $M = 48.3$  seconds), as compared to time 2 ( $M = 40.8$  seconds;  $F(1, 22) = 5.98$ ,  $p < .05$ ). Neither the main effect of regulatory focus nor the regulatory focus  $\times$  handgrip performance interaction was significant ( $F_s < 1$ ), suggesting that whether participants experienced promotion or prevention fit did not make a difference. Also as expected,

**TABLE 1**  
HANDGRIP PERFORMANCE AS A FUNCTION OF  
REGULATORY FIT (EXPERIMENT 1)

	Regulatory fit manipulation	
	Regulatory fit	Regulatory nonfit
Time 1	66.8 (44.4)	69.3 (58.9)
Time 2	40.8 (26.0)	48.3 (44.4)
Time 3	48.3 (27.7)	39.4 (34.9)

NOTE.—Standard deviations are indicated in parentheses. Handgrip performances are reported in seconds.

participants' performance in the nonfit condition deteriorated at time 3 ( $M = 39.4$  seconds) relative to time 2 ( $M = 48.3$  seconds;  $F(1, 22) = 9.99, p < .01$ ). Again, neither the regulatory focus main effect ( $F < 1$ ) nor the regulatory focus  $\times$  handgrip performance interaction was significant ( $F(1, 22) = 1.82, p > .15$ ).

**Mood.** A 2 (regulatory fit)  $\times$  2 (regulatory focus) ANOVA on participants' mood index ( $\alpha = .89$ ) showed that none of the effects were significant ( $F_s < 1$ ), suggesting that the effect of regulatory fit on self-regulatory performance could not be attributed to mood.

**Perceived Task Difficulty.** We also examined whether the observed effects could be attributed to differences in perceived task difficulty between regulatory fit and nonfit conditions. We computed three task difficulty indices by averaging the two difficulty items for the handgrip task at each of the three time periods ( $\alpha_{T1} = .80, \alpha_{T2} = .70, \text{ and } \alpha_{T3} = .74$ ). A 2 (regulatory fit)  $\times$  2 (regulatory focus)  $\times$  3 (task difficulty: time 1 vs. time 2 vs. time 3) repeated-measures ANOVA was performed, with task difficulty being a within-subject factor. The results revealed a single main effect of task difficulty ( $F(2, 86) = 41.47, p < .001$ ). No other effects were significant ( $F_s < 1$ ). Follow-up contrasts showed that the handgrip task at time 3 was perceived to be more difficult ( $M = 5.55$ ) than the task at time 2 ( $M = 4.98; F(1, 43) = 12.30, p = .001$ ), which in turn was perceived to be more difficult than the task at time 1 ( $M = 3.76; F(1, 43) = 33.04, p < .001$ ). These data confirmed that the regulatory fit effect was not driven by perceived task difficulty.

## Discussion

These results provide initial support for our prediction that regulatory fit enhances self-regulation. We showed a positive effect of regulatory fit on self-regulation even when self-regulatory resource had been depleted. Our results also showed that the observed regulatory fit versus nonfit effects did not differ by regulatory focus. That is, participants' self-regulation was enhanced by regulatory fit and weakened by regulatory nonfit, and whether they experienced promotion (non)fit or prevention (non)fit did not make a difference. Moreover, these effects could not be attributed to mood or perceived task difficulty. This null effect of regulatory focus may at first glance seem inconsistent with previous findings that better self-control is associated with a prevention focus (Freitas, Liberman, and Higgins 2002). However, our study was designed to examine the effects of regulatory fit and nonfit, rather than the effects of promotion and prevention focus. Thus, the null effect of regulatory focus should be interpreted as a lack of difference between promotion and prevention fit and between promotion and prevention nonfit, rather than as a lack of difference between promotion and prevention focus.

One limitation with these results was that the handgrip task used to assess self-regulation was externally imposed

by the experimenter. Thus, one might argue that participants in the regulatory fit condition were more motivated to comply with the experimenter's instructions than those in the nonfit condition, rather than their being more motivated to self-regulate in general. Further, while the evidence for a facilitative effect of regulatory fit is clear, unambiguous support for the detrimental effect of regulatory nonfit is lacking. It is possible that the decline in performance at time 3 for those participants who experienced nonfit was simply the result of physical fatigue from having squeezed the handgrip twice, rather than the result of regulatory nonfit. We addressed these concerns in experiment 2 by employing a self-regulation task that is measured against an internal standard to assess participants' voluntary self-regulation. We also included a between-participant control condition so that the effect of regulatory nonfit can be unambiguously observed.

## EXPERIMENT 2

### Overview and Design

To provide further evidence for our hypothesis, we conducted experiment 2 in the context of a real-life choice situation that assessed participants' willpower to resist temptation. Research has shown that resisting temptation is laborious and resource demanding (e.g., Baumeister et al. 1998). Thus, results showing that participants experiencing regulatory fit are better able to resist temptations and those experiencing regulatory nonfit are more likely to yield to temptations, both relative to the control, would provide support for our hypothesis. In this experiment, participants were presented with the self-regulation dilemma of choosing between a healthy and a decadent snack (e.g., Ferraro et al. 2005; Fishbach et al. 2003).

### Method

Sixty-four participants (45 female) from Northwestern University were recruited at the university library to participate in the study. Participants were individually approached by the experimenter and asked whether they would be willing to fill out a short survey. All participants who were approached agreed. They were randomly assigned to one of the three conditions: regulatory fit, regulatory nonfit, and control.

