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This research attempts to understand the mechanism underlying the choice behavior of impulsive eaters. The authors propose a process according to which impulsive eaters (versus nonimpulsive eaters) spontaneously develop a promotion focus on exposure to hedonically tempting food, such as chocolate cake; their subsequent decision to consume the food is guided by this promotion orientation. Furthermore, the evoked promotion focus also influences subsequent choices in completely unrelated domains. A set of six experiments provides support for this mechanism and also examines its implications with regard to different ways of correcting impulsive eating behavior.

Understanding Impulsive Eaters' Choice Behaviors: The Motivational Influences of Regulatory Focus

Approximately 1.7 billion people worldwide are overweight (Deitel 2003). In some countries, such as the United States, more than two-thirds of the population is overweight; the figure has increased over time. People who are overweight are subject to higher risks of diabetes, heart disease, and so forth; in addition, problems created by weight excess have led to huge health care costs (estimated to be approximately \$60 billion in the United States; see Wolf, Manson, and Colditz 2002). Although several factors can contribute to being overweight and obesity (e.g., Chandon and Wansink 2005), an unhealthy dietary habit is the primary cause. Some people (whom we term "eating impulsives") seem unable to resist temptation when faced with hedonically appealing yet unhealthy food options. On the contrary, although they are aware that eating such food can produce adverse consequences, they give in to their impulses and consume the tempting food (Polivy and Herman 2002).

This article seeks to enhance the understanding of the psychological process that unfolds when impulsive eaters

are exposed to food-related temptations. We draw together different strands of research on impulsive consumption, goal activation, and regulatory focus to argue that exposure to a hedonically pleasing food causes impulsive eaters (versus nonimpulsive eaters) to spontaneously activate a heightened promotion focus, which then drives preference for the hedonic food. We also show that the promotion focus, in turn, not only influences impulsive eaters' choices of the tempting food but also has other far-reaching consequences, such as influencing choice behavior in completely unrelated domains (e.g., investment options, product alternatives). Finally, we use our conceptualization to offer insights into how to help consumers resist temptations—namely, by countering the activated promotion focus with a situational induction of prevention focus.

CONCEPTUAL BACKGROUND

Impulsive Consumption

Consistent with prior research (Puri 1996; Shiv and Fedorikhin 1999), we define "impulsive" behavior as experiencing a sudden and unplanned urge to behave in a hedonically pleasing manner that is immediately gratifying and then acting on the impulse without careful deliberation on subsequent negative consequences. For example, impulsive behavior can manifest when a person spontaneously decides to buy an expensive dress, which is clearly beyond that person's budget (e.g., Puri 1996). More relevant to the context of this research, choosing a hedonically appealing, but unhealthy, cake over a healthy salad because of a strong impulse that favors the former represents another example of such behavior (Shiv and Fedorikhin 1999).

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As several scholars (e.g., Kacen and Lee 2002; Rook and Fisher 1995) have noted, by far the most fertile area of investigation on impulsive consumption has focused on individual differences in impulsivity. For example, Puri's (1996) consumer impulsiveness scale (CIS) successfully predicts differences in impulsive buying behavior (for another widely cited consumer impulsivity scale, see Rook and Fisher 1995). More pertinent to the current inquiry, the eating behaviors literature reveals a similar focus on the use of traits as predictors of various facets of short-sighted impulsive eating. For example, the Dutch Eating Behavior Questionnaire (DEBQ; Van Strien et al. 1986) and the Three-Factor Eating Questionnaire (Stunkard and Messick 1985) have been shown to be highly predictive of caloric intake over time.

The use of trait antecedents to predict impulsive behavior has led to important findings. At the same time, they open the door to the next generation of questions, such as the following: What exactly is the psychological mechanism underlying the behavior of chronically impulsive people? With the notable exception of recent work by Shiv and Fedorikhin (1999), who propose that the underlying mechanism involves the greater emphasis that impulsive people give to affect over cognition, research focusing on this question has been relatively sparse. Drawing on recent theoretical insights into goal activation and regulatory focus, our inquiry identifies another such mechanism. In addition, we examine the implications of this mechanism with regard to both the far-reaching behavioral consequences of exposing impulsives to tempting food and the different ways of correcting impulsive eating.

Mere Exposure and Goal Activation

We derive our starting point from recent influential research on goal activation. Both Kruglanski's (1996) goal systems theory and Bargh's (1990) "auto-motive" theory view goals as knowledge structures in long-term memory. An implication of this view is that goals are connected in the associative network to other nodes; accordingly, exposure to any of these nodes/cues can spontaneously trigger the goal, which in turn guides subsequent behavior (Shah 2003; Shah and Kruglanski 2003). For example, Shah (2003) shows that subliminally priming participants with a significant other (e.g., "mother") whom they associate with holding a particular goal for them (e.g., "high verbal fluency") not only increased the accessibility of this goal but also substantially influenced their subsequent behavior in a manner consistent with the goal (e.g., increased commitment to and performance on an anagram task).

Of immediate relevance to this research, Zhou and Pham (2004) show that self-regulatory goals can also be spontaneously triggered on exposure to certain objects. Specifically, they find that evaluating financial products such as individual stocks in trading accounts tended to trigger a promotion focus, whereas evaluating financial products such as mutual funds in retirement accounts tended to trigger a prevention focus. These and similar findings (e.g., Shah and Kruglanski 2003) all provide support for the underlying notion that goals are cognitive structures that can be activated on exposure to associated concepts/objects stored in memory, thus influencing subsequent behavior. Furthermore, as with other cognitive structures, the extent to which object exposure evokes a goal and guides subsequent

behavior appears to differ across people as a function of the strength of the goal-object association (see Shah 2003).

Impulsivity and the Activation of a Promotion Focus

Drawing on the ideas developed in the previous section, we propose that a major reason for the eating behavior of impulsives (versus nonimpulsives) involves the nature of the goal that is spontaneously activated on exposure to a hedonic snack; in particular, we propose that exposure to a tempting snack triggers a heightened promotion focus among impulsives, which in turn has a direct effect on their choices. Research on regulatory focus provides the foundation for this proposition.

Building on early motivation literature that distinguishes between different types of needs and goals (see Maslow 1955), Higgins (1998) proposes that self-regulation involves two separate systems: the promotion system, which regulates nurturance needs and goals related to aspiration and accomplishment (i.e., "ideals"), and the prevention system, which regulates security needs and goals related to safety and responsibilities (i.e., "oughts"). The consequences of regulatory focus—especially, the effects of a heightened promotion focus—are of particular importance here.¹ It has been shown that promotion focus produces an emphasis on positive outcomes and gains, whereas a prevention focus produces an emphasis on negative outcomes and losses (e.g., Higgins and Tykocinski 1992; Shah, Higgins, and Friedman 1998). Another related consequence of a heightened promotion mind-set is a greater focus on ideal-related benefits (i.e., attributes related to aspirations and advancements) than on ought-related benefits (i.e., attributes related to security and protection). For example, Safer and Higgins (2001) find that participants with a heightened promotion focus were inclined to choose a car featuring ideal-related (or luxury) attributes (e.g., plush seats) over one featuring ought-related (or safety) attributes (e.g., antilock brakes).

