On the Relations between Diet Violation, Self-Perceptions and Attitudes, and Subsequent Dieting

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy

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Abstract

Five studies examined the relations between diet violation and maintenance, diet-related self-perceptions and attitudes, and subsequent weight-loss goal pursuit. Using previous research in the areas of self-perception and eating regulation, we made several hypotheses. First, we hypothesized that diet-breaking behaviors should predict subsequent diet violation, whereas initially maintaining a diet should predict subsequent diet maintenance. Second, we hypothesized that diet violation should predict less positive views of the self as a dieter and less positive attitudes about dieting, whereas instances of diet maintenance should predict more positive or no change in self-views and attitudes about dieting. Finally, it was expected that self-perceptions and attitudes about dieting should predict subsequent diet-related goal pursuit and, moreover, that self-views and attitudes should mediate the relation between diet violation/maintenance and subsequent behavior. Additionally, we explored individual differences that may moderate the relations between diet violation, self-perceptions and attitudes, and subsequent behavior.

In Studies 1 and 5, we found, contrary to our hypothesis, that diet violation predicted better weight-loss goal pursuit than did diet maintenance. In Studies 2 and 4, however, there was no significant relation between violation/maintenance and subsequent behavior. Studies 3 and 5
supported our hypothesis that behaving in diet-congruent ways predicted more positive self-views and attitudes about dieting, whereas behaving in diet-incongruent ways predicted more negative self-views and attitudes about dieting. This finding was not consistently found in our studies, however, because Studies 2 and 4 provided some evidence that diet-incongruent behaviors predicted more positive self-views and attitudes about dieting. Finally, the findings of Study 5 suggest that positive self-perceptions and attitudes may predict less subsequent likelihood of violation and that self-perceptions partially mediate the relation between diet violation and subsequent likelihood of violation. Study 5 also provided initial evidence that individual differences, such as perceived self-regulatory success, self-compassion, and diet valuation, may help to explain how diet violations influence subsequent behaviors, self-perceptions, and attitudes.

Overall, the studies of this dissertation point to the complexity of the relation between diet violation, self-perceptions/attitudes, and subsequent behavior. In some studies, we found preliminary support for our hypotheses. The reasons behind contradictory findings are discussed.
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Chapter 1
General Introduction

People experience numerous temptations every day. Given that many temptations conflict with goals, it is not surprising that temptations are enacted about half of the time and resisted half of the time. Thus, we experience instances of success and failure in goal pursuit every day. Researchers in social and personality psychology have long been interested in how experiences of success and failure influence motivation and subsequent goal pursuit. On the one hand, failure might be detrimental to future aspirations, whereas success can be beneficial (Lewin, Dembo, Festinger, Sears, & Hunt, 1944); but on the other hand, failure might stimulate motivation, whereas success might have potentially adverse effects on subsequent goal pursuit (Brunstein, 2000; Fishbach, Dhar, & Zhang, 2006).

One common goal-directed behavior is dieting, which encompasses a range of behaviors directed toward the goal of weight-loss or weight-maintenance. Dieting is prevalent in our society, especially among women and overweight individuals (Brownell, 1991; Rand & Kulda, 1991). Data from the National Health Interview Survey estimated that 24.3% of men and 37.6% of women in the U.S. were actively trying to lose weight (Kruger, Galuska, Serdula, and Jones, 2004). More recently, Fayet, Petocz, and Samman (2012) found that 43% of college women were actively trying to lose weight. Although weight-related concerns and efforts at weight reduction are prevalent, sustained weight-loss is difficult to achieve (Wing & Phelan, 2005). This suggests that dieting and the pursuit of weight-loss are prone to failure.

