

The Vicious Cycle of Dieting Failures: The Active–Self Account of the Priming Effect on Unsuccessful Dieters

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Abstract

Considerable research in dieting has examined the goal priming effect that promotes successful dieting. However, priming literature found that the process of which priming is led to behaviors involves not only the priming construct itself but the momentary self-concept activated by the priming. Based on this notion, studies examined whether the active self-concept as an “unsuccessful dieter” or “successful dieter” determines the priming-to-behavior effect in dieting. Study 1 used contexts of the prime as manipulation for participants’ active-self following the prime and measured their chronic self-concept in dieting (rated on the Perceived Self-Regulation Success [PSRS] in dieting scale) as a moderator. The result supported the active-self account for the effect of the dieting prime. The interaction of the PSRS scores and the priming contexts was found in the dieting behavior of participants. Participants whose chronic self-concept in dieting is unsuccessful (the low PSRS) showed the goal-congruent priming effect only in the condition where the priming context reminded them of their self-concept in favor of dieting success. In the context where their dieting failure in the past became salient, however, the participants with the low PSRS were more likely to succumb to tempting food. In contrast, eating behaviors of the high PSRS participants were independent of the contexts. Study 2 tested a possible mechanism from the active-self to the behaviors. It is concluded that the active-self operates in the priming process by influencing anticipatory thoughts rather than automatic responses toward foods. The implications for understanding repeated dieting failures and designing practical interventions to help dieters are discussed.

Key words : Priming, Eating Behavior, Self-Regulation, Dieting, Active-Self, Self-Concept

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1. Introduction

Every day the media showcases how to lose many pounds and how good it is to have a slim figure. At the same time, a delicious dessert café and a recipe for making chocolate cookies also draw people's attention. People mainly believe that the latter, a so called 'toxin environment' full of high calorie food is the one to blame whereas 'diet-discourse' that is prevalent in society is the one that helps obesity problems (Rich, 2011). Emphasizing the importance of a healthy diet and body seems to be motivating one's diet goals. The majority of women frequently engage in conversation about their dissatisfaction with their body and their need to lose weight. People are constantly reminded of the need to maintain a good figure both by external sources (e.g. media reports or conversation with peers) and internally, from wanting to look better or get healthier. Yet, the number of over-weight people is expected to increase to more than 60% of the entire South Korean population by 2015 (Pokorski, 2011).

While there have been many different explanations about how diet goals are interfered with by temptation cues, environmental cues that prime us with diet goals are generally expected to be only helping successful dieting. However, given that a considerable number of people monitor their eating habits and are constantly reminded of that goal in everyday life, it should be examined why many dieters do not success despite the high accessibility of dieting goals around them and whether there is any condition unidentified that puts boundary in the effect of priming dieting. The purpose of the present research is to examine whether, unlike a common notion, being primed with the diet goals is not directly led to successful dieting behaviors. In particular, we suggest that not only 'what' is activated (becoming accessible) but more importantly, 'how' it is activated matters to successful self-regulation of chronic dieters. According to the active-self account in priming literature (Wheeler, Demarree, & Petty, 2007), not only the accessi-

bility of the construct primed, but more importantly, the self-concept activated by priming plays an essential role in the effect of priming. Based on this theoretical notion, we propose that the context in which dieting goals are primed with should be carefully catered in a way to activate self-concepts that can promote the direct prime-to-behavior effect. Particularly, for the people who perceive themselves as less than successful, their self-concepts can be easily influenced by the context of priming. The current research argues that the ineffectiveness of the goal prime for these unsuccessful dieters and the psychological explanations have remained uninvestigated. Thus, it addresses the vicious cycle of dieting failures by focusing on how the dieting prime is processed among the dieters' minds, and suggests the implication for practical interventions by identifying the context of priming as a crucial boundary condition.

2. The Active-Self in Goal Priming

2.1. Prime-to-Behavior Effects in Self-Regulation Goals

Dieting is an archetypical domain of self-regulation, where a focal goal is in conflict with pursuit of a long-term goal. Successful self-regulation involves multiple aspects. Similar to other goal-pursuits, motivation is a central construct of success in self-regulation goals, as it evokes effortful actions (Ajzen, 1991; Locke & Latham, 2002). However, high level of motivation is not always consciously accessible since humans often pursue multiple goals and following tasks at a time (Elliot, 2006). The cognitive process of motivation can be forgotten if there are other demands for limited resources (Dijksterhuis & Arts, 2010; Shah, 2005). Therefore, it is important to have surroundings that bring goals to the forefront in one's mind (Shah, 2005). Bargh and Chartrand (2000) showed that goals were activated without much of awareness by priming and that this effectively led to goal-congruent actions.