To manipulate regulatory fit, participants were asked to complete the same regulatory fit questionnaire as in experiment 1, with one change. Since we did not find a regulatory focus effect in experiment 1, we combined the promotion and prevention fit questionnaires to strengthen the fit and nonfit manipulation. Thus, participants in the regulatory fit condition filled out a promotion fit questionnaire and a prevention fit questionnaire, whereas participants in the nonfit condition filled out a promotion nonfit questionnaire and a prevention nonfit questionnaire. In essence we collapsed across promotion and prevention focus to provide a cleaner test of the regulatory fit and nonfit effects. The order of questionnaires was counterbalanced. No order effect was

found, and this factor was dropped from the analyses. Participants in the control condition were asked to complete two filler scales that required a similar amount of time as the regulatory fit questionnaires. Then participants indicated their mood on a two-item seven-point scale (1 = bad, negative; 7 = good, positive). Upon returning the survey to the experimenter, participants were offered a snack as a token of appreciation. The experimenter told them that they could choose between a chocolate bar and an apple. The two snacks were of the same monetary value, and the result of a pretest suggested that the chocolate bar was considered more tempting than the apple. Upon receiving the snack they chose, participants were asked whether they thought the questionnaires they completed influenced their choice of snack. None of them expressed any suspicion regarding the connection between the regulatory fit manipulation and the choice they were asked to make. They were also asked whether they were health conscious regarding what they ate. One participant responded no to the question and was excluded from further analysis, although including this participant in the data did not change the pattern of the results. Participants were then thanked and debriefed.

## Results and Discussion

We predicted that participants in the regulatory fit condition would be better able to resist temptation and hence more likely to choose the apple, whereas those in the regulatory nonfit condition would be more likely to yield to temptation and choose the chocolate bar. A logistic regression on participants' choice of snack as a function of regulatory fit showed a significant main effect of regulatory fit on choice ( $\chi^2(2) = 14.66, p < .001$ ). Consistent with our hypothesis, participants in the regulatory fit condition were more likely to choose the apple over the chocolate bar (83.3%), as compared to those in the control condition (52.6%;  $\chi^2(1) = 4.43, p < .05$ ), who in turn were more likely than those in the regulatory nonfit condition to choose the apple (20.0%;  $\chi^2(1) = 4.25, p < .05$ ). Since participants completed both the promotion and prevention fit (or nonfit) questionnaires, these results highlight the fact that the self-regulation effects observed are driven by regulatory fit and nonfit and not by regulatory focus.

Consistent with experiment 1, a one-way ANOVA on participants' mood index ( $\alpha = .89$ ) showed that participants' mood did not differ across the three conditions ( $F < 1$ ). Taken together, these results complement our previous findings by showing the consequences of regulatory fit and nonfit on self-regulation in a real-life situation. The data provide further evidence that regulatory fit enhances self-regulation, as demonstrated by participants' stronger willpower to resist temptation, relative to those in the control condition. The results also provide clear evidence for the detrimental effect of regulatory nonfit on self-regulation, as demonstrated by participants' weakened ability to resist temptation, relative to the control.

Using two different self-regulation tasks, experiments 1 and 2 provide convergent evidence that regulatory fit en-

hances self-regulation and regulatory nonfit impairs self-regulation. As in most regulatory fit studies reported in the literature, participants in these two studies were randomly assigned to either the fit or nonfit condition to provide a clean test of our hypothesis. However, one question that deserves attention is whether participants would select the goal pursuit strategy that fits with their regulatory orientation when given the choice. That is, are people likely to select strategies that make them better self-regulators, or would they unknowingly adopt strategies that undermine their self-regulation? This issue has important implications for people's subjective well-being and was addressed in experiment 3.

## EXPERIMENT 3

### Overview and Design

One objective of experiment 3 was to examine the robustness of the effects of regulatory (non)fit by adopting a different operationalization of regulatory fit in a consumer-relevant context. Prior research has shown that promotion-focused individuals experience regulatory fit when they make decisions based on feelings, whereas prevention-focused individuals experience fit when they make their decisions based on reasons (Avnet and Higgins 2006; Pham and Avnet 2004). Specifically, Avnet and Higgins (2006) found that promotion-focused participants were more willing to pay for a selected brand of correction fluid when they chose the brand based on their feelings rather than on reasons, whereas the reverse was true for those with a prevention focus. In this experiment, we first measured participants' chronic regulatory focus and then asked participants in the experimental conditions to evaluate an advertisement based either on their feelings or on reasons. Participants in the control group were asked to complete a filler task instead and did not engage in activities that led to a fit or nonfit experience. We predicted that promotion-focused participants who evaluated the advertisement based on feelings and prevention-focused participants who evaluated the advertisement based on reasons would perform better in a subsequent self-regulation task compared to those in the control condition. And participants who evaluated the advertisement in a nonfit manner (i.e., promotion-focused participants relying on reasons and prevention-focused participants relying on feelings) would exhibit poorer self-regulation than the control.

Another objective of experiment 3 was to examine how individuals choose goal pursuit strategies. Although the regulatory fit effects on persuasion and decision making have been widely demonstrated (e.g., Aaker and Lee 2001; Higgins 2000), very few studies have examined whether people would naturally engage in regulatory fit behaviors (see Wang and Lee [2006] for an exception). In most regulatory fit studies, participants are instructed to adopt a strategy that either matches or mismatches their regulatory orientation. Thus, it is not clear how people might voluntarily choose between goal pursuit strategies that fit or conflict with their regulatory orientation. To examine how people may manage fit, we asked some of the participants in the experimental

condition to choose between evaluating the advertisement based on reasons or based on their feelings.