In summary, a promotion orientation implies not only a greater emphasis on positive outcomes and ideal benefits (e.g., luxury) but also a corresponding insensitivity to negative outcomes and ought-related benefits (e.g., safety, health). Such consequences of a heightened promotion focus bear directly on a key issue of this research—namely, identifying the mechanism underlying the eating choices of chronically impulsive (versus nonimpulsive) eaters. Practically all discussions of impulsivity, whether in the context of purchase or consumption, note that when people are faced with a hedonically appealing temptation (e.g., a chocolate cake), their impulsive behavior is characterized by a disproportionate focus on the upside that accrues from gratification of desire, such as satisfying the craving for a rich taste, and a disregard for the possible negative consequences of engaging in the behavior (e.g., added calories) and the potential adverse effects on their health and fitness (Rook 1987; Shiv and Fedorikhin 1999). When allied with the insight that mere exposure to certain objects and situa-

¹Our view of a heightened promotion focus follows from recent research showing that greater activation of one type of regulatory focus dampens the other (e.g., Shah and Higgins 2001; Zhou and Pham 2004). Thus, for example, the engagement of a promotion focus is usually accompanied by the disengagement of a prevention focus, leading to a net promotion focus (for a similar view of "dominant regulatory focus," see Lockwood, Jordan, and Kunda 2002).

tions can spontaneously activate associated goals and orientations, this observation leads us to the main premise of this research: We propose that impulsives (versus nonimpulsives) possess a strong association between hedonically appealing foods and a promotion focus; consequently, mere exposure to a hedonic food tends to spontaneously activate a predominant promotion focus for impulsives (but not for nonimpulsives). In turn, this translates into an emphasis on the potential upside of consuming the food and a focus on ideal attributes (e.g., great taste),² whereas the potential downside and ought-related attributes (e.g., health consequences) are suppressed, thus leading impulsives to choose the hedonically appealing food. In summary, we hypothesize that impulsives' tendencies to succumb to a hedonically tempting, but unhealthy, food is driven by the heightened promotion focus that such temptations spontaneously activate.

A key focus of this research is to test and obtain empirical evidence for the mechanism we outlined for impulsive eating behavior. Another important objective, as we outline subsequently, is to examine its implications—specifically, (1) to predict how exposure to hedonic food can exert a significant impact on choice behavior in completely different contexts and (2) to suggest ways to correct impulsive eating behavior.

Consequences on Choice in Other Domains

We argue that the heightened promotion focus in impulsive eaters that is activated on exposure to hedonic food not only should lead to the choice of the specific food stimulus that was responsible for evoking that goal but also should affect immediate choice behavior in any other domain that is susceptible to the influence of regulatory focus. For example, we noted previously that a heightened promotion focus can influence investment decisions (Zhou and Pham 2004) and product choices (Safer and Higgins 2001). Therefore, we suggest that mere exposure to a hedonic stimulus, such as cake, by temporarily activating a promotion focus should influence the choice behavior of impulsive eaters in completely unrelated domains, such as investment options and product alternatives.

Rectifying Impulsive Behavior by Inducing a Prevention Focus

Because of the negative consequences of impulsive behavior, scholars have made many efforts to identify strategies that people can use to combat their impulses and maintain self-control (Hoch and Loewenstein 1991; Metcalfe and Mischel 1999)—for example, avoiding looking at the tempting stimulus or distracting oneself by deliberately engaging in other activities (Mischel, Shoda, and Rodriguez 1989). An objective of the current investigation is to contribute to this stream of research and to identify another corrective mechanism for impulsive behavior. If impulsive eating behavior is driven by the heightened promotion focus activated on exposure to a hedonic food, it should be possible to rectify such behavior by inducing a counteracting goal (i.e., a prevention focus) that would sensitize even impulsive people to the negative aspects of consuming

hedonic food. In particular, the view of goals as cognitive structures (e.g., Shah 2003) suggests that a prevention focus can be induced through situational priming methods, which in turn can reduce the propensity of impulsives to consume hedonically appealing, but unhealthy, food.

We conducted six experiments to test our hypotheses. The first two experiments attempt to provide evidence for our proposed regulatory focus-based mechanism underlying the differences in eating choices of high versus low impulsives. Specifically, Experiment 1 demonstrates that exposure to a hedonic food item spontaneously activates a greater promotion focus for high than for low impulsives. Experiment 2 builds on this finding and shows that the difference in activated regulatory focus directly mediates high impulsives' tendency to choose a hedonic food over a healthful food. The next two studies (Experiments 3a and 3b) then use the mechanism to demonstrate how mere exposure to a hedonic food can influence the choice behavior of impulsive eaters in completely unrelated domains. The final two studies (Experiments 4 and 5) address the issue of correcting impulsive behavior through appropriate situational inductions of a prevention focus.

EXPERIMENT 1: SPONTANEOUS ACTIVATION OF REGULATORY FOCUS

Overview and Design

Participants were 104 undergraduate students in Hong Kong, who took part in the study for partial class credit. We used a 2 (impulsive eating: high versus low) \times 2 (type of snack: hedonic versus nonhedonic) between-subjects design. All participants were exposed to a snack (either a cake or an apple) and then asked to fill out a measure of regulatory focus, which served as the major dependent variable. A pretest showed that the cake was indeed perceived as possessing more hedonic appeal but as being less healthful than the apple. Our key prediction pertained to the hedonic-snack (cake) conditions; specifically, exposure to the cake should spontaneously induce a greater promotion focus for high than low impulsives.

We ran the nonhedonic-snack (apple) conditions to rule out the possibility that the predicted difference in evoked regulatory focus between high and low impulsives arises simply because of a chronically greater promotion focus for high impulsives. If this alternative explanation were true, we would expect that a difference in evoked regulatory focus would manifest in the apple conditions as well. Instead, we predicted an interaction, such that the hypothesized difference in regulatory focus manifests only in the cake conditions.

Procedure

The study was run with approximately 12 participants at a time in a research lab with partitioned cubicles. Before participants entered the lab, a slice of chocolate cake or an apple was placed on the table in each cubicle. Participants were told that the research session consisted of several different, nonrelated studies. The first such study purported to examine their ability to imagine themselves in different situations. Specifically, they were told to look at the snack in front of them (the cake or the apple) and to imagine that they were in a situation in which they were wondering whether to eat it. After three minutes of engaging in this

²Prior research has found that health is an ought-related attribute, whereas superior taste is an ideal-related attribute (e.g., Aaker and Lee 2001; Zhou and Pham 2004).

imagination task, all participants filled out the key dependent measure of regulatory focus, which purported to be the second study. This measure required them to choose three of six listed strategies for being a good friend (Higgins et al. 1994). Three of the six items reflected a promotion focus (e.g., “to be emotionally supportive of my friends”), and the other three items reflected a prevention focus (e.g., “to not neglect my friends”). The greater the number of promotion items circled (a number from 0 to 3), the greater was the net promotion focus prevailing at that time.