In self-regulation research, goal priming effects have mainly focused on the various paths through which goals can be primed with and their desirable effects on successful goal pursuits. It has been well-documented that the self-regulatory goal primes in the absence of consciousness are strong enough to cause goal-congruent behaviors. Especially in the domain of dietary regulation, the goal activation in the moment when the regulator confronts palatable food is a key to success. Even chronic dieters who consistently monitor their eating behaviors can be easily interfered by spontaneous tempting cues. When the long term dieting goal is primed with, however, dieters show improvement in their regulation in front of temptations (Fishbach, Friedman & Kruglanski, 2003; Papies, Stroebe, & Aarts, 2008). Therefore, a line of research in dieting and other self-regulation domains has focused on priming effects to keep a long term goal accessible in one's mind. Beginning with exposure to words that are semantically related to the goal, use of means-goals association, and the interpersonal goal priming (e.g. the influence of significant others' perceptions of the goal) were tested as effective sources of goal activations (Bargh, Gollwitzer, Lee-Chai, Barndollar & Troetsche, 2001; Shah & Kruglanski, 2002; Shah, 2003).

Compared to the depth of research as to a variety of types of priming cues, however, the interaction of goal priming with dispositional variables has been rarely studied in dieting and other self-regulation domains; as long as the goal-relevant environmental cues are able to prime the goals, psychological variables on the individual level are not considered to affect the goal-directedness following the self-regulation goal primes. However, priming studies exceeding the scope of self-regulatory goal priming have given attention to variables that can create consistent individual differences in their reactions to priming stimuli. For example, studies found that the same prime can have different consequences depending on individuals' cultural self-construal style (independent vs. interdependent). When social construct competitive

ness or cooperativeness is primed, Easterners tend to apply the construct to their situation perceptions while Westerners attribute it to their person perceptions (Wheeler, Smeester & Kay, 2011). As other variables, individuals' chronic behavioral tendencies and prime-related knowledge also moderate the priming effects (Bettman & Sujan, 1987; Herr, 1989).

2.2. The Active-Self Account in Priming

Active-self account (Wheeler et al., 2007) elucidated the mechanism of variations in priming effects in a way that is core to what the present study examines; primed constructs influence behaviors by momentarily altering the active (currently accessible) self-concept. Prime-to-behavior effects are not only predicted by the characteristics of the prime per se but also by the self-system of the prime recipients. As considerable research in social psychology examined, the self has a strong power in generating and regulating a wide range of cognitive, motivational, and behavioral activities. Changes in the self can determine which motivational and behavioral representations will guide behavior. Research shows that the ideation of the construct is not sufficient to initiate actions that assimilate to the construct (Aarts et al., 2005; Bargh & Chartrand, 2000; Dijksterhuis et al., 1998; Wegener & Petty, 1997). There are factors that make an active self-concept less similar to the ideation of the prime, which lead contrastive behaviors (Dijksterhuis et al., 1998; Herr, Sherman, & Fazio, 1983; Stapel, Koomen, & vander Pligt, 1997). In short, the linkage between priming dieting goal and the goal congruent actions can be altered in its direction and magnitude, depending on which self-concept becomes active after the prime.

3. The Active-Self in Dieting

3.1. The Perceived Self-Regulatory Success in Dieting

What are the key moderators of the effect of priming a dieting goal by influencing active self-concept? First, the present study predicts that each individual's chronic self-concept in a dieting domain will affect the active self-concept after they are primed with dieting. The chronic self-concept refers to those aspects of the self that are represented in long term memory. The active self-concept, on the other hand, refers to the subset of chronic self-concept content that is either consistently or temporarily active, and it is used to guide action (Markus & Wurf, 1987). The overlap between active self-concept and chronic self-concept is malleable as situation changes, and even might be little under certain circumstances (Wheeler et al., 2007). However, preexisting overlap between the chronic self-concept and prime content is a strong predictor of the active-self if other situational variables held equal. For example, the magnitude of the effect of an "extraversion" prime on behavior could depend on one's trait level of extraversion and the amount of extraversion-relevant material in the self-concept available for activation (Wheeler & Burger, 2007). Similarly, the study shows that automatic pursuit of stereotypical goals triggered from the stereotype prime is moderated by the preexisting overlap between self-concept and the stereotype (Arts et al., 2005). Thus, it is suggested that the chronic self-concept related to dieting, presumably built on the behavioral dieting tendencies of individuals, would determine which self-concept is activated after priming the dieting goal.

The chronic self-concept as a dieter can be measured by the perceived self-regulatory success in dieting scale (PSRS; Fishbach, Friedman, & Kruglanski, 2003; Meuler, Papias, & Kubler, 2012) which consists of three succinct items that distinguish successful and unsuccessful dieters. Participants rate on 7-point scales how successful they are in watching their weight, in losing weight, and how

difficult it is for them to stay in shape. Since most dieters with unhealthy eating behaviors and weight problems are unsuccessful dieters, it is important to make the differentiation and analyze the particularity that can explain the dieting failure of the low PSRS population (Fujita & Sasota, 2011; Kroese et al., 2011; Stroebe et al., 2008). It has been evidenced that most people who have dieting goals are not successful at maintaining the low body weights (Jeffery et al., 2000; Mann et al., 2007). Their continuing attempts to lose weights turned them into being chronic dieters and led them to react strongly to cues related to eating behaviors or foods, which results in consuming even more foods than non-dieters. Thus, it is necessary to segment the dieters with low PSRS from the ones with high PSRS in order to establish effective interventions.