It is well-documented that the food-rich environment in which we live makes it very difficult for dieters to stick to their diets. For example, restrained eaters, defined as chronic dieters or weight suppressors (Herman & Polivy, 1980), are more susceptible to palatable food cues than their non-dieting counterparts (Herman & Polivy, 2008, for a review). Furthermore, it has been demonstrated that restrained eaters who violate their diets by consuming a fattening food (preload) go on to overeat unhealthy, fattening foods when they are available, whereas restrained eaters who do not break their diets continue to refrain from overeating (Herman & Mack, 1975). Other research, however, suggests that diet violation is not associated with subsequent overeating.
Thus, it is unclear how experiences of dieting failure (violating or breaking a diet) and success (maintaining a diet) influence subsequent diet-goal-related behaviors. The present dissertation thus examined how diet violation and maintenance influence subsequent diet-related behavior.

Previous research also suggests that experiences of success and failure may affect behavior through their effect on self-views. For example, it has been demonstrated that behaving in ways inconsistent with a strongly held belief may produce changes in self-perception (Bem, 1967; Bem and McConnell, 1970), and that these changes in self-perception may influence subsequent behavior (e.g., Burger & Caldwell, 2003; Koppel & Arkowitz, 1974). The present dissertation investigated whether experiences of diet violation and maintenance affect self-perceptions and attitudes about dieting and whether self-perceptions and attitudes influence subsequent diet-related behavior.

In sum, many diets end in failure and dieters may violate their diets under certain conditions (e.g., exposure to food cues, eating in the presence of others; Polivy, Herman, & Coelho, 2008, Herman & Polivy, 2005, Wing & Phelan, 2005). However, we do not know much about the immediate behavioral and psychological consequences of violating or maintaining a diet. An examination of the immediate consequences of diet violation and maintenance is important because it may highlight processes associated with ultimate diet failure and success. Thus, the purposes of the present dissertation were three-fold. First, how instances of diet violation and maintenance influence dieters’ subsequent diet-related behavior was examined in order to shed light on whether experiences of success and failure are beneficial or detrimental to goal pursuit. Second, the degree to which diet violation or maintenance affects attitudes about dieting and diet-related self-perception was examined. This dissertation also investigated whether changes in self-perception and attitudes, in turn, are related to subsequent diet-goal-directed behavior. Third, we explored individual-difference variables that may be associated with how one responds to experiences of failure and success in order to identify the characteristics of individuals who may be motivated, rather than hindered, by failure/success. For example, previous research suggests that individuals high in self-compassion (i.e., being aware of, and open to, one’s own
shortcomings and extending kindness and understanding to oneself after failure; Neff, Hsieh, & Dejitterat, 2005) are more likely to maintain motivation after failure than are individuals low in self-compassion (Breines & Chen, 2012). By examining individual differences, such as self-compassion, we may gain a better understanding of when goal pursuit is hindered or aided by success and failure. By identifying the ways in which diet violation and maintenance influence attitudes and behaviors, our research may be able to aid in the development of interventions for diet maintenance. For example, if diet violation is related to more negative attitudes about dieting, and these attitudes decrease the likelihood of subsequent dieting behavior, future research might explore ways to prevent those negative attitudes from developing in the first place. Likewise, future research might use individual-difference factors associated with diet maintenance to develop interventions. For example, if individuals high in self-compassion do not overeat after a diet violation, researchers might develop an intervention to promote self-compassionate responses to diet violation.

**Success and Failure**

Researchers have investigated the influence of success and failure on motivation and subsequent goal-pursuit. Originally, it was believed that failure decreases motivation (level of aspiration) and success increases level of aspiration (Lewin et al., 1944). Although some research has supported this general pattern (e.g., Matherly, 1986), other research has demonstrated that, at times, failure results in increased motivation and perseverance. For example, participants demonstrated increased effort and better performance on subsequent tasks after failure when the failure was threatening to the ego (Frankel & Snyder, 1978; Kroll, 1991), when the subsequent task was self-selected, rather than assigned (Matherly, 1986), and when they failed at a self-definitional goal, one related to attaining a specific identity (Brunstein, 2000). Brunstein (2000), in particular, highlighted the times when failure may lead to perseverance and better performance. Specifically, after failure at a self-definitional goal, highly committed participants worked harder and performed better on a related subsequent task, but they disengaged from irrelevant tasks. Thus, the literature demonstrates that failure is not necessarily detrimental to motivation.
Although success has been found to be associated with positive motivational outcomes (e.g., Lewin et al., 1944), some studies have shown that success may occasionally be associated with negative outcomes. When success is perceived to be non-contingent, people may self-handicap in order to avoid future failure (Berglas & Jones, 1978). Further, success is associated with warm feelings that may lead to self-gratification (Mischel & Coates, 1968). Similarly, Fishbach, Dhar, and Zhang (2006) found that people who succeeded at a subgoal disengaged from other goal-directed behavior unless they were primed with the superordinate goal. Clearly, success has the potential to be detrimental to goal-pursuit.