At this point, participants were thanked and informed that the research session was over. However, they were told that they would be sent an additional questionnaire by e-mail. The e-mail questionnaire was sent out five days later. All 104 participants completed and returned this questionnaire, which contained a 20-item scale measuring their impulsive tendencies. Given our focus on eating choices, we chose to use a scale that was directly relevant to eating behavior rather than scales that were developed to measure impulsive buying behavior. Specifically, the measure we used was taken from the DEBQ (Van Strien et al. 1986). Of the scale items, 10 measured dietary restraint (e.g., “How often do you refuse food or drink offered because you are concerned about your weight?”),³ and the other 10 items measured the tendency to succumb to tempting food-related stimuli (e.g., “If food smells and looks good, do you eat more than usual?”). All 20 questions were associated with a five-point scale, anchored by “never” (1) and “very often” (5). We formed an eating-impulsivity index by averaging responses to all the items after reverse scoring the items on dietary restraint, so that higher scores on the overall index reflected greater impulsivity (for a similar approach based on reverse-scoring restraint items, see Rook and Fisher 1995; Wertenbroch 1998). The median score on our overall impulsivity index ($\alpha = .83$) was 3.35; we categorized participants who scored above (below) this score as high (low) impulsives. We ran a separate pretest to establish convergence of the DEBQ with Puri’s (1996) CIS. Eighteen students from the same population as the main study participants were first asked to complete the DEBQ scale. Four months later, in the context of filling out many different personality scales, they responded to the CIS. We obtained a satisfactorily high correlation of .63 ($p < .01$) between the two indexes of impulsivity.

Results

We examined the data in the context of a 2 (impulsivity: high versus low) \times 2 (type of snack: cake versus apple) analysis of variance (ANOVA). The results on the key regulatory focus measure revealed the predicted two-way interaction between impulsivity and type of snack ($F(1, 100) = 5.02, p < .05$). Contrasts then revealed that, as we hypothe-

sized, exposure to the cake induced a greater promotion focus for high impulsives ($M = 2.15$) than for low impulsives ($M = 1.64; F(1, 100) = 6.37, p < .05$). Furthermore, this effect was not due to an intrinsic difference in regulatory focus across the two groups, because exposure to the apple did not produce a focus difference between them ($M_{\text{high impulsives}} = 1.58, M_{\text{low impulsives}} = 1.70; F < 1$).⁴

Finally, the data pattern ruled out the possibility that the interaction was driven by a difference in regulatory focus induced among low impulsives (rather than among high impulsives) on exposure to the two snacks. We found no difference for low impulsives when they were exposed to the two snacks ($M_{\text{apple}} = 1.70, M_{\text{cake}} = 1.64; F < 1$), but we found a reliable difference for high impulsives ($M_{\text{apple}} = 1.58, M_{\text{cake}} = 2.15; F(1, 100) = 8.15, p < .05$).

Discussion

Experiment 1 provided initial evidence that mere exposure to a hedonic food can induce a different regulatory focus for high versus low impulsives. High impulsives exposed to rich chocolate cake manifested a significantly greater promotion focus than low impulsives. Of importance, this difference cannot be attributed to an inherent, chronic difference in regulatory focus between the two groups, because exposure to a nonhedonic snack did not yield any differences on the regulatory focus measure. On the contrary, the exposure to a hedonic food stimulus triggered the observed difference in regulatory focus.⁵

The results from this study offer insights into a possible mechanism underlying impulsive eating behavior. Specifically, we suggest that exposure to a hedonic snack triggers a heightened promotion focus for impulsive people. The very nature of a promotion-focused mind-set enhances sensitivity to and emphasis on potential gains and promotion-related benefits (e.g., gratifying a desire for rich taste) rather than on potential losses and prevention-related benefits (e.g., being careful about health), rendering it more likely that impulsives will succumb to the temptation of consuming the snack than will nonimpulsives. In other words, we suggest that differences in eating behavior of impulsive versus nonimpulsive people are mediated by the greater promotion focus induced by the hedonic food for the former group. We test this mechanism in Experiment 2.

EXPERIMENT 2: THE MEDIATING ROLE OF REGULATORY FOCUS IN CHOICE

Overview and Design

All participants ($n = 38$) were exposed simultaneously to a hedonic snack (cake) and a nonhedonic snack (vegetable salad). After indicating which snack they would like to eat, participants filled out a measure of regulatory focus. We expected that greater impulsivity would lead to a preference for the cake over the salad (replicating previous results that

³Although other measures of dietary restraint have been developed—most notably, Herman and Mack’s (1975) restraint scale—the restraint subscale of the DEBQ scale is more useful for our purposes because it has been shown to lead to less impulsive behavior; thus, higher scorers on the DEBQ scale actually showed greater restraint in their food intake (Laessle et al. 1989; Van Strien et al. 1986). In comparison, Herman and Mack’s restraint scale measures intention to diet rather than actual restraint; thus, as defined by this scale, dieters have been found both to exercise restraint and to eat impulsively (binge eating) on occasion (Heatheron et al. 1988; Laessle et al. 1989).

⁴In this and other studies, regression analyses conducted with impulsive eating as a continuous variable yielded similar results to the dichotomous case.

⁵A separate pretest conducted on 56 participants from the same population provided further evidence that chronic regulatory focus (measured by a standard set of items; Higgins et al. 2001) and impulsivity (measured by the DEBQ scale) are not correlated ($r = -.12$, not significant).

Shiv and Fedorikhin [1999] obtained). Of more importance, we hypothesized that this effect would be mediated by differences in regulatory focus.

Procedure

Before each session, the experimenter placed a slice of chocolate cake on a paper plate and a vegetable salad in an open transparent box on the table within each cubicle. Participants were instructed not to touch either snack. The first page of the questionnaire, which was handed out to all participants, asked them to imagine that they were at a party and were trying to decide between the two items of food placed in front of them. Next, they were asked to indicate which of the two snacks they would prefer to eat, on a nine-point scale anchored by "I would definitely prefer to eat the salad" (1) and "I would definitely prefer to eat the cake" (9). The intention scale was followed by a dichotomous choice measure. The next page was titled "Concerns in Daily Life." Although this page purportedly related to a different study, it contained the measure of evoked regulatory focus. To generalize our previous findings, we used a different measure from that used in Experiment 1. Specifically, in line with Higgins and colleagues' (1994) approach, participants were asked to rate the importance of 14 different issues on nine-point scales ranging from "totally unimportant" (1) to "extremely important" (9). As in Study 1, half of the items reflected a promotion focus (e.g., "doing well in work," "making new friends"), and the other half reflected a prevention focus (e.g., "ensuring personal safety," "avoiding unsafe sexual practices"). We created a measure of regulatory focus by subtracting the summed importance scores of the prevention items from the summed importance scores of the promotion items (see Lockwood, Jordan, and Kunda 2002); a higher score on this index reflected a greater net promotion focus.