The present study proposes that the vicious cycle of dieting failures despite the prevalence of the environmental stimuli that prime the dieting goal is partly attributed to the active-self of the low PSRS following the goal prime. Dieters with self-belief that they are unsuccessful at dieting likely have different mental associations with their goal from people with high PSRS: failed attempts to regulate themselves, memories of succumbing to palatable food in the past, and discrepancy from their ideal eating habits. These associations can activate their self-concept as an "unsuccessful dieter" and interfere with their dieting behaviors. Since dieting is likely the core part of the self among the dieter, the active self-concept is expected to have a strong influence on their eating behaviors, independently from the characteristics of the prime construct. The specific links from the active self-concept to dieting behaviors will be proposed below.

3.2. The Context of Dieting Prime and the Active Self-Concept

A situational context regarding the dieting goal is another construct that determines the active-self after the prime. Prior studies in priming revealed that the same construct can be led to different consequences depending

on the context in which it is primed. For example, a series of studies found that the perspectives people take with the prime serve as the contexts that affect the priming effects (Galinsky, Ku, & Wang, 2005; Wheeler, Jarvis, & Petty, 2001). In one experiment, non-African American participants were distributed into two conditions; some individuals were asked to spontaneously write their essays about a student named Tyrone- typically named for African-Americans- from the first-person perspective whereas others wrote their essays from the third-person perspective. The result showed that only the students who wrote the essays from the first-person perspective exhibited behaviors that are congruent with the stereotype of African-Americans.

In a dieting domain, it has not yet been studied whether the context in which dieting is primed with affects the consequences following the prime. Particularly, the stimuli used for activating dieting goals in the studies were conceptually neutral materials by which individually different representations of the dieting goal cannot be reflected in the process: most of them used word cues such as “diet” and “slim” and the advertisements with dieting cues were used in two studies as the most explicit method (Anschutz, Engels, Becker, & van Strein, 2008; Papies et al., 2008; Papies & Hamstra, 2010). Although the adaptive goal activation was assumed for all dieters in the analysis, it is possible that the operational characteristics of the goal prime were inadequate for representing the goal prime in real life (Leventhal, Leventhal, & Contrada, 1998).

In prior studies, dieting goals were activated by external objects that conceptually primed dieting rather than dieting goals that are personally represented in the minds of individuals. However, when dieters think of their goals in naturalistic situations, there are always contexts of the situations that inform the dieters about the possibility of the success or the failure. Dieters cannot but make the representation of their goals with the contextual information. For instance, when an individual thinks of her/his dieting goal in front of a

large piece of chocolate cake, the active self is affected by the personal context of that moment: whether the person binged last night or recently succeeded in losing 5 pounds; or whether the person has been currently successful at suppressing cravings for chocolate or not. Thus, the contextual information regarding failure or success can be a crucial determinant of the active self-concept at the moment of the dieting prime.

Especially, we expect the interaction of the context and the PSPR in the prime-to-behavior effects. When individual is unsuccessful at dieting despite the desire to be successful, the self-concept in the dieting domain tends to be weak and susceptible to external contexts, and this susceptibility can show in the priming contexts. In one of the studies that support the idea (DeMarree, Morrison, Wheeler, & Petty, 2006, cited in Wheeler et al., 2007), young college students who had large discrepancies between their actual, ought, and ideal characteristics regarding stereotypically elderly traits reported more stereotypically elderly attitudes (e.g., endorsement of conservative attitudinal statements) when primed with the elderly stereotype, whereas those with smaller discrepancies were unaffected by the prime. Therefore, it is predicted that the contexts in which dieting goal is activated would have greater influence on the low PSRS dieters’ active self-concepts than the ones of the high PSRS.

4. Possible Paths from Active-Self to Behaviors

Since the self-system is involved in human behaviors at a variety of level (e.g., motivational, cognitive, affective level) it is hard to pinpoint a certain process as a causal path between the active-self and the consequent behavior. Nonetheless, disentangling multiple layers of the active-self account can provide more complete understanding of the goal-prime effects.