Thus, participants in this experiment were randomly assigned to four different groups: (1) those instructed to evaluate the advertisement based on feelings, (2) those instructed to evaluate the advertisement based on reasons, (3) those instructed to choose between evaluating the advertisement based on feelings or on reasons, and (4) those instructed to complete a filler task. As in experiment 2, participants were asked to choose between an apple and a chocolate bar as the self-regulation measure. To gauge participants' propensity to adopt fit strategies, we examined participants' choice of advertisement evaluation strategy in the free choice condition as a function of their chronic regulatory focus. And to test the robustness of the fit effect on self-regulation, we first examined participants' choice of snack as a function of their chronic regulatory focus (promotion vs. prevention), strategy (feeling based vs. reason based), and assignment (assigned vs. free choice). We then collapsed across the two regulatory focus conditions and compared participants' choice of snack in the fit and nonfit conditions relative to the control to more clearly assess the facilitative effect of regulatory fit and the inhibitive effect of regulatory nonfit.

## Method

One hundred and eighty-two Northwestern University master of business administration (MBA) students (59 female) in different marketing classes were recruited to participate in a marketing study. They were invited to take part in the study just before they took their break and were randomly assigned to one of the conditions.

All participants were asked to complete the regulatory focus questionnaire (RFQ) that measures their chronic regulatory orientation (Higgins et al. 2001). After completing the RFQ, participants in the control condition were asked to complete the two filler scales as used in experiment 2. Then participants in the experimental conditions were presented with an actual print advertisement for Aveeno sunblock lotion. The top half of the ad showed a picture of a young woman and a little girl building a sand castle on the beach. The bottom half of the ad contained information about the product, including its formula, special ingredients, and a graph of the results from a lab test. This ad was selected because it contained both affective and cognitive elements for purposes of evaluation. Participants first indicated their attitude toward the ad using a three-item seven-point scale (1 = bad, unfavorable, not impactful; 7 = good, favorable, impactful). Then they were asked to write a review of the ad. Participants in the free choice condition were told that they could either write an ad review based on how the ad made them feel, by describing the emotions the ad induced in them, or they could write a review based on an analysis of the information in the ad, by describing the strengths and weaknesses of the ad claims. They were asked to first indicate the type of review they chose to write and then write the review. Participants in the assigned condition were not given a choice; instead, they

were asked either to write a review based on how the advertisement made them feel or to write one based on an analysis of the ad claims. Participants' review of the ad was self-paced, and participants spent approximately 5 minutes writing their review. When participants finished writing the review, they turned in their study booklet, at which point they were offered a choice between a chocolate bar and an apple as a snack.

## Results

*Chronic Regulatory Focus.* We first computed participants' chronic regulatory focus score to determine their chronic regulatory orientation. A promotion score was created by averaging participants' ratings on the promotion items of the RFQ scale, and a prevention score was developed by averaging participants' ratings on the prevention items. A regulatory focus score was computed by subtracting participants' prevention score from their promotion score. Participants were categorized as promotion or prevention focused based on a median split of the regulatory focus score (Cesario, Grant, and Higgins 2004).

*Manipulation Check.* To examine whether the manipulation of evaluation strategy (feeling based vs. reason based) was successful, we first coded each sentence of the reviews that participants wrote. Then a feelings index for each participant was calculated by counting the number of sentences in the review that conveyed their emotional reactions to the ad (e.g., "I feel relaxed because it brings up some of my best family memories growing up"), and a reason index was calculated by counting the number of sentences that focused on the information in the ad claims (e.g., "The ad does a pretty good job of illustrating the long-lasting impact of the sunscreen, especially with the use of the graph to illustrate the point"). Separate 2 (regulatory focus)  $\times$  2 (strategy)  $\times$  2 (assignment) ANOVAs on the feelings and reason indices showed a significant main effect of strategy in both cases. Participants in the feeling-based strategy condition wrote more about their emotions and feelings elicited by the ad ( $M = 2.50$ ) than did those in the reason-based condition ( $M = .08$ ;  $F(1, 119) = 160.55, p < .001$ ), whereas those in the reason-based strategy condition had more comments on the ad claims ( $M = 3.60$ ) than did those in the feeling-based condition ( $M = .80$ ;  $F(1, 119) = 98.94, p < .001$ ). No other effects were significant ( $ps > .15$ ).

*Attitude toward the Advertisement.* We also examined whether participants' attitude toward the ad differed across the conditions. A 2 (regulatory focus)  $\times$  2 (strategy)  $\times$  2 (assignment) ANOVA on participants' attitude toward the ad ( $\alpha = .81$ ) revealed no significant effects ( $ps > .10$ ). These results gave us the confidence that any difference observed in participants' choice of snack was not due to differences in their attitude toward the ad.