A two-item measure then assessed the extent to which participants found the two snacks tempting. For each of the two snacks (cake and salad), participants were asked first how much they liked it (1 = "not at all," and 7 = "very much so") and then how tempting it seemed to them (1 = "not at all tempting," and 7 = "very tempting"; r 's > .77). Next, all participants completed a 30-minute filler task. The purpose of this filler was to prevent the previous questions from having an impact on the impulsivity scales. As in Experiment 1, participants then filled out the 20-item eating-impulsivity measure. The median score on this measure was 2.98; we categorized participants who scored above (below) this score as high (low) impulsives.

Although the 30-minute filler task between food choice and the eating-impulsivity scale mitigates against the possibility that the impulsivity scores were contaminated by snack choices, we obtained further empirical evidence against such contamination. Five months after the main study, participants were contacted again and asked to complete another questionnaire, which contained the key eating-behaviors scale, along with several other scales. Of the original 38 respondents, 24 filled out this measure. We obtained a high test-retest correlation between the two administrations of the same scale spread five months apart ($r = .75$), suggesting that snack choices did not influence impulsivity scores in the main study.

Results

We hypothesized that high impulsives would be more prone than low impulsives to choose the cake over the salad because of the greater promotion focus activated. We performed four regressions to test the mediation effect of regulatory focus (Baron and Kenny 1986). First, we regressed behavioral intention (higher numbers indicate greater cake preference) on impulsivity eating; a positive beta coefficient ($b = 1.99$, $t = 2.61$, $p < .05$) showed that higher levels of impulsivity lead to greater intentions of consuming the cake (versus the salad). Second, greater impulsivity was associated with a stronger promotion focus triggered on exposure to the snack items ($b = .84$, $t = 3.15$, $p < .01$). Third, greater promotion focus increased the intention to choose the cake over the salad ($b = 1.24$, $t = 3.01$, $p < .01$). Fourth, we simultaneously regressed behavioral intention on impulsivity eating and the regulatory focus index. Consistent with mediation, the effect of impulsivity diminished; indeed, it dropped below significance ($b = 1.2$, $t = 1.46$, $p > .15$), whereas the mediating variable of regulatory focus had a significant influence ($b = .93$, $t = 2.03$, $p < .05$).

The results of the dichotomous choice measure revealed similar patterns (we used one-tailed tests on this measure). The four regressions showed that (1) greater impulsivity was associated with a greater likelihood of choosing the cake over the salad ($b = .25$, $t = 1.63$, $p < .06$), (2) greater impulsivity was associated with a stronger promotion focus activated on exposure to the snack items ($b = .84$, $t = 3.15$, $p < .01$), (3) a stronger promotion focus led to a greater likelihood of choosing the cake over the salad ($b = .17$, $t = 2.01$, $p < .05$), and (4) the effect of impulsivity on choice was no longer significant ($b = .14$, $t = .8$, $p > .2$) after we accounted for the effect of regulatory focus ($b = .13$, $t = 1.4$, $p < .08$).

Discussion

From theoretical perspectives of impulsive behavior and prior empirical investigations in this area (Shiv and Fedorikhin 1999), we expected that higher levels of impulsivity would increase preference for hedonic (versus healthful) snacks. Of more importance, we predicted that this increased preference would be mediated by an increase in induced promotion focus. We obtained findings in support of our expectations. Faced with a choice between a tempting cake and a healthful salad, participants with greater levels of impulsivity noted higher intentions to eat the cake, and a concomitant increase in promotion focus mediated this effect. Collectively, therefore, the results from our first two experiments provide useful new theoretical insights into the mechanism underlying the consumption behavior of impulsive eaters.

Of interest, the temptation ratings of the two snacks we obtained in Experiment 2 provided further insights into the differences between high and low impulsives. Not surprisingly, both groups found the cake more tempting than the salad (high impulsives: $M_{\text{cake}} = 5.82$, $M_{\text{salad}} = 3.26$; $F(1, 36) = 63.5$, $p < .001$; low impulsives: $M_{\text{cake}} = 4.89$, $M_{\text{salad}} = 3.6$; $F(1, 36) = 16.1$, $p < .001$). More important, an interaction between type of snack and impulsivity ($F(1, 36) = 7.73$, $p < .01$) revealed that though high impulsives ($M = 3.26$) and low impulsives ($M = 3.6$) did not dif-

fer ($F < 1$) in the extent to which they found the salad tempting, there was a significant difference in temptation ratings of the cake ($M_{\text{high impulsives}} = 5.82$, $M_{\text{low impulsives}} = 4.89$; $F(1, 36) = 8.22$, $p < .01$). This finding suggests that one key difference between low and high impulsives in our studies is the degree of temptation rather than the degree of self-control being exerted. In other words, it appears not to be the case that low impulsives need to exert a substantial amount of self-control to resist the cake; rather, they are less tempted in the first place (and thus have less need to exercise self-control). This insight is of particular interest, given Fishbach, Friedman, and Kruglanski's (2003) recent findings that draw on goal representation theory to explain successful self-control. The basic premise in their research is that over the course of time, good self-regulators form a strong association between alluring objects and the related self-control goal (e.g., for successful self-regulators, the temptation-related word "television" activated the self-control goal "study"). The activated goal then produces beneficial self-control effects on behavior. However, unlike the good self-regulators in Fishbach, Friedman, and Kruglanski's (2003) study, the low impulsives in our studies seem to be less tempted to begin with and thus have less need to activate a self-control goal. In addition to the temptation ratings, such a premise is supported by the finding of Experiment 1, which shows no difference in activated regulatory focus for low impulsives when they are exposed to the cake versus the apple (there would have been a difference if low impulsives needed to activate a higher-order prevention goal to resist the temptation of eating the cake). Rather, the "action" in Experiment 1 centered on the high impulsives, who spontaneously developed a heightened promotion focus on exposure to the cake. Thus, although Fishbach, Friedman, and Kruglanski's findings provide insights into the mechanism underlying successful self-control (spontaneous activation of self-control goals by good self-regulators when they are exposed to temptation), our findings illuminate the mechanism underlying the reverse of such "good" behavior (i.e., unwise eating behavior by high impulsives).