Expectation is the key concept in social cognitive theory as well as self-regulation literature (Bandura,

1991; Bandura, Adams, & Beyer, 1977; Mischel, 1973), and expectation can partly be determined by the active-self. Self-regulation is rooted from the anticipatory thoughts of long-term goal achievement and thus the exercise of forethought about the future achievement is bound to be involved. Expectation of success or failure plays a significant role when people facing discrepancies between their personal standards and the attainment. Expectation in favor of success helps the gap between the current state and the standard to work since it operates as a motivator for more continuous efforts, whereas expectation of failure induces discouragement in the face of the discrepancy (Bandura, 1991). The self-concept in one's capability of self-regulation affects the expectation (Bandura & Jourden, 1991). The more capable they think themselves to be, the more positive expectation of future success they have and the higher level of commitment follows (Bandura, 1991; Locke & Latham, 1990; Wood & Bandura, 1989). Although these seminal studies identified the self-belief closer to the chronic trait, other research support that the shifts in self-concept are context dependent and can occur without awareness (Carver & Scheier, 1990; McGuire & McGuire, 1988). Therefore, the active-self after the goal prime can generate a momentary impulse to either withdraw from or engage in attempts to exert self-regulation by affecting the expectation.

Another possibility is that temptation representations might be accompanied with the dieting prime and trigger hedonic response to palatable food. Research in the goal activation theory posits that the reason why priming a self-regulation goal is led to successful regulatory behaviors is that goal presentations interfere with the activation of temptations (Fishbach et al., 2003; Papies et al., 2008). In dieting, a hedonic response of the dieters to food cues is the primary cause for eating palatable food despite their goals (Heatherton & Wagner, 2011; Hofmann et al., 2010; Papies, Stroebe, & Aarts, 2009). Since the dieting goal that becomes highly accessible can suppress the reactions to the food, the goal prime can be

very effective for successful dieting. However, the premise of the theory is that the restraint on the food representations after the goal prime may be applicable only to people who have repeatedly practiced successful suppression of temptation thoughts. In other words, the effect cannot be guaranteed for the people who failed to over-learn the self-regulatory behaviors. Rather, if the dieting goal is activated in a way that reminds of the unsuccessful self whose dieting goal ended up yielding to the temptation, the food representations can be accompanied with the activation of the dieting goal. These temptation representations among dieters are led to hedonic responses, and ultimately dieting-incongruent behaviors (Hofmann et al., 2010; Papies & Hamstra, 2010; Stroebe, van Koningsbruggen, Papies, & Aarts, 2012; Veiling, Arts, & Papies, 2011).

The primary objective of present research is to propose that the perceived self-regulation success of the dieters and the priming contexts are responsible for their responses after the dieting prime by activating different self-concepts. More specifically, the variation of the active-self after the prime should be observed with two factors, the Perceived Self-regulatory Success in dieting and the contextual information regarding success/failure of the dietary goal. The self-concept that the dieting prime activates in dieters' minds is predicted to be closed to their PSRS, the chronic self-concepts in the dieting domain. However, the malleability of the low PSRS's self-concepts due to its discrepancy from their ought-to-be self-concept allows the priming contexts to change their active-self. Thus, we posit hypothesis that the low PSRSs' self-concepts as unsuccessful dieters can be altered when the dieting is primed in a success context where contextual information that frames the goal in favor of the goal achievement exists. If the active-self is the determinant of the behaviors after the prime, the low PSRS people should regulate their eating behaviors when primed with the success context as much as the high PSRS regulate. On the other hand, the active-self of the low PSRS should be different from the

one of the high PSRS when they are primed with the failure context. The failure context should foster the self-concepts biased toward unsuccessfulness that have been chronically available in the low PSRS people's mind and led to behaviors against their dieting goals. The behavioral results can be caused by the low expectation of the successful dieting that "unsuccessful dieter" self has for oneself; or the temptation thoughts activated by the unsuccessful self-concept can lead them to evaluate food more positively and to exhibit the goal-incongruent behaviors (Fishbach et al., 2003; Papiés et al., 2008; Kroese et al., 2011; Campbell 2011).

To begin with, Study 1 examined dieters' behaviors after they are primed with dieting goals in the experimental setting. We measured the PSPR of the participants and manipulated the contextual information of the prime. As a dieting behavior, their choice between healthy and low-calorie food; and high-calorie food was observed. To clarify the path underlying the effect of the active-self on dieting behaviors, Study 2 examined whether the goal-elicited-temptation link could complete the active-self account for the dieting prime. Since the alternative explanation – the expectation mechanism – can be easily confounded when explicitly measured and thus experimentally difficult to test, the temptation activation was examined using reaction-time paradigm (e.g., Papiés et al., 2008; Stroebe et al., 2008). Reaction time to food words after primed with the dieting goal was measured as a proxy variable of the activation level of the tempting foods.

5. Study 1

Study 1 tests a hypothesis that the contexts of the prime and the level of PSPR determine eating behaviors after being exposed to a dieting goal. Whether the goal is primed in a way that reminds of the past success or failure affects the unsuccessful dieters' food consumption. In the success prime condition, changes in their active self-concepts will promote the goal-congruent food

choices whereas the failure prime will cause detrimental behavioral effects. However, the successful dieters who are expected to have the strong self-concept in dieting will not show the differences between the two conditions.