*Choice of Goal Pursuit Strategy.* Next, we examined whether participants voluntarily chose the ad evaluation strategy that fit with their chronic regulatory orientation. If

people naturally select strategies that fit with their regulatory orientation, then we should observe promotion-focused participants in the free choice condition being more likely to evaluate the ad based on feelings than on ad claims and the reverse for prevention-focused participants. A logistic regression using participants' promotion and prevention scores as predictors of the strategy selected showed that neither the promotion coefficient ( $B = .34; \chi^2 < 1$ ) nor the prevention coefficient ( $B = .17; \chi^2 < 1$ ) was significant, suggesting that participants' chronic regulatory focus did not influence their choice of strategy. That is, participants' likelihood of choosing the fit strategy was no better than chance.

*Choice of Snack.* We predicted that those participants who experienced regulatory fit (i.e., promotion-focused participants who wrote a feeling-based review and prevention-focused participants who wrote a reason-based review) would demonstrate better self-regulation compared to the control, whereas those who experienced regulatory nonfit (i.e., promotion-focused participants who wrote a reason-based review and prevention-focused participants who wrote a feeling-based review) would exhibit weakened self-regulation relative to the control. A logistic regression analysis on participants' choice of snack was conducted, using regulatory focus, strategy, assignment, and all the interaction terms as predictors. The results showed that neither assignment nor any of its interactions was significant ( $\chi^2s < 1$ ); that is, whether participants were assigned or freely chose the type of review to write did not make any difference. In fact, the only significant effect was the predicted interaction between regulatory focus and strategy ( $\chi^2(1) = 13.12, p < .001$ ).

To more clearly understand the interaction between regulatory focus and strategy, we created a regulatory fit variable with three levels (fit, nonfit, control) based on participants' regulatory focus and whether (and how) they evaluated the ad. We then conducted a logistic regression analysis to examine the effects of regulatory focus, regulatory fit, and their interaction on participants' snack choice. The results showed a single main effect of regulatory fit ( $\chi^2(2) = 16.95, p < .001$ ; table 2). Consistent with our hypothesis, participants in the regulatory fit condition were more likely to choose the apple (65.2%) over the chocolate bar, relative to those in the control condition (45.5%;  $\chi^2(1) = 4.66, p < .05$ ), who in turn were more likely than

those in the nonfit condition to choose the apple (27.9%;  $\chi^2(1) = 3.81, p = .05$ ). Neither the main effect of regulatory focus nor the interaction between regulatory focus and regulatory fit was significant ( $\chi^2s < 1$ ).

### Discussion

Experiment 3 relies on a different operationalization of regulatory fit and presents further evidence that regulatory fit enhances self-regulation, whereas regulatory nonfit impairs self-regulation. Participants who experienced regulatory fit more readily resisted temptation compared to the control, whereas those who experienced nonfit were more likely to succumb to temptation. Replicating our findings in experiment 1, these data showed that whether participants experienced promotion or prevention (non)fit did not make a difference.

Another important finding of this experiment is that participants' choice of the fit strategy was no better than chance. While it is not clear whether participants who did choose the fit strategy made the selection randomly or based on insights about themselves, they all benefited from regulatory fit and became more effective self-regulators. The important implication of this finding is that exogenous intervention may be necessary to bring about the positive experience of regulatory fit. The results in which participants did not choose a strategy that fits with their regulatory orientation may at first glance seem inconsistent with RFT (Higgins 1997). However, considering that these participants were MBA students taking a marketing class, they might have been highly motivated to evaluate the ad. And the null effect of regulatory fit on strategy choice is consistent with recent findings that involvement moderates the fit effect on information search and judgment; more specifically, the fit effect was observed only under low involvement (Wang and Lee 2006).

The results across the three studies provide convergent support for our hypothesis that regulatory fit enhances whereas regulatory nonfit impairs self-regulation. However, one might argue that all the self-regulatory tasks in these studies could be considered as interesting or fun; thus, it is not clear whether the effects observed could be generalized to self-regulatory tasks that are unpleasant. Further, the

TABLE 2

CHOICE PROBABILITY OF APPLE AS A FUNCTION OF REGULATORY FOCUS AND ADVERTISEMENT EVALUATION STRATEGY (EXPERIMENT 3)

	Promotion focus			Prevention focus		
	Feeling based	Reason based	Control	Feeling based	Reason based	Control
Assigned	67% ( <i>n</i> = 21)	20% ( <i>n</i> = 20)	. . .	27% ( <i>n</i> = 22)	65% ( <i>n</i> = 23)	. . .
Self-select	58% ( <i>n</i> = 12)	30% ( <i>n</i> = 10)	. . .	44% ( <i>n</i> = 9)	70% ( <i>n</i> = 10)	. . .
Total	64% ( <i>n</i> = 33)	23% ( <i>n</i> = 30)	48% ( <i>n</i> = 28)	32% ( <i>n</i> = 31)	67% ( <i>n</i> = 33)	43% ( <i>n</i> = 27)



mechanism underlying these effects on self-regulation had yet to be demonstrated. We addressed these issues in experiment 4 by directly assessing the role of motivation and by using an unpleasant self-regulatory task in the consumer health-care domain.

## EXPERIMENT 4

### Overview and Design

Consumer health-care activities make up a significant share of consumption behaviors. And decisions to acquire diagnostic information such as getting tested for a disease have important consequences for consumer well-being. However, most people avoid compliance because these screening tests usually involve some physical discomfort, and the potential negative outcomes may be associated with considerable negative emotions and stress (Luce and Kahn 1999). Thus, a substantial amount of self-regulation may be necessary to overcome and cope with the anticipated negative emotions and physical discomfort before people would agree to take such tests. In experiment 4, we tested the robustness of the regulatory fit effects by simulating a consumer health-care context in which participants were encouraged to get tested for hepatitis—a task that was neither fun nor interesting. And we used participants' intention to get tested as the main dependent variable to assess self-regulation.