Of equal importance, another difference between Fishbach, Friedman, and Kruglanski's (2003) research and the current research involves the generality of the activated goal. Specifically, Fishbach, Friedman, and Kruglanski study the activation of goals that are specific to different contexts (e.g., the "study" goal was activated in response to the contextual cue of "television"). Notably, a similar context-specific goal activation view is present in Shiv and Fedorikhin's (2002) affective-cognitive model of choice, according to which people choose affectively tempting stimuli because of the activation of a stimulus-specific appetitive goal.⁶ In contrast to these context-specific perspectives of goal activation, the current research suggests that impulsives' unwise eating choices are driven by the activation of a generalized promotion focus, which reflects a broader underlying human need for growth and aspirations and thus should also guide people's choice behavior in other domains. In other words, through the activation of a

heightened promotion focus, simple exposure to a hedonic temptation, such as cake, should influence the choices of highly impulsive eaters in completely unrelated domains. Experiments 3a and 3b test this prediction.

EXPERIMENTS 3A AND 3B: UNRELATED EFFECTS OF EXPOSURE TO HEDONIC SNACKS

Experiment 3a

Design and procedure. Experiment 3a used the same design and setup as Experiment 1 to examine the effect of exposure to hedonic snacks on subsequent consumer choices for high versus low impulsives. Participants ($n = 102$) were first asked to imagine that they were wondering whether to eat the snack placed in front of them (either a cake or an apple). Next, they made two separate consumption choices, which served as the main dependent variables. Each choice featured an option with a promotion-based appeal and another option with a prevention-based appeal. The first choice was between two brands of sunscreen (see Lee and Aaker 2004). Although both brands were described as being of good quality, Brand P (Brand Q) had a promotion (prevention) appeal: "Enjoy life! Bask in the warm rays of the sun, feeling completely happy" ("Be safe! Know that you are risk free from sunburns, feeling completely relaxed"). The second choice was between two brands of cars (see Safer and Higgins 2001). Brand S (Brand T) emphasized a promotion (prevention) benefit, namely, luxury (safety). Participants indicated their preferences on scales ranging from 1 to 9 (higher numbers indicated greater preference for the promotion option). After a 30-minute filler task, participants completed the 20-item eating-impulsivity measure ($Mdn = 3.35$). We expected that by virtue of inducing a heightened promotion focus, exposure to the hedonic snack (cake) would lead high impulsives to a greater preference for the product that featured a promotion appeal than would be the case for low impulsives. We expected that there would be no differences between high and low impulsives when they were exposed to the nonhedonic snack (apple).

Results. We examined data on sunscreen choice in a 2 (impulsivity: high versus low) \times 2 (type of snack: hedonic versus nonhedonic) ANOVA, which revealed a significant interaction between impulsivity and type of snack ($F(1, 98) = 4.26$, $p < .05$). Contrasts revealed that, as we expected, after exposure to the cake, high impulsives ($M = 5.63$) were more likely to choose the sunscreen with promotion appeal (i.e., Brand P) than low impulsives ($M = 3.92$; $F(1, 98) = 7.83$, $p < .01$). However, exposure to the apple did not produce any differences in subsequent preferences of the two sunscreens for high versus low impulsives ($M_{\text{high impulsives}} = 3.78$, $M_{\text{low impulsives}} = 3.91$; $F < 1$). The results on the car choice also revealed a significant interaction between impulsive eating and type of snack ($F(1, 98) = 4.38$, $p < .05$). After exposure to the cake, high impulsives ($M = 5.46$) were more likely to choose the car with the promotion-focused benefit (i.e., Brand S) than low impulsives ($M = 3.93$; $F(1, 98) = 7.27$, $p < .05$). However, exposure to the apple did not produce any differences in preferences of the two cars between the two groups ($M_{\text{high impulsives}} = 3.93$, $M_{\text{low impulsives}} = 4.12$; $F < 1$).

⁶Although Shiv and Fedorikhin (2002) examine food choice, they do not study the effects of trait impulsivity, a key focus of the current inquiry.

Experiment 3b

Design and procedure. Experiment 3b used the setup and design of Experiment 2 to examine the effect of exposure to hedonic snacks on subsequent investment decisions for high versus low impulsives. All participants ($n = 28$) were exposed simultaneously to a hedonic snack (cake) and a nonhedonic snack (vegetable salad) and were asked to imagine that they were at a party and were trying to decide between the two items of food in front of them. Next, they completed the second questionnaire, which asked them to make an investment choice. They were told to imagine that they had received HK\$2,000 as a gift from a distant relative and were considering investing in two assets: Stock A and Mutual Fund B. They were further told that each of these assets was “average”—that is, typical of an average Hong Kong stock or an average Hong Kong mutual fund. They indicated which of the two options they found more attractive for investing the money, on a scale ranging from 1 (“Mutual Fund B”) to 9 (“Stock A”). In addition, they split the HK\$2,000 across the two assets and indicated how much they would allocate to Stock A and Mutual Fund B. After a 30-minute filler task, they filled out the eating-impulsivity measure ($Mdn = 3.40$). Prior research suggests that individual stocks tend to be associated with a promotion focus and mutual funds tend to be associated with a prevention focus (Zhou and Pham 2004). Therefore, we expected that by virtue of inducing a heightened promotion focus for high impulsives, exposure to the hedonic snack would lead them to a greater preference for the stock than for the mutual fund.

Results. An ANOVA of the preference between the two investment options revealed a main effect of impulsive eating ($F(1, 26) = 5.36, p < .05$). Consistent with our predictions, high impulsives ($M = 5.93$) were indeed more likely than low impulsives ($M = 4.43$) to favor the individual stock. High impulsives also allocated a larger amount of the HK\$2,000 to the individual stock ($M = \text{HK}\$1,085.7$) than low impulsives ($M = \text{HK}\728.6; $F(1, 26) = 5.94, p < .05$).

Discussion

The results from these two studies confirmed our prediction that exposure to a hedonic snack can influence subsequent choices in unrelated domains, such as products and investment options. Specifically, compared with low impulsives, high impulsives exhibited a significant preference for options that contained a promotion-focused appeal. Note that the effects are not trivial. For example, in Experiment 3b, the amount of money allocated to individual stock differed by more than HK\$300 between high and low impulsives.

Together, the results from Experiments 3a and 3b provide further support for the basic premise of this research—namely, that exposure to a hedonic food triggers a heightened promotion focus for highly impulsive eaters. Unlike goals that are specific to the eating context, such a generalized focus reflects a fundamental human need for growth and aspiration; thus, when this focus is developed, it can have far-reaching effects in completely unrelated domains, such as product choices and investment decisions. As we mentioned previously, this generality of effects constitutes a

major difference between our work and other research that has examined the role of goal activation in impulsive behavior (Fishbach, Friedman, and Kruglanski 2003; Shiv and Fedorikhin 2002).