5.1. Method

5.1.1. Participants

100 adult participants were recruited through Amazon Mechanical Turk, an online service that has been proved as an effective effect channel to collect high quality data (Buhrmester, Kwang, & Gosling, 2011). All were located in the US and self-reported English speakers. Two questions – (a) whether they have restricted what they ate and (b) whether they were health conscious about what they ate (Fishbach et al., 2003) were employed at the beginning of the survey to opt out non-dieters. People who answered 'yes' to both questions were allowed to participate in the study.

5.1.2. Procedure

This study used types of goal priming contexts (failure, success) X Perceived Self-Regulatory Success in dieting design. Participants first completed a demographic survey and then moved to filler questions that included the PSRS items and a short essay question designed for priming. For the goal priming, the study adopted a mindset priming method in which participants were led to engage actively in a goal-directed type of thoughts. Participants were randomly assigned into one of two priming conditions. In success/failure prime condition, participants were asked to think of a successful/unsuccessful experience in dieting that they previously had and elaborate on it in a couple of sentences. The survey was ostentatiously presented as a "consumer preference research" with a number of filler questions regarding consumption habits, in order to conceal the

relation of priming and a following task. On the last page of the survey, the participants were asked to choose between a chocolate bar and an apple as a gift for their participation. An apple was chosen as a health, diet-congruent item and a chocolate bar was chosen as an unhealthy, diet-incongruent item based on the result of our pretest. In the pretest, the extent to which two items interfere with healthy dieting were rated and the result revealed that chocolate bars were considered as conflicting more with the dieting goal than apples were (Ms of apple = 5.8 vs. chocolate bar = 1.3 on a 7-point scale). Finally, participants answered questions of their visceral states (i.e. hunger, thirsty) for eliminating compounding factors from the result. Before compensating for their survey submission, we probed for any suspicions that the participants might have about the effect of priming and no participants correctly identified the purpose of the primes.

5.2. Results and Discussion

Logistic regression analyses were conducted on the choice of a parting gift between a chocolate bar and an apple with two priming types and the PSRS as a continuous variable. There was an interaction, $\chi^2(1, N=100)=4.093, p < .05$. To decompose the interaction, the result of the each prime was observed. In the failure-goal prime condition, the lower PSRS were related to the higher odds of choosing of a fattening snack, $\chi^2(1, N=100)=6.44, p < .05$. However, in the success-goal prime, there was no significant effect of Perceived Self-Regulatory Success in dieting, $\chi^2(1, N=100)=.045, p > .05$. The log odds results was displayed in Figure 1.

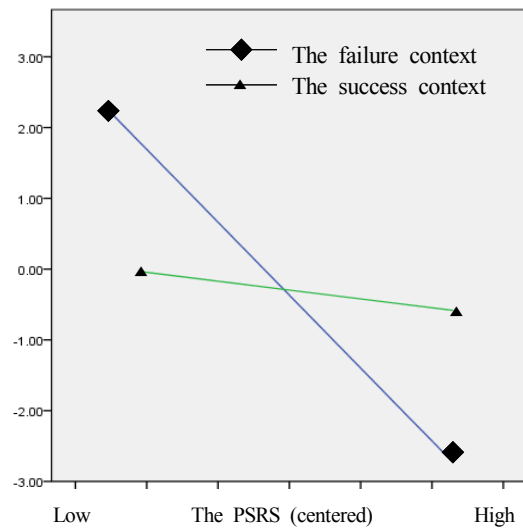


Figure 1. Predicted percentage of the choice of a chocolate bar, as a function of the goal priming conditions (failure/ success context) and the Perceived Self-regulatory Success in dieting (PSRS). Note: High and low levels of perceived self-regulatory success in dieting were defined according to ± 1 standard deviation from the mean.

The results are consistent with the hypothesis such that the perceiving dieting goal within a past-failure frame triggers the goal-inconsistent behavior among the low PSRS, people who are not excellent at regulating their eating habits. Those individuals were inclined to choose the fattening snack over a less fattening apple after they wrote about their past dieting failure in the experimental situation. However, their self-regulation improved drastically when they were given the success context in the goal prime, even better than the successful dieters. This result is consistent with the active-self account in which the situational context can introduce the information that was not chronically represented into the active self-concept and ultimately affect the behaviors. On the other hand, the analysis revealed that high PSRS dieters with the less contingent self-concepts were not affected by the priming contexts. It is a reasonable concern that the goal priming might have affected the PSRS scores and contaminated the interaction effect. However, we ruled out the possibility by replicating the result of the study with the reversed order of the priming

task and the PSRS rating. In addition, the means of the PSRS in success and the failure context group were not significantly different. It indicates that the PSRS was not affected by the momentary priming and the goal priming and the PSRS are not compounding one another.