Another important objective of experiment 4 was to shed light on the mechanism that underlies the regulatory fit effect on self-regulation. Our view is that the effect of regulatory fit on self-regulation operates through intensified motivation. Hence, we measured participants' general state of motivation to directly examine the role of motivation in the regulatory fit effects. One implication of the motivational account is that involvement should moderate the regulatory fit effect on self-regulation; that is, the motivational effect of regulatory fit on self-regulation should be most apparent when people are not involved. It is generally considered that perceived vulnerability to health risks has high personal relevance and hence is often used to manipulate involvement (Block and Keller 1995; Maheswaran and Meyers-Levy 1990; Menon, Block, and Ramanathan 2002). Thus, we manipulated involvement by varying participants' perceived risk of contracting hepatitis. Our prediction was that the experience of regulatory fit might not matter when participants perceive themselves to be at risk, as they would be sufficiently motivated to get tested. However, when perceived risk is low, regulatory fit should enhance participants' willingness to get tested.

In this experiment, all participants were first presented with a message on hepatitis testing, followed by the regulatory fit induction. This sequence was to ensure that any effect observed on participants' intention to get tested can be unambiguously attributed to differences in self-regulation and not to differences in the perceived persuasiveness of the message as the result of regulatory fit (vs. nonfit; e.g., Labroo and Lee 2006; Lee and Aaker 2004). Regulatory fit

was manipulated using similar procedures as in experiment 1. And a 2 (regulatory fit: fit vs. nonfit)  $\times$  2 (regulatory focus: promotion vs. prevention)  $\times$  2 (perceived risk: high vs. low) between-participant design was used.

### Method

Two hundred and twenty-eight Northwestern University undergraduate students (128 female) were recruited via e-mail to participate in an online study. They were randomly assigned to one of the eight experimental conditions.

Participants were presented with a message regarding hepatitis testing. The message first described the cause, symptoms, and consequences of hepatitis, followed by the perceived risk manipulation (Menon et al. 2002). Participants in the high perceived risk condition read that they would be at high risk if they engaged in certain high frequency behaviors (e.g., kissed, shared bottles of water or soda, or got a manicure), whereas participants in the low perceived risk condition read that they would be at high risk if they engaged in certain low frequency behaviors (e.g., got a tattoo, used needles, or had a blood transfusion). Finally, participants received information on a hepatitis antibody test, including how the test works, the procedures of the test, and any physical discomfort associated with the test.

Participants then indicated their attitude toward the message, using a five-item seven-point scale (1 = bad, negative, ineffective, not impactful, unfavorable; 7 = good, positive, effective, impactful, favorable). They also indicated the extent to which they were concerned and believed that they were at risk for hepatitis (1 = not at all; 7 = a lot) as well as the likelihood that they would someday contract hepatitis (1 = not at all likely; 7 = very likely).

Participants then completed an ostensibly unrelated regulatory fit questionnaire to induce regulatory fit or nonfit, following which they were asked to indicate their intention to get tested for hepatitis using a seven-point scale (1 = not at all likely; 7 = very likely). We also assessed participants' general state of affect and motivation by asking them to indicate how they felt at that point in time using seven-point scales (1 = bad, negative, unmotivated; 7 = good, positive, motivated). They then indicated what they anticipated the test result would be if they were to take the hepatitis screening test (1 = definitely test negative; 7 = definitely test positive). Finally, participants reported whether they had ever been diagnosed with hepatitis. Three participants who indicated they had been diagnosed with hepatitis before were excluded from the analysis, although inclusion of these participants did not change the pattern of the results.

### Results and Discussion

*Manipulation Checks.* We first assessed the adequacy of our perceived risk manipulation. A 2 (regulatory fit)  $\times$  2 (regulatory focus)  $\times$  2 (perceived risk) ANOVA performed on participants' perceived risk index ( $\alpha = .88$ ) showed that those in the high risk condition perceived

themselves to be at greater risk ( $M = 2.94$ ) than those in the low risk condition ( $M = 2.30$ ;  $F(1, 220) = 14.93$ ,  $p < .001$ ). Participants were asked to report their anticipated test results after indicating their intention to get tested. Again, a  $2 \times 2 \times 2$  ANOVA yielded a single main effect of perceived risk ( $F(1, 220) = 4.09$ ,  $p < .05$ ). Participants who read the high risk message thought they were more likely to test positive ( $M = 1.84$ ) than those who read the low risk message ( $M = 1.53$ ). No other effects were significant ( $ps > .20$ ). These results suggested that the effect of the perceived risk manipulation was successful and that the effect persisted throughout the entire duration of the experiment and was not affected by the regulatory fit manipulation.

Next, we examined the persuasiveness of the message to ensure that any effect of regulatory fit on participants' intention to get tested for hepatitis was not due to differences in their processing of the message. Because participants who were randomly assigned to the different conditions were exposed to the message prior to the regulatory fit manipulation, we did not anticipate any difference in the persuasiveness of the message across the conditions. Indeed, a  $2 \times 2 \times 2$  ANOVA on participants' attitude toward the message ( $\alpha = .85$ ) yielded no significant effects ( $ps > .10$ ).