So far, we have shown that exposure to a hedonic food activates a heightened promotion focus for high impulsives, which then drives subsequent behavior in various decision contexts, including (but not limited to) the choice of hedonic over healthful food options. In the next two experiments, we build on the identified mechanism to suggest methods for correcting impulsive behavior. Specifically, the induction of a prevention focus, which produces heightened sensitivity to potential losses and ought-related consequences of behavior (e.g., health aspects), should lead to more healthful choices by mitigating against the promotion focus that is spontaneously induced by exposure to the hedonic food. How might such a prevention focus be induced for impulsive eaters at the point of choice? The goals-as-cognitive-structures notion (Kruglanski 1996) suggests that goals can be activated not only through chronically strong object–goal associations but also through situational (e.g., priming) methods. Accordingly, although impulsive eaters have a natural tendency to develop a promotion focus on exposure to a hedonic snack, a situational induction of prevention focus should decrease the likelihood of consuming it.

EXPERIMENT 4: PREVENTING IMPULSIVE CONSUMPTION

Design and Procedure

Student participants ($n = 63$) were recruited through on-campus advertisements that promised a payment of HK\$80–HK\$100 (approximately US\$10–US\$12.50); we deliberately framed the payment amount in terms of a range to be consistent with the prevention induction. We used a 2 (impulsivity: high versus low) \times 2 (situational focus: prevention versus baseline) between-subjects design. We used the same stimuli (cake and salad) as in the previous experiments. Our key prediction was that under baseline conditions, our previous results would be replicated such that higher impulsivity would increase the inclination to choose cake over salad; however, an induction of prevention focus should significantly attenuate this effect.

Participants were told that they were required to participate in several different unrelated studies. For those in the prevention condition, the first study purportedly tested English language skills and consisted of two successive components, each of which was previously found to induce a prevention focus (two tasks were given so as to create a strong manipulation). The first component involved a word categorization task (adapted from Lockwood, Jordan, and Kunda 2002). Participants were presented with 24 words arranged in random order and were asked to sort them into two categories. Half the words were related to cooking (e.g., pot, spoon), and the other words were related to a prevention focus (e.g., avoid, avert). The second component was a proofreading exercise, which required participants to circle all the incorrectly spelled words they could find in two brief paragraphs of written text. The prevention induction in this case was couched in the instruction for the task

(adapted from Higgins, Shah, and Friedman 1997). Participants were told to avoid missing any misspellings. Furthermore, they were informed that their payment for the session was contingent on their task performance. Specifically, they were told, "You will lose 20 dollars from your maximum possible payment if you do not perform better than 60% of the participants on this proofreading task. On the other hand, if you do perform better than 60% of the participants, you will not lose any money for this stage of the experiment."⁷

Together, these two tasks took approximately five minutes. During this time, participants in the baseline conditions completed an unrelated task that took the same amount of time. Subsequently, the boxes that covered the cake and salad stimuli were lifted, and all participants went through the same procedure. They were asked to report their behavioral intention with regard to the cake versus the salad on a nine-point scale and to make a dichotomous choice between the two snacks. After a 30-minute filler task, they were asked to complete the eating-impulsivity measure; scores above (below) the median of 3.5 on this scale were classified as high (low) impulsives. Finally, all participants were paid HK\$100 for their participation.

Results

We examined the data in the context of a 2 (impulsivity: high versus low) \times 2 (situational focus: prevention versus

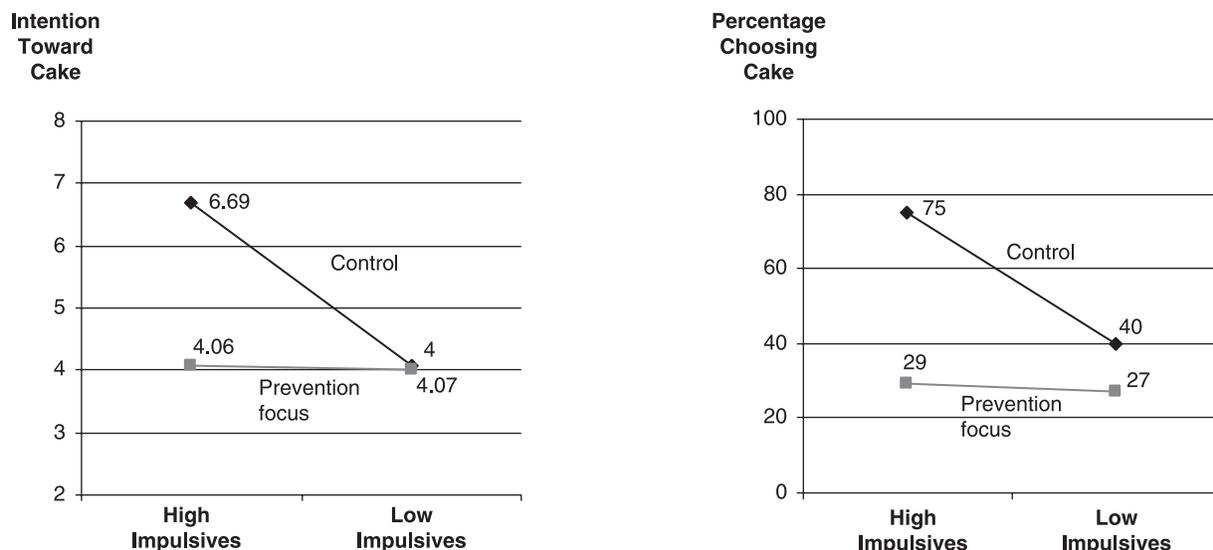
baseline) ANOVA. We observed a significant interaction between the two factors ($F(1, 59) = 4.43, p < .05$). Contrasts then revealed that under baseline conditions, high impulsives indicated a greater intention to choose the cake ($M = 6.69$; for the means, see Figure 1) than low impulsives ($M = 4.07$; $F(1, 59) = 11.15, p < .05$), thus replicating our previous results. Under the prevention focus, however, this difference was completely nullified; high impulsives ($M = 4.06$) and low impulsives ($M = 4.00$) did not differ in terms of their behavioral intention ($F < 1$). The results of the dichotomous choice measure revealed similar patterns. Under the baseline conditions, high impulsives were more prone to choosing the cake than were low impulsives (cake choice proportions = 75% versus 40%; $F = 4.28, p < .05$). However, this difference disappeared under the influence of a prevention focus (cake choice proportions = 29% for high impulsives versus 27% for low impulsives, $F < 1$).

Discussion

The results from Experiment 4 showed that the natural tendency of impulsive eaters to choose a hedonic food over a healthful one can be counteracted by the situational induction of a prevention focus before choice. These results serve two functions. From a theoretical perspective, they are consistent with our premise that the consumption behavior of impulsive eaters is guided, at least in part, by the promotion orientation activated on exposure to the hedonic snack; thus, inducing the opposite focus serves to change their default behavior. From a practical and policy-centered perspective, the current findings provide an indication as to how the eating behavior of impulsive people might be rectified. Of interest, the priming-based self-control mechanism we identified has the potential to be activated nonconsciously, in contrast to previous self-control strategies that

⁷We pretested these prevention inductions, as well as those used in Experiment 5, to ensure that they induced a prevention focus; furthermore, our pretests ruled out the possibility that these inductions simply induced a goal to comply with social norms; such goal activation would have represented an alternative reason for attenuating cake choice.