Overall, Study 1 suggested that the boundary condition needs to be made in the goal priming effect among dieters. Making the dieting goal salient in a way that reminded them of the past failure can have inimical impact on the individuals who are struggling in meeting their diet goals. When the goal was activated within the success frame in their minds, however, the effect was reversed. The momentarily active-self promoted their goal-directed behaviors (choosing an apple over a chocolate bar) to the same level with the high PSRS dieters. In short, both the segmentation by the individual PSRS level and the differences of the prime contexts were necessary for the accurate prediction of the dieters' choices after primed with the dieting goal.

The effect revealed in the Study 1 might stem from two potential paths: first, the active-self can alter the cognitive process by regulating the instant reaction to foods; secondly, it also can influence the expectation of the dieting success which produces attempts for the goal achievement. Therefore, the purpose of the next study is to find the underlying process of the self-system after the dieting prime.

6. Study 2

Study 2 tests whether being exposed to a dieting goal in the failure context will be automatically accompanied by temptation representations for unsuccessful dieters (the low PSRS) while the exposure to the dieting goal linked to the past success will inhibit temptation representation and possibly remove the activation differences between successful and unsuccessful dieters. Using response time measures, we examined the degree to which tempting food was activated by the weight-watching goal framed with different contexts.

6.1. Method

6.1.1. Participants

105 Undergraduates in Yonsei University in return participated in study for course credit. The same questions from the Study 1 were used to exclude people who don't have dieting goals. People who answered 'yes' to both questions were allowed to participate in the study.

6.1.2. Procedure

This study used a Perceived Self-Regulatory Success in dieting \times prime contexts (the past failure vs. the past success) design: primes as within-participant factors and restrained the PSRS as continuous predictors. As they arrived at the laboratory, participants were seated in individual cubicles facing a computer monitor on which task materials and instructions were presented.

Participants first completed a demographic survey and then moved to filler questions that included three PSRS items and a short essay question designed for the goal priming. The study adopted a mindset priming method in which participants were led to engage actively in a goal-directed type of thoughts. Participants were randomly assigned into one of two priming conditions. In success/failure prime condition, participants were asked to think of a successful/unsuccessful experience in dieting that they previously had and elaborate on it in a couple of sentences. The task and the PSRS questions were ostentatiously presented as parts of "consumer preference survey" with a number of filler questions regarding consumption habits, in order to prevent participants from responding unnaturally in a following task.

Afterwards, participants were informed that they move on to the second part of the experiment that is related to a separate research. Each trial consisted of 4 steps of presentation: (a) fixation point (+) that stays on the screen for 2s, (b) a prime word for 50ms (c) a masking

string (a row of Xs) for 1000ms and (d) a target letter string. Since the temporal dynamic of hedonic processing suggests a delayed hedonic response among dieters (Hofmann et al., 2010), a relatively long inter-stimulus time (1000ms) is also employed in the present study. The task for participants was to indicate whether the target letter strings presented at the last in the each trial are words or not as fast and as accurately as possible, using the Y and the N key. As a goal prime word, words related to diet (e.g. losing weight, slim, fit) were used. As a target word, names of palatable foods were presented (e.g. chocolate, cake, pizza). Following 10 practice trials, the entire task for a participant was composed of 10 temptation target trials, 40 irrelevant target trials, and 50 non-word target trials. There was a 15s break after half of the task was finished. All participants were fully debriefed and dismissed.

6.2. Results and Discussion

Because of the difficulty in interpretation (Bargh, Chaiken, Govender, & Pratto, 1992), only correct responses below the three standard deviations from the mean were included for the analysis. A regression analysis was conducted on reaction times in the PSRS scores and type of prime (the failure context vs. the success context). It revealed a marginal main effect of the PSRS scores on the reaction time to the food stimuli, ($\beta=33.222$), $F(1,96)=1.934$, $p=.11$. The effect of the prime condition alone was not significant. There was no effect of gender and visceral states such as hunger and thirst on reaction times. Unlike the prediction, the interaction term of the PSRS and the condition did not contribute to the fit of the model, $F(1,96) = 1.558$, $p=.18$, meaning that the prime condition did not have an explanatory power on the dieters' reaction time even after distinguish them into the low and the high PSRS group. This result indicates that the chronic self in dieting is a strong predictor of the hedonic response toward fattening foods. The more unsuccessful eaters they are, the faster they responded to words related to

tempting foods when the diet goal was primed both with the failure context and the success context. The results were displayed in Figure 2.