**Hypothesis Testing.** A 2 (regulatory fit)  $\times$  2 (regulatory focus)  $\times$  2 (perceived risk) ANOVA on participants' intention to take the screening test showed that neither the main effect of regulatory focus ( $F(1, 219) = 2.25$ ,  $p > .10$ ) nor the main effect of perceived risk ( $F < 1$ ) was significant. However, the main effect of regulatory fit was significant such that participants in the fit condition indicated a higher willingness to get tested for hepatitis ( $M = 2.98$ ) than did those in the nonfit condition ( $M = 2.52$ ;  $F(1, 219) = 4.95$ ,  $p < .05$ ). More important, the predicted interaction between perceived risk and regulatory fit was also significant ( $F(1, 219) = 3.93$ ,  $p < .05$ ; table 3). Subsequent planned contrasts showed that when participants perceived themselves to be at high risk, the experience of regulatory fit did not heighten their intention to get tested ( $M_{\text{fit}} = 2.82$  vs.  $M_{\text{nonfit}} = 2.78$ ;  $F < 1$ ). However, when participants did not perceive themselves to be at risk, those experiencing regulatory fit indicated a higher intention of getting tested ( $M = 3.13$ ) than did those experiencing nonfit ( $M = 2.23$ ;  $F(1, 223) = 8.48$ ,  $p < .005$ ).

**Motivation.** We hypothesized that participants in the regulatory fit condition would feel more motivated than those in the nonfit condition. A 2 (regulatory fit)  $\times$  2 (regulatory focus)  $\times$  2 (perceived risk) ANOVA showed that the main effect of regulatory focus was significant such that participants who were in the promotion focus condition felt more motivated ( $M = 4.64$ ) than those in the prevention focus condition ( $M = 4.24$ ;  $F(1, 219) = 5.58$ ,  $p < .05$ ). More important, the main effect of regulatory fit was significant such that participants in the fit condition felt more motivated ( $M = 4.65$ ) than those in the nonfit condition ( $M = 4.25$ ;  $F(1, 219) = 5.38$ ,  $p < .05$ ). This main effect was qualified by the interaction between perceived risk and

TABLE 3

HEALTH-COMPLIANCE INTENTION AS A FUNCTION OF REGULATORY FIT AND PERCEIVED RISK (EXPERIMENT 4)

	Regulatory fit manipulation	
	Regulatory fit	Regulatory nonfit
Low perceived risk	3.13 (1.97)	2.23 (1.35)
High perceived risk	2.82 (1.49)	2.78 (1.64)

NOTE.—Standard deviations are indicated in parentheses.

regulatory fit ( $F(1, 219) = 10.59$ ,  $p = .001$ ). Subsequent contrasts show that when perceived risk was high, participants experiencing regulatory nonfit ( $M = 4.48$ ) felt just as motivated as those experiencing regulatory fit ( $M = 4.35$ ;  $F < 1$ ). However, when perceived risk was low, participants who experienced regulatory fit felt more motivated ( $M = 4.94$ ) than those who experienced nonfit ( $M = 4.00$ ;  $F(1, 223) = 15.15$ ,  $p < .001$ ).

**Mood.** A similar 2 (regulatory fit)  $\times$  2 (regulatory focus)  $\times$  2 (perceived risk) ANOVA on participants' mood state ( $\alpha = .93$ ) showed a marginal effect of regulatory fit ( $M_{\text{fit}} = 4.74$  vs.  $M_{\text{nonfit}} = 4.47$ ;  $F(1, 219) = 2.70$ ,  $p = .10$ ), a marginal effect of regulatory focus ( $M_{\text{prom}} = 4.73$  vs.  $M_{\text{prev}} = 4.45$ ;  $F(1, 219) = 2.84$ ,  $p = .09$ ), and a significant perceived risk  $\times$  regulatory fit interaction ( $F(1, 219) = 4.72$ ,  $p < .05$ ). Follow-up contrasts showed that when participants perceived themselves to be at low risk for hepatitis, the experience of regulatory fit put them in a better mood ( $M = 4.80$ ) than did nonfit ( $M = 4.17$ ;  $F(1, 223) = 7.23$ ,  $p < .01$ ); when they perceived themselves to be at risk, regulatory fit had no effect on their mood ( $M_{\text{fit}} = 4.68$  vs.  $M_{\text{nonfit}} = 4.74$ ;  $F < 1$ ). No other effects were significant.

**Mediation Analysis.** We hypothesized that the effect of regulatory fit on self-regulation operates through a state of intensified motivation. A mediation analysis was conducted to examine the role of motivation in participants' intention to get tested in the low risk condition (Baron and Kenny 1986): a regression analysis first showed that the effect of regulatory fit on participants' intention to get tested was significant ( $B = .90$ ,  $p < .01$ ). A second regression analysis showed that regulatory fit was a significant predictor of motivation ( $B = .94$ ,  $p < .001$ ). A third regression showed a positive effect of motivation on participants' intention to get tested ( $B = .41$ ,  $p = .001$ ). Finally, when regulatory fit and motivation were both included in the model as predictors, the effect of regulatory fit became marginally significant ( $B = .64$ ,  $p = .06$ ), while the effect of motivation remained significant ( $B = .33$ ,  $p < .01$ ). A Sobel test ( $z = 2.61$ ,  $p < .01$ ) confirmed that the effect of regulatory fit on participants' intention to get tested was mediated by motivation.