Figure 1
LIKELIHOOD OF CHOOSING CAKE AS A FUNCTION OF EATING IMPULSIVITY AND SITUATIONAL FOCUS



have been uncovered in the literature, most of which involve deliberate, conscious methods, such as distracting oneself from the temptation and reframing the stimulus in a less tempting light.

Although Experiment 4 provides evidence that consumption behavior of impulsive eaters can be modified by inducing a prevention focus at the point of choice, a related and equally important question is, Can postchoice feelings of satisfaction/regret be modified as well? In other words, even after impulsives have made a hedonic choice, can they be made to feel less satisfied with their choice through a subsequent induction of prevention focus? The current research suggests that the answer is yes. We argue that impulsives spontaneously develop a heightened promotion focus when they are exposed to hedonically tempting food; in turn, the promotion focus guides increased choice of the hedonic food by emphasizing the potential upside (e.g., sensory satisfaction) of consuming such food. However, if impulsive people are asked to evaluate satisfaction with their choice while under the influence of an externally induced prevention focus, the downside arising from their prior decision (e.g., weight gain) should become more salient. This mismatch in regulatory focus between the time of choice and the time of reporting satisfaction should lower postchoice satisfaction, compared with a situation in which impulsive people stay in a promotion focus even after choice. Experiment 5 tests this prediction by manipulating postchoice regulatory focus. For high impulsives (but not for low impulsives), we predict that satisfaction with the prior choice will be lower under conditions of postchoice prevention focus than under conditions of postchoice promotion focus.

EXPERIMENT 5: REDUCING POSTCHOICE SATISFACTION

Design and Procedure

This study used a 2 (impulsivity: high versus low) \times 2 (postchoice focus: prevention versus promotion) between-subjects design. As previously, participants ($n = 83$) were asked to make both an initial choice between the cake and salad by indicating their behavioral intention on a nine-point scale and a dichotomous choice. To increase generalizability, however, they were exposed to color pictures of the cake and salad (printed side by side on the questionnaire) rather than to the actual snacks themselves. This process enabled us to check whether we would obtain the same results (i.e., greater choice of the cake over the salad for high than low impulsives) even with this arguably weaker stimulus representation.

After responding to the behavioral intention and choice questions, participants completed an unrelated 30-minute filler task. The manipulation of postchoice focus (prevention versus promotion; adapted from Lockwood, Jordan, and Kunda 2002) followed the filler task. Specifically, participants were asked to think of a course they were taking in the current semester. In the prevention (promotion) condition, they were then asked to write down a negative (positive) academic outcome that they wanted to prevent (accomplish) in that course and then to describe the strategies they might use to avoid (achieve) such an outcome.

The next page of the questionnaire reinstated the pictorial stimuli (cake and salad). Participants were asked to recall their previous choice between the two snacks (recall accuracy was 100%). Then, they were asked to rate how they now felt about this choice on two nine-point scales ("dissatisfied/satisfied" and "unhappy/happy"; higher numbers reflected greater satisfaction; $r = .97$). After an unrelated 20-minute filler, all participants responded to a set of three questions about their eating habits. Because of time constraints, we were unable to administer the 20-item impulsivity scale from the prior studies; this three-item measure served as a proxy. The three items were: "I am a very health-conscious person," "I am very careful about what I eat," and "I go on a diet quite frequently." Each scale was anchored by "disagree" (1) and "agree" (7). The average of these items ($\alpha = .68$) constituted our measure of impulsive eating, and higher numbers reflected less impulsivity. We classified participants who scored less (more) than the median value of 4.33 as high impulsives (low impulsives). In a separate pretest ($n = 56$), we found that this three-item measure possessed a reliable correlation with the full 20-item scale ($r = .64, p < .0001$).

Results

Replicating our previous results, we found a main effect of impulsivity on behavioral intention ($F(1, 79) = 10.35, p < .01$), suggesting that high impulsives were more likely to choose the cake ($M = 6.32$) than low impulsives ($M = 4.55$).⁸ The results on the dichotomous choice measure showed consistent patterns; a greater percentage of high impulsives ($M = 68.2\%$) than low impulsives ($M = 33.3\%$; $F = 11.03, p < .01$) chose the cake. No other effects were significant on either intention or choice.

We examined the data on postchoice satisfaction in the context of a 2 (impulsivity: high versus low) \times 2 (postchoice focus: prevention versus promotion) ANOVA. The only significant effect was an interaction between impulsivity and postchoice focus ($F(1, 79) = 4.07, p < .05$). Contrasts then showed that, as we predicted, high impulsives displayed lower satisfaction with their previous choice when a prevention focus ($M = 6.90$) was induced at the point of evaluating satisfaction than when a promotion focus ($M = 7.83$; $F(1, 79) = 4.71, p < .05$) was. For low impulsives, however, satisfaction with their initial choice did not differ significantly under conditions of prevention ($M = 7.88$) versus promotion ($M = 7.59, F < 1$, not significant). Note that the absolute level of satisfaction was high even in our "mismatch" condition for high impulsives; however, given the relatively small delay between choice and satisfaction measurement, we expected that postchoice dissonance reduction would lead to participants reporting high

⁸Of interest, previous research (Shiv and Fedorikhin 1999) has found that high impulsives' preference for the cake versus the salad was eliminated with a pictorial stimuli representation. Unlike that inquiry, however, which adapted a measure of shopping impulsivity (Puri 1996), our research used a measure that was constructed specifically to measure impulsive eating (Van Strien et al. 1986). The more proximal nature of this measure to the eating behavior being studied may have led to an effect being obtained even under conditions in which it was not documented in prior research. However, this speculation requires further empirical investigation.

levels of satisfaction across conditions. Rather than the absolute level of satisfaction, therefore, our prediction addressed the fall in satisfaction for high impulsives given a postchoice prevention induction; the results supported this prediction.

Discussion

Consistent with results from prior studies, high impulsives in Experiment 5 were more likely to choose the hedonic snack over the healthful snack than low impulsives. More important, we found that inducing a prevention focus (versus a promotion focus) after the initial choice led to lower satisfaction with the prior choice for high impulsives but had no effect on low impulsives. We suggest that the lower satisfaction for high impulsives is due to a mismatch between the promotion focus spontaneously triggered at the time of choice and the prevention focus induced at the time of postchoice evaluation. To the extent that such dissatisfaction may help reduce impulsive eaters' choice of hedonic food items in the future, inducing postchoice prevention focus can serve as a corrective mechanism for impulsive behavior.