*Dieter Success and Failure*

Dieting for weight-loss is prone to failure (Wing & Phelan, 2005). Diet violation has cognitive, neurological, and behavioral consequences. Breaking a diet is associated with negative cognitions, such as feeling likely to break the diet again and feelings of failure (Carels et al., 2004). Behavioral consequences have also been documented. The eating literature has examined how violating a diet influences subsequent eating. Dieters who are forced to break their diets by consuming a high-calorie preload tend to overeat high-calorie foods in a subsequent taste test compared to dieters who do not initially break their diets (e.g. Herman & Mack, 1975; Sin & Vartanian, 2012). In this instance, breaking a diet seems to be associated with disengagement from the weight-loss/dieting goal, leading to subsequent overeating (or counterregulation). Furthermore, it has been demonstrated that perceived violation, not actual caloric content of the preload, predicts subsequent overeating (Polivy, 1976). Restrained eaters who perceived that they had eaten a comparatively larger slice of pizza ate more in a subsequent taste test than did those who did not perceive themselves to have eaten a larger slice of pizza, even though the slices were identical (Polivy, Herman, & Deo, 2010). This study demonstrates that perceived diet violation promotes subsequent overeating.

Herman and Polivy (1983) suggested that dieters overeat after diet violation because of the “what the hell” effect. That is, dieters who violate their diets believe that they have already broken their diets for the day; therefore, they might as well continue to eat – “further dieting today is
fruitless” – and start their diet again tomorrow. Similarly, Sin and Vartanian (2012) hypothesized, but did not find, that, after diet violation, restrained eaters would experience a motivational shift in which they are motivated to overeat.

There may be a neurological explanation for the counter-regulation effect. Demos, Kelley, and Heatherton (2011) found that after dieters consumed a high-calorie preload, the brain’s reward center was activated when these dieters subsequently saw pictures of appetizing foods. Dieters who did not consume a high-calorie preload and non-dieters who consumed a high-calorie preload did not exhibit this increase in brain activation. Demos et al. suggested that the increased activation of the brain’s reward center in response to food cues may motivate diet breakers to obtain other high-calorie foods.

Contrary to the literature connecting diet violation to subsequent overeating, some research has not found evidence of counter-regulation after diet violation in the lab (Jansen et al., 1988). In fact, one study even found that dieters regulated after eating a preload (O’Connell et al., 2005). Furthermore, counter-regulation has not been observed outside of the lab (Dritschel, Cooper, & Charnook, 1993; Timko, Juariscio, & Chowansky, 2012; Tomiyama et al., 2009). These studies stand in contrast to studies demonstrating the negative consequences of diet violation.

In sum, there is some evidence that diet violation has neurological, cognitive, and behavioral consequences that may influence motivation to pursue the weight-loss or dieting goal. Diet violations increase activation of the brain’s reward center in response to attractive food cues, promote overeating after consumption of a high-calorie preload, and may cause dieters to reason that they should give up dieting for the day, whereas diet maintenance is related to low activation of the brain’s reward center in response to food cues and continuing to diet. On the contrary, other studies have found no evidence that diet violation is related to negative behavioral consequences. Therefore, it is not completely clear how diet failure and success influence subsequent motivation and pursuit of the weight-loss goal.
Success and Failure Conclusions

The literature thus demonstrates that experiences of success and failure influence motivation and performance. The direction of the effect is not as clear, however; although success has been found to improve motivation and performance (e.g., Lewin et al., 1944), this is not always the case (e.g., Fishbach et al., 2006). Similarly, failure has been shown in different studies to have both positive and negative effects on motivation and performance (e.g., Brunstein, 2000, Matherly, 1986). Success and failure at achieving dieting goals also influence subsequent behavior in disparate manners in different studies. This dissertation, then, addresses the psychological and behavioral consequences of episodes of diet failure and success in order to better understand one of the intervening factors (i.e., changes in self-perception and attitudes) that may lead to ultimate failure or success at weight-loss.