A similar analysis examining participants' mood state as a mediator allowed us to rule out the possibility that the

regulatory fit effect was driven by mood. In particular, although the effect of regulatory fit on mood was significant ( $B = .63, p < .01$ ), the effect of mood on participants' intention to get tested was not significant ( $B = .003, p > .90$ ). And when both regulatory fit and mood were included in the model to predict participants' intention to get tested, the effect of regulatory fit remained virtually unchanged ( $B = .94, p < .01$ ).

These results demonstrated the robust effects of regulatory fit on self-regulation by using an unpleasant health compliance task as the dependent measure. The data also supported that intensified motivation underlies the regulatory fit effect. Consistent with prior research that the regulatory fit effect on persuasion was observed under low but not high involvement conditions (Wang and Lee 2006), our data showed that regulatory fit enhanced self-regulation only when participants did not perceive themselves to be at risk. These results also suggest that participants in our previous experiments were probably not particularly motivated, as can be said of consumers in many consumption contexts, given that their self-regulatory performance was influenced by regulatory fit and nonfit.

The data from this study offer particular insights into people's health-compliance behaviors. Past research on health compliance has focused on increasing people's compliance through changing their risk perceptions (e.g., Chandran and Menon 2004; Menon et al. 2002). Our results extend this research by suggesting an alternative way of promoting health-related behaviors while holding perceived risk constant and at a low level. That perceived risk moderates the effect of regulatory nonfit is similar to the notion that motivation can moderate ego depletion effects (Muraven and Slessareva 2003)—when people are sufficiently motivated, they will conjure up the resource or the willpower to self-regulate.

## GENERAL DISCUSSION

This research contributes to extant literature on multiple fronts. First, it identifies a new strategy toward self-regulation success. Our results across four studies provide convergent evidence that regulatory fit enhances self-regulatory performance. In particular, the effects of regulatory fit on self-regulation received robust support through two different operationalizations of regulatory fit (administering the regulatory fit questionnaire in experiments 1, 2, and 4 and matching participants' chronic regulatory orientation with the way they evaluated an advertisement in experiment 3) and three different self-regulatory tasks that involved physical endurance (squeezing a handgrip in experiment 1), willpower in the face of temptation (resisting temptation in experiments 2 and 3), and compliance with a disease detection advocacy (intention to get tested for hepatitis in experiment 4). Our results from experiment 1 showing that participants in the regulatory fit condition outperformed themselves in time 3 after two handgrip exercises and one thought suppression task were especially striking. These data provide

evidence that regulatory fit can overcome self-regulatory depletion.

The present research also contributes to the regulatory focus and self-regulation literature by showing that people's regulatory focus can have both positive and negative effects on self-regulation. More specifically, regulatory focus can enhance self-regulation when people adopt strategies that match their regulatory orientation, but it can also weaken self-regulation when people adopt strategies that mismatch their regulatory orientation. An important insight offered by our data is that these facilitative and inhibitive effects of regulatory fit are nondiscriminant across promotion and prevention focus. This finding is important because it has been shown that a prevention focus is associated with better self-control than a promotion focus (Freitas et al. 2002). This research shows that everyone could master self-regulation through regulatory fit, regardless of their regulatory orientation. And returning to our two consumers Susan and Jim, the prediction is that Susan is more likely to head toward the gym than Jim because her reason-based analysis of the cellular phones fits with her prevention goal and hence facilitates self-regulation. Although Jim made his selection the same way, he had a different goal; thus, his strategy conflicts with his promotion goal, which in turn impairs his self-regulation.

Further, while most prior research on regulatory fit has focused on the positive consequence of regulatory fit versus nonfit (e.g., Aaker and Lee 2001; Avnet and Higgins 2006; Lee and Aaker 2004; Shah et al. 1998), the current results offer one of the first demonstrations of the negative consequences of regulatory nonfit (see also Labroo and Lee 2006). Our data showing that participants in the regulatory nonfit condition were more likely to succumb to temptation (experiments 2 and 3) as compared to those in the control condition present unambiguous evidence for the detrimental effects of regulatory nonfit and provide support for our hypothesis that regulatory nonfit weakens self-regulation. We have replicated these positive and negative effects of regulatory fit and nonfit in another study where participants were asked to solve anagrams. We found that participants who experienced regulatory fit solved more anagrams in 3 minutes ( $M = 8.87$ ) than did those in the control condition ( $M = 6.53; t(51) = 1.99, p = .05$ ), whereas participants in the regulatory nonfit condition ( $M = 3.86$ ) solved fewer anagrams than did the control ( $t(46) = 2.02, p < .05$ ).

This research also advances the literature by examining the more general, ambient effect of regulatory fit as compared to a task-related effect of regulatory fit. Previous research examining the regulatory fit effect has focused on demonstrating people's superior performance on tasks that match or mismatch their regulatory focus (e.g., Shah et al. 1998; Spiegel et al. 2004). That is, the tasks that benefited from regulatory fit were the same tasks that were instrumental in inducing regulatory fit. In the current research, regulatory fit is operationalized separate from the focal task, and our results demonstrating the carryover effects of regulatory fit on self-regulation suggest that the regulatory fit

effects are more diffuse and consequential than previously suggested. This distinction between a general and a task-related regulatory fit (and nonfit) experience is important from a theory development and policy implication perspective.