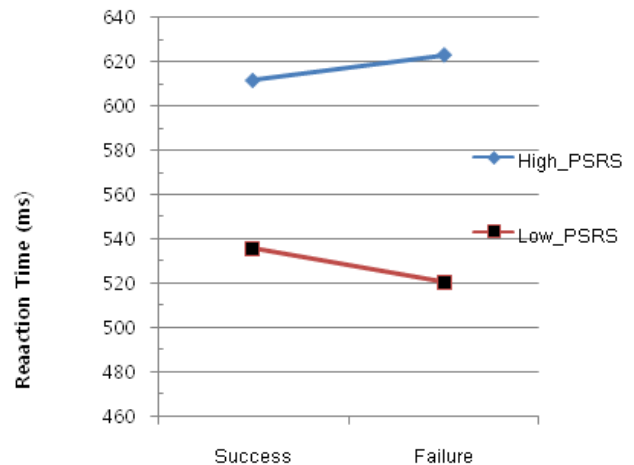


Figure 2. Predicted reaction time for recognizing food targets as a lexical decision task, as a function of goal priming conditions (failure/ success context) and the Perceived Self-regulatory Success in dieting (PSRS)

The interaction effect of the prime contexts and the PSRS was not found in the hedonic reaction to food words. These results support that that the automatic reactions toward foods are affected by the active-self, and thus do not provide with explanations for the priming effect observed in Study 1. The chronic characteristics of the association between temptations and their diet goal in the minds of restrained but unsuccessful dieters might be too strong to be affected by the self-concepts that are temporarily activated.

In summary, we observed that the activation pattern from the dieting goal to the temptation is correlated with the perceived self-regulation success in the dieting. Although it is hasty to make a conclusion about the mechanism of the active-self based on one study, the results of the present study ruled out the goal-temptation activation as its potential process. The temptation representations are only accountable for the PSRS level, and therefore were not responsible for the moderating effects of the prime contexts on the active-self and

eating behaviors. The active-self affected by the prime contexts did not inhibit automatic impulses toward palatable food cues.

The study did not directly test other possible processes of the prime context effect, but the result that exhibited no difference in instant responses among the conditions suggests that the level of the self-system higher than the impulsive reactions be involved in the link between the active self-concept and the behaviors. In that sense, the different expectation types (success/failure) generated from the different contexts among can be a possible explanation. Even for the dieters whose chronic motivation level is high, the low expectation of success caused by the active self-concepts can momentarily disengage them from exerting efforts for their self-regulation. This proposition provides a fitting explanation for the vicious trap of the dieting where chronic dieters repeat dieting failures despite their high motivation level.

7. General Discussion

Along the path of pursuit of long-term goals, individuals confront constant yet inevitable conflict with momentary temptations. One of the most common strategies of coping with this dilemma is reminding oneself of the higher priority goals. Through repeating self-regulation attempts, people develop their own ways to keep the goal accessible in their mind in order to succeed in self-regulation according to their situations. In this sense, the environment overflowing with dieting cues should be sufficient for successful dieting behaviors. However, studies in dieting literature found that it is only a small percentage of people who succeed in regulating their temptations overtime and focused on investigating the psychological mechanisms of dieting failures. Starting from the early theories as the set-point theory (Nisbett, 1975, cited in Stroebe et al., 2012) and emotional distress account (Herman & Mack, 1975; Herman & Polivy, 1980), there have been attempts of researcher to establish models to explain the dieting

failures. Recently, the goal conflict theory is developed as the most fitting model to explain eating behaviors of dieters (Stroebe et al., 2012), which explains the dieting failure as seeing it a conflict between two goals; weight control and eating enjoyment.

The purpose of the present study is not to propose another model of dieting failures in general, but to examine a specific aspect of dieting failures: the ineffectiveness of dieting primes on dieting-congruent behaviors. Prior research revealed that the prime-to-behavior effect that causes prime recipients to assimilate to the prime construct operates effectively in self-regulation, including a dieting domain. However, it has not been studied yet how this prime effect can be integrated into eating regulation literature regarding the psychological processes of dieting failures. The current study was designed to do just that. The study focused on the dieting failures in spite of the prevalence of the dieting cues. It attempted to find boundary conditions that qualify the priming effect of dieting cues and the mechanism underlying the process. The hypothesis rooted from theoretical notions of the active-self account that explains that the prime-to-behavior effects are not determined only by the moderators that affect the accessibility of the prime construct but also by the self-concepts that becomes accessible after the prime.

The study proposed the contexts of the prime and the chronic self-concept in dieting as determinants of the active-self triggered by the prime. In Study 1, the results supported the hypothesis that the eating behaviors after the goal prime were predicted by the interaction of the priming context and the PSRS. The people with the low PSRS in dieting tended to choose the fattening food over the healthy food more than the people with the high PSRS in the failure context prime. However, the difference between the low and high PSRS group disappeared when the dieting goal was primed within the success context. The dieters exhibited the goal-congruent behaviors as choosing an apple than a chocolate bar and the effect of their chronic PSRS levels did not show in

the success context. These findings provide an important boundary on the previous understandings of goal priming effects. More importantly, the study founded a priming context as a moderator that can change the direction of the prime-to-behavior effect among unsuccessful dieters. Whether the context of the goal prime is biased to success or failure determined the effect of the dieting prime.