When examining the effects of instances of dieting success and failure on subsequent weight-loss-related goal pursuit, it is worth considering the behavioral, as well as psychological and attitudinal outcomes. Immediately following diet violation or maintenance, thoughts and attitudes arise that may influence goal-related behavior. Previous research has pointed to cognitive and neurological effects of diet violation that may be related to subsequent eating behavior. For example, Demos et al. (2011) found that dieters who consumed a high-calorie preload exhibited more activation in the brain’s reward center when subsequently exposed to attractive food cues than did dieters who did not consume a high-calorie preload and non-dieters who consumed the preload. Demos et al. posited that this pattern of over-activation of the brain areas associated with reward may explain why dieters overeat after initially violating their diet with a high-calorie preload. Similarly, Herman and Polivy (1983) theorized that there are cognitive consequences of diet violation that explain why dieters who consume a high-calorie preload subsequently overeat high-calorie foods. Specifically, dieters who consume a high-calorie preload may reason that the diet is already broken; therefore, there is no reason to continue to restrain their intake. This dissertation examined another explanation for how diet violation or success may influence subsequent behavior. Specifically, it was postulated that attitudes about the self and dieting are affected by experiences of diet failure and success and that these attitudes influence subsequent dieting behavior.
Self-Perception

Self-Perception Theory (SPT; Bem, 1967) inspired our question about the immediate attitudinal consequences of diet violation and maintenance. SPT was proposed as an alternative to Cognitive Dissonance Theory (CDT; Festinger, 1957). Although both theories explain attitude change, CDT suggests that when we hold attitudes that are discrepant with our behaviors, we change our attitudes to match our behaviors or vice versa because of an aversive motivational force (dissonance). SPT, on the other hand, takes an interpersonal approach and claims that we change our attitudes because we observe our discrepant behaviors. That is, we infer our attitudes from our behaviors the same way an observer might. For example, after writing a counter-attitudinal essay, participants shifted their attitudes toward those expressed in the essay (Bem & McConnell, 1970). There is also evidence that changes in attitude influence subsequent behavior. In one experiment, participants who role-played calm or upset behaviors rated themselves as actually feeling calm or upset and subsequently behaved in calm or upset ways (Koppel & Arkowitz, 1974). Therefore, role-played behavior influenced subsequent behavior and self-perception. SPT has been found to be a viable alternative to CDT because of its parsimony, reducing the need for assumptions about motivational states (Weiner, 1974).

Self-Perception and Dieting

Although extensive research has been conducted examining how self-perception of behavior influences attitudes, most of this research has centered on attitudes about political issues (e.g., Bem & McConnell, 1970; Guild, Strickland, & Barefoot, 1977). There are relatively few studies examining whether or not we infer attitudes about our identities and goals from behaviors. For example, only one study (Polivy & Herman, 1991) has examined dieters’ self-perceptions and their influence on subsequent eating behavior. This study found that restrained eaters who were induced to perceive themselves to be especially good or bad dieters ate less after a preload compared to restrained eaters who did not think about their dieting ability at all. Therefore, Polivy and Herman (1991) demonstrated that perceiving the self as a good or a bad dieter predicted diet maintenance (i.e., not overeating) after consuming a high-calorie, dieting-breaking preload. Seeing oneself as a good dieter was not more or less beneficial to the pursuit of the
weight-loss goal than perceiving oneself as a bad dieter. Therefore, it was not so much perceiving the self as a good or bad dieter per se that predicted eating behavior but rather, it was a reminder of dieting or dieting ability (in either direction) that reduced eating after a preload. Further, self-perception did not influence eating in the absence of a preload. To our knowledge, no other study has directly examined dieters’ self-perceptions and their influence on subsequent behavior, nor has any study examined how dieters’ behaviors influence their self-perceptions. Some research outside of the area of dieting has suggested that behaviors do, indeed, change attitudes, and that attitudes, in turn, influence behavior (e.g., Dolinski, 2000; Koppel & Arkowitz, 1974). For example, Dolinski (2000) found that attempting to help a target with a difficult task (but failing to help the target succeed) predicted more subsequent helping behavior and perceptions of the self as submissive. The studies in the self-perception literature and the one study examining self-perception and dieting demonstrate that behaviors can influence self-perceptions and that self-perceptions can influence subsequent behavior.