GENERAL DISCUSSION

Summary and Implications

Drawing together knowledge from three different areas—impulsive behavior, regulatory focus theory, and goal representation theory—this research identifies one possible process for why impulsive people behave the way they do and examines the implications of this mechanism. The key to our proposed process is the notion that because of impulsive eaters' underlying goal structure, they spontaneously activate a heightened promotion focus on exposure to a hedonically appealing snack. Because a promotion focus involves a disproportionate emphasis on the potential upside and ideal-related benefits (versus potential downside and ought-related consequences) associated with eating the hedonic snack, impulsive eaters end up choosing it over the healthful snack. Our first two studies provide support for this regulatory focus-based mechanism. Specifically, Experiment 1 demonstrates that high impulsives (versus low impulsives) develop an increased promotion focus on exposure to a hedonic snack, and Experiment 2 shows that the difference in activated regulatory focus mediates differences in eating choices for the two groups.

In contrast to other research, which studies the activation of goals specific to different contexts (Fishbach, Friedman, Kruglanski 2003; Shiv and Fedorikhin 2002), the current research suggests that impulsives' unwise eating choices are driven by the activation of a goal (promotion focus) that reflects a general underlying human need for growth and aspirations and thus should influence behavior in other contexts. Therefore, an important implication of our proposed mechanism is that mere exposure to a hedonic food can influence the choice behavior of impulsive eaters in completely different decision contexts, such as product choices and investment options, a proposition that is supported in Experiments 3a and 3b.

Our research also offers something of practical interest for those who want to correct impulsive eating behavior.

In particular, building on the identified theoretical mechanism, we suggest and show that inducing a prevention focus at the time of choice can help reduce the tendency of impulsive eaters to choose a hedonic snack over a healthful one (Experiment 4). Furthermore, we show that even if a hedonic choice is made initially, inducing a prevention focus postchoice can decrease the level of satisfaction with that choice, thus providing a first step toward correcting impulsive behavior in the future (Experiment 5). Our findings add to the various self-control strategies that have been identified previously in the literature, such as distracting oneself (Mischel, Shoda, and Rodriguez 1989), substitution (Hoch and Loewenstein 1991), and reframing the tempting stimulus in a less tempting manner (Mischel, Shoda, and Rodriguez 1989). However, unlike these previous strategies, the type of self-control we identified has the potential to be activated outside the protagonist's awareness.

The finding that a tempting food option activates a promotion focus in impulsives not only is consistent with recent research that espouses a goals-as-cognitive-structures viewpoint (e.g., Shah 2003) but also extends regulatory focus theory. In addition to documenting that certain objects (e.g., a hedonically tempting snack) can spontaneously activate a certain type of regulatory focus (see Zhou and Pham 2004), we suggest that such spontaneous activation of regulatory focus can be moderated by individual characteristics. That is, only high impulsives developed a heightened promotion focus on exposure to the tempting snack; we did not observe this effect for low impulsives. Such effects suggest a basic difference in the underlying goal representation for the two groups: namely, high impulsives possess a stronger association between hedonically tempting objects and a promotion focus than low impulsives.

Finally, the current findings in no way contradict prior research, which has suggested other reasons for impulsives' choices; rather, we simply offer another possible path by which impulsivity can influence eating preferences. For example, Shiv and Fedorikhin (1999) propose that impulsives' preferences for hedonic snacks are guided by a greater reliance on affect than on rational cognition. Therefore, impulsives' eating choices might be driven by several factors, including the salience of an affective (versus a cognitive) mind-set, as well as by regulatory focus. Pham and Avnet's (2004) recent findings in a message persuasion context indicate yet another way of reconciling these two sets of research. They suggest that people in a promotion mind-set are more likely to be influenced by affect, whereas a prevention mind-set typically leads to a greater emphasis on cognitive features. This suggests a connection between the two mechanisms underlying the influence of impulsivity. Specifically, the greater reliance on affect by impulsive people (Shiv and Fedorikhin 1999) could be due, at least in part, to the heightened promotion focus documented in the current research.

Limitations and Avenues for Further Research

Although this research provides insights into the mechanism underlying impulsive eating choices, it contains several limitations as well. Of note, the hedonic object studied across the six experiments was the same (chocolate cake), limiting the generalizability of our findings. Therefore,

future studies should attempt to replicate the current results using different stimuli. It would also be useful to examine actual choice behavior in addition to choice intentions.

The current investigation provided evidence for the spontaneous induction of a promotion focus on exposure to a hedonic snack for impulsives (Experiment 1) and examined the behavioral consequences of this activation (Experiments 2, 3a, and 3b). Thus, this inquiry was similar in spirit to other work on goal representations that has examined the idea of goal-object associations from the point of view of the consequences of such associations (Shah 2003; Shah, Kruglanski, and Friedman 2002). However, further research, both in the general area of goal representations and in the more specific case of impulsive behavior, should strive to examine this issue from an antecedent perspective. For example, it would be worthwhile to explore how and why such associations are formed; one possibility is that impulsives develop a stronger association between hedonic objects and a promotion focus because of repeated, habitual coactivation of the two nodes. Apart from its theoretical value, an inquiry into such antecedents would provide practical benefits; namely, an understanding of the process by which some people develop promotion-focus associations with hedonic objects could suggest methods of blocking these associations before they become habitual.

Another worthwhile direction for further research involves examining how impulsive consumption of a hedonic food influences future eating behavior. Anecdotal and scholarly evidence (e.g., Rook 1987) indicates that unwise consumption is typically followed by guilt and regret; in other words, just as mere exposure to a hedonic food spontaneously induces a promotion focus in high impulsives and leads to choice of that food, actual consumption of the food may induce a prevention focus; if this were true, this reasoning would predict that the act of giving in to an initial temptation itself increases high impulsives' resistance to an immediately subsequent temptation. Of interest, research on the eating behavior of dieters (people who have a high intention to diet but are prone to periods of both restraint and binge-eating; for more on the difference between actual restraint and dieting intention, see n. 3) offers a somewhat different prediction. An initial food intake for such people can actually lower resistance to further consumption because of a feeling that the preload has spoiled the diet anyway, rendering further restraint useless (for a summary of this work, see Herman and Polivy 1980). Thus, it would be worthwhile for marketing scholars to examine the possibly contrasting effects of an initial food intake on subsequent eating behavior for high impulsives versus dieters.

Finally, the regulatory focus-based mechanism we identified as a driver of impulsive behavior can be used in other contexts as well. For example, recent research on cultural differences in impulsive consumption has found that the relationship between chronic buying impulsiveness and actual impulse buying behavior is stronger for people from individualist cultures (e.g., United States) than for people from collectivist cultures (e.g., East Asia); in other words, the former group is more likely to yield to their impulses than the latter (Kacen and Lee 2002). When allied with another strand of research that has found that Americans tend to be more promotion focused (and less prevention

focused) than East Asians (Lee, Aaker, and Gardner 2000), these findings can be interpreted using the mechanism we identified; namely, the stronger relationship between impulsivity and actual impulse buying for Americans might be due in part to a greater promotion focus being activated for this group on exposure to the tempting object than for East Asians. Further research could examine this and other conjectures that arise naturally from the mechanism we have outlined for impulsive behavior.

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