The implication of the finding as psychological interventions in overweight problems will be discussed. Furthermore, the present research suggested the hedonic reaction to the food representation and the expectation of dieting success can be the specific paths from the active-self to eating behaviors. Study 2 examined the first possibility by measuring reaction times toward foods in different prime conditions. The results did not support the temptation activation account. The reaction time was predicted only by the PSRS level so that the high PSRS group suppressed their temptation better than the low PSRS did regardless of the priming conditions. The role of the expectation in self-regulation can be suggested as an alternative explanation for the results of the present study. The active-self from the writing task could have manipulated the expectation of the success in the future and thus, momentary efforts for the self-regulation performance could have decreased. In other words, the unsuccessful self-concepts could have demotivated the participants and led them to give in the temptations. This account is also in line with the “what-the-hell effect” which explains that a lapse from self-regulation can snowball into severe indulgence in temptation (Cochran & Tesser, 1996).

In the world full of highly-palatable food, the degree that both the society and individuals concern with diet is unprecedentedly high. Since environment cues related to dieting are as omnipresent as food cues, it is important to understand accurately about the consequences that the emphasis on dieting can incur. The positive effects of highlighting dieting on attainment of weigh-watching goal are consistent with a lay theory and also have been

well-documented in psychology. It has been solidly established that activation of a focal goal drives successful goal achievement. Especially when individuals have multiple goal pursuits to manage, the activation of a focal goal brings attentions and resources necessary by shielding the other goals (Shah & Kruglanski, 2002). Since the goal activation is ignited not only by intentional efforts but more importantly automatically by environmental cues, the process can be a very economical way to help goal-attainment as saving cognitive resources for other tasks in the future (Shah, 2011).

However, the possible downsides of the currency and the possibility that the goal activated by priming is not sufficient to be led to the goal-congruent behaviors in dieting were barely tested to my knowledge. The present study delved into a novel insight that the diet priming needs to be operated in a certain kind of context to serve its purpose. It revealed that the diet cues can promote self-regulation of less than successful dieters only when priming can activate their self-concepts related to dieting success. For activating the self-concept, it is necessary to prime dieting goals within the contexts that refer the dieters as to successful self-regulators. Given that more than half of the U.S populations are estimated as dieters (Serdula et al., 1999) and most dieters fail to reduce their weight in a long run (Stice, Presnell, Shaw, & Rhode, 2005), the findings addressing the goal priming effect on unsuccessful dieters are expected to have meaningful implications.

Considering unsuccessful dieter group are very likely the people who suffer the most from being overweight, it is important to find psychological explanations and potential solutions for their self-regulation failure. Recently, implementation intentions were tested as a dieting strategy that works for unsuccessful restrainers (Papies & Hamstra, 2010). However, the other research suggested the danger of a negating form of implementation intentions for dieters since it may backfire as the suppression rebound (Adriaanse et al., 2009). The current research supports the stand that how implementation intentions are written and

exercised should be carefully considered to activate the successful self-concept of dieting.

The current studies went on to include contexts of the goal pursuit to examine the goal activation process in dieting. We approach with a new methodology of priming to solve the reason why the goal priming becomes ineffective for regulating eating behaviors among chronic dieters. The failure context that is often provided in their goal pursuit can at least partly explain the vicious cycle of dieting failures, which reinforces the difference between the low PSRS and the high PSRS people. In contrary the low PSRS people can control their cravings for fattening foods in the same manner as the high PSRS people when the goal is primed within the success context. This result suggests practical implications for chronic dieters. The Perceived Self-Regulatory Success in dieting is a strong predictor of the future success, yet it is not amendable to increase since it represents eating behaviors that already occurred in the past (Danner, Arts, & de Vries, 2008; Schifter & Ajzen, 1985; Veiling et al., 2011). The present studies revealed that the PSRS became not a key determinant of the dieting success when the goal priming was operated with the success context. Although dieters cannot change their past behaviors, the re-construction of their memories focusing on the successful experiences in their dieting will be able to offset the disadvantages from their earlier lapses.

For further investigation of effective self-regulatory strategies among unsuccessful dieters, Construal level of the diet goal seems noteworthy. Studies found that self-control performance was improved by manipulating peoples' tendency to construe events in higher level term in a subtle manner (Fujita & Han, 2009; Fujita & Sasota, 2011; Fujita, Trope, Liberman, & Levin-Sagi, 2006). In a specific sense related to the dieting domain, Fujita & Sasota (2011) found that the abstract construal of the temptations helped the participants putting distance from hedonic aspects of the temptations. It would be an interesting subject for future research to examine whether

the construal level strategies also work for generating the active-self in a way that promotes the dieting-congruent eating behaviors.

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