Although there has been no research examining whether we infer attitudes about dieting and weight-loss from behaviors, there is research that suggests that self-perception is associated with health behaviors related to dieting. Self-perceived weight category (i.e., normal weight or overweight) and perceived competence were associated with health behaviors related to dieting and weight-loss/maintenance. In one study, people who perceived themselves to be overweight, regardless of actual weight, had more sedentary lifestyles than those who did not perceive themselves to be overweight (Antronette et al., 2006). Another study demonstrated that people who accurately assessed their weight participated in more weight-loss and weight-maintenance activities than did people who were inaccurate about their weight (Edwards et al., 2010). Along these lines, perceiving oneself as more competent at physical activity and healthy-eating was related to more physical activity and healthy-eating compared to people who did not perceive themselves as competent (Sabiston & Crocker, 2008). These studies demonstrate that the way we see ourselves is associated with participation in behaviors aimed at weight-loss and weight-maintenance.
Self-Perception Conclusions

The literature demonstrates that behaviors may influence attitudes and self-views (e.g., Bem, 1967) and that attitudes and self-views may, in turn, predict subsequent behavior (e.g., Burger & Caldwell, 2003). There is also evidence that dieters’ self-views may influence behavior (e.g., Polivy & Herman, 1991). However, the literature in this area is limited. The present dissertation examines the influence of experiences of diet failure and success on self-perceptions and attitudes about dieting and the influence of self-perceptions and attitudes on subsequent behavior in order to investigate whether the findings of previous research demonstrating inference of attitudes from behaviors (e.g., Bem & McConnell, 1970; Dolinski, 2000) extends into the domain of dieting. By investigating the relation between diet-related behaviors and attitudes about the self and dieting, we may be able to explain why some dieters ultimately fail and why others succeed. Specifically, attitudes about the self and dieting immediately following an instance of dieting failure or success may predict dieters’ subsequent weight-loss goal-directed behavior. Whether or not dieters continue to diet after instances of success/failure may determine whether or not they ultimately succeed at losing weight. Further, an understanding of the relations between dieting behaviors and attitudes may inform interventions for diet maintenance.

Summary

In sum, the success-and-failure literature demonstrates that experiences of failure may undermine (e.g., Matherly, 1986) or promote (e.g., Brunstein, 2000) motivation and goal pursuit. Additionally, the findings of Fishbach, Dhar, and Zhang (2006) suggest that success may not always be beneficial to goal pursuit. Because there is contradictory evidence about how experiences of dieting failure may influence pursuit of diet or weight-loss related activities (e.g., Sin & Vartanian, 2012; Tomiyama et al., 2009) and little evidence about the more immediate consequences (i.e., psychological and cognitive) of diet failure and success, the studies in this dissertation were designed to examine the influence of dieting failure and success on subsequent behavior, attitudes, and self-perceptions. Further, given evidence that indicates that how people perceive themselves predicts dieting-related health behaviors, this dissertation examines whether
attitudes and self-perception mediate the effects of success and failure on subsequent dieting behavior.