From a theoretical perspective, the two types of fit experiences (i.e., ambient vs. task related) may be driven by different processes and hence likely to influence decision making in different ways. The distinction between the two types of fit experiences may be analogous to the difference between ambient and task-related emotions that arise from different consumption contexts (Lerner et al. 2004; Luce, Bettman, and Payne 2001). For example, a consumer who is feeling blue on a rainy day may evaluate a product less favorably. These ambient emotions that arise from background factors such as the weather are quite different from task-related emotions that may arise directly from the act of choosing the product, as when the consumer is distressed by having to make difficult trade-offs (Luce, Bettman, and Payne 1997, 2001). While ambient negative emotions may reduce the extent of processing due to attentional degradation, task-related negative emotions may lead to more careful and extensive processing instead (Luce et al. 1997, 2001). Similarly, different mechanisms may underlie the ambient versus task-related regulatory fit and nonfit effects on information processing and decision making. While a general feeling of regulatory nonfit (e.g., "I don't feel right") may be demotivating and hence diminish the extent of processing, a task-related regulatory nonfit experience (e.g., "the message does not feel right") may signal that more scrutiny is necessary to understand the message and to resolve the incongruity. And while a general feeling of regulatory fit (e.g., "I feel right") is motivating and hence may encourage more systematic processing; a task-related regulatory fit experience (e.g., the message "feels right") may prompt the reliance on peripheral cues such as processing fluency of the message (e.g., Lee and Aaker 2004).

Studies that examine task-related regulatory fit effects have shown that regulatory fit may lead to higher willingness to pay (e.g., Avnet and Higgins 2006), more favorable attitudes (e.g., Aaker and Lee 2001; Lee and Aaker 2004), and higher probability of brand choice (e.g., Wang and Lee 2006), and an attribution-based account that relies on feeling right and processing fluency has been offered to explain these task-related regulatory fit effects (Higgins et al. 2003). However, it is not clear how an attribution explanation could account for better self-regulation as observed in the present studies. While it is possible that participants in experiment 1 might have attributed their "feeling right" to the handgrip task being more interesting and hence expended more efforts on the task, this explanation cannot account for the findings that participants were more willing to get tested for hepatitis (experiment 4) or to choose a healthy versus a decadent snack (experiments 2 and 3). Thus, our findings contribute to regulatory fit theory by showing that the experience of regulatory fit can have two distinct effects on decision making. Apart from the direct, immediate effect of (non)fit on

the focal task that is well documented in the literature, there is also an indirect, carryover effect of (non)fit on subsequent tasks as demonstrated in the current research. Our research showing that all self-regulation tasks can be affected by regulatory fit and nonfit experiences that are unrelated to the focal task is consistent with the strength model of self-regulation, which posits that all self-regulation tasks tap into the same pool of resource (Baumeister et al. 1998).

From a policy perspective, the current research has broad implications for consumer welfare (Aaker and Lee 2006). In particular, our findings suggest that consumer well-being can benefit from a general set of prescribed activities that are quite independent of the self-regulation task at hand. In today's society, many health-related problems such as obesity, substance abuse, and impulsive behaviors that are exacerbated by the lack of self-regulation are on the rise. These problems severely undermine consumer well-being and pose a tremendous burden on health-care systems around the world. While self-help remedies are saturating the market, self-regulation remains a strenuous process and a constant struggle for many people. This research offers an important step toward understanding self-regulation and highlights the benefits of adopting the right goal pursuit strategies. Our data suggest that the effects of fit and nonfit can be substantial. For instance, among our health-conscious participants, the experience of regulatory fit versus nonfit translated to a 63% difference in their choice of a healthy snack in experiment 2 and a 37% difference in experiment 3.

Our experiment 3 data showing that consumers do not necessarily know how to manage their own fit further highlight the policy implications of this research. When given the opportunity to select the strategy that can enhance their self-regulation, participants' choice of the fit strategy was no better than chance. We note that a preference for regulatory fit versus nonfit strategies has previously been documented. For example, Crowe and Higgins (1997) find that participants demonstrated selectively better recall of decision episodes that fit with their regulatory orientation. Wang and Lee (2006) also report that their uninvolved participants were more likely to process information that fit with their regulatory focus. One possible explanation for the discrepancy between these results and our findings is motivation. As suggested earlier, our participants might be particularly motivated by the task and hence did not rely on their feelings of fit or nonfit to make their strategy choice. Alternatively, consumers may have some insight into their preferences for some strategies (e.g., approaching gains vs. avoiding losses) but lack the intuition about the benefits of other strategies (e.g., feeling vs. reason based).

It should be noted that although we provided some evidence that the effects of regulatory fit on self-regulation are mediated by increased motivation, the exact process is yet to be fully explored. For example, one interesting question is where does the intensified motivation from regulatory fit come from? One possibility is that regulatory fit heightens people's perception of task success or enjoyment, which then leads to more intense motivation, but task success or

enjoyment could not explain participants' intention to get tested for hepatitis (experiment 4). Another important question is how does motivation influence self-regulation? It could be that the state of intensified motivation from regulatory fit increases the pool of self-regulatory resource, thus providing more fuel for self-regulatory tasks. Alternatively, it could be that the pool of self-regulatory resource remains the same, but the increased motivation prompts people to allocate more resource toward the task and hence promotes self-regulation success. Similarly, decreased motivation from regulatory nonfit might be the result of self-regulatory resource depletion or the result of people's unwillingness to tap into their reserves. A better understanding of the underlying processes awaits future research.

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