Dissertation Study 1 examined the influence of failure and success feedback on pursuit of a weight-loss goal-related activity and an unrelated activity. Dissertation Studies 2 and 3 focused more closely on how diet-congruent and incongruent choices affect self-perceptions and attitudes about dieting. Dissertation Studies 2 and 4 also examined whether changes in attitudes and self-perceptions, in turn, affect subsequent dieting behavior. Dissertation Study 5 investigated the effects of diet violation on behavior and self-perception and attitudes about dieting in the real world, and also took into account individual differences that may influence the relation between failure and success, self-perceptions and attitudes, and behaviors.

The main hypothesis is that experiences of diet success and failure should influence behaviors as well as attitudes about the self and dieting. Going further, diet violations should be related to less positive attitudes about dieting and the self as a dieter, and these beliefs should ultimately lead to subsequent diet violation. Further, experiences of diet success should lead to more positive attitudes about dieting and the self as a dieter, which should then lead to subsequent diet-congruent behavior. See Figure 1 for an illustration of the hypotheses. It was hoped that these findings would clarify the role of diet attitudes and self-perceptions in explaining why some dieters fail whereas others succeed. The findings of this dissertation, ultimately, will help us to better understand the factors related to persistence in dieting.
Dissertation Study 1 was designed to examine how diet violation and diet maintenance influence current dieters’ performance on a subsequent weight-loss-relevant activity and a weight-loss-irrelevant activity. In the eating regulation and general success and failure literatures, there is contradictory evidence regarding how experiences of success and failure influence subsequent goal pursuit. For example, there is evidence that chronic dieters overeat during a subsequent taste test after consuming a diet-breaking preload (e.g., Herman & Mack, 1975; Sin & Vartanian, 2012), suggesting that dieters may disengage from the dieting goal after diet violation. However, some research has found no evidence of disinhibition after consumption of a diet-breaking preload (e.g., Jansen et al., 1988; Timko, Juarascio, & Chowansky, 2012). In fact, there is even evidence of compensation after diet violation (e.g., O’Connell et al., 2005). The finding that dieters compensate after diet violation is in line with some findings outside of the field of eating regulation. In a series of studies, Brunstein (2000) demonstrated that failure at a self-definitional goal (i.e., a long-term goal aimed at attaining a certain identity, such as becoming a doctor) is related to better performance (relative to no failure) on a relevant subsequent task but worse performance on an irrelevant task. He argued that this happened because failure at a self-definitional goal resulted in increased engagement in that goal and disengagement from other, irrelevant activities. Previous research thus suggests that it is equally possible that diet violation may improve or diminish weight-loss goal pursuit.

Similarly, there is contradictory evidence regarding how success at goal-related tasks influences subsequent goal pursuit. When dieters maintain their diets, they tend to continue to restrict eating and, thus, remain engaged in the weight-loss/dieting goal (e.g., Sin & Vartanian, 2012). There is also evidence that success may be detrimental to continued goal pursuit. Fishbach, Dhar, and Zhang (2006) found that succeeding at a subgoal predicted disengagement from the superordinate goal unless that superordinate goal was primed. Thus, diet maintenance may
predict disengagement from the weight-loss goal or continued engagement in the weight-loss goal.

The purpose of Dissertation Study 1 was to examine dieters’ engagement in weight-loss-goal-relevant and -irrelevant pursuit after an experience of diet violation or diet maintenance. In our study, current dieters received dieting success feedback, failure feedback, or no feedback after consuming ice cream. They were then presented with a cognitive task (an activity irrelevant to weight-loss and dieting), followed by an opportunity to perform exercise, an activity often undertaken in conjunction with dieting for weight-loss (Vartanian, Wharton, & Green, 2012). Exercise, rather than eating behavior, was chosen as our measure of weight-loss-relevant goal pursuit because overeating after consuming a preload may not necessarily indicate a total disengagement from the weight-loss goal, which can be accomplished by other means, including exercise. Performance on the two tasks was measured.

**Hypotheses**

Because of the conflicting evidence discussed above, we present competing hypotheses regarding how diet violation and maintenance would influence subsequent weight-loss goal pursuit and irrelevant goal pursuit. Because it can be argued that, for a dieter, dieting for weight-loss is a self-definitional goal aimed at becoming a thinner person, we hypothesized, in accordance with Brunstein (2000), that receiving dieting failure feedback would result in better performance on an activity related to weight-loss (i.e., exercise) when compared with receiving no feedback or success feedback. Alternatively, because there is literature showing that dieters may disengage from the dieting goal after diet violation (e.g., Herman & Mack, 1975), we acknowledge that receiving dieting failure feedback may predict worse performance on a weight-loss-related activity compared with receiving no feedback or success feedback.

Further, we expected that receiving dieting failure feedback would result in disengagement from a weight-loss-irrelevant task (i.e., the cognitive task) because the dieter would be focused on repairing her failed attempt to pursue her self-definitional goal (Brunstein, 2000). Alternatively, dieters who receive failure feedback may compensate by performing well on the weight-loss-
irrelevant task. Previous research suggests that when self-esteem is threatened in one domain, people may affirm values in another domain in order to maintain self-esteem (e.g., Bergstrom, Neighbors, & Malheim, 2009). Therefore, dieters who receive failure feedback may perform well on a weight-loss-irrelevant task in order to affirm a value unrelated to dieting or weight-loss (i.e., excelling at a cognitive task).

It is also a possibility that receiving dieting success feedback may result in worse performance on the exercise task, compared with receiving failure feedback or no feedback. Previous research suggests that sub-goal success may result in disengagement from the superordinate goal and pursuit of other, unrelated goals (Fishbach, Dhar, & Zhang, 2006). Therefore, we hypothesized that current dieters who receive success feedback would disengage from the subsequent weight-loss-related task (i.e., exercise) and perform better on the irrelevant activity (i.e., the cognitive task) relative to participants who received no feedback or failure feedback. Alternatively, current dieters who receive success feedback may outperform those who receive failure or no feedback on the treadmill task because they stayed engaged in the weight-loss goal.

It is important to examine failure and success in the context of dieting/weight-loss goals because it is not clear how breaking, or sticking to, diets affects subsequent motivation to pursue weight-loss-related activities. Previous research has not been consistent in demonstrating how success and failure influence subsequent goal-pursuit. For example, some research has found that breaking a diet is related to subsequent overeating, which is detrimental to the ultimate goal of weight-loss (e.g., Polivy, Herman, & Deo, 2010; Sin & Vartanian, 2012). Other research has demonstrated that success may be detrimental to goal pursuit, leading to less effort on subsequent goal-related tasks (Fishbach et al., 2006), whereas failure may actually push one to try harder to achieve the goal (Brunstein, 2000). In Dissertation Study 1 we examined how receiving dieting failure feedback, success feedback, or no feedback influenced performance on weight-loss-relevant and -irrelevant tasks. By examining the behavioral consequences of diet success and failure, we may better understand the factors associated with successful and unsuccessful self-change.
Method

Participants

Participants were 65 female undergraduate students at the University of Toronto Mississauga who were currently dieting for weight-loss or weight-maintenance at the time they signed up for the study. On the experiments sign-up webpage participants read that they must meet several requirements in order to participate in the study. These requirements included: being free of food allergies, having the goal of earning high course marks (included to conceal the true purpose of the study), currently dieting for weight-loss or weight-maintenance, being able to safely perform physical activity, and possessing the desire to learn new skills (included to conceal the true purpose of the study). Participants were recruited from the Introduction to Psychology subject pool and a paid subject pool for a study examining body states and cognitive performance.

Measures

Post-eating Questionnaire. Participants completed a measure assessing demographic variables, such as age, year in university, ethnicity, and importantly, current dieting status (i.e., “Are you currently dieting?”).

Remote Associates Test (RAT; Mednick & Mednick, 1967). The RAT is a test of verbal ability that presents a list of words in sequence and asks participants to provide the next logical word in the sequence.

Restraint Scale (Polivy, Herman, & Howard, 1988): The RS is a ten-item scale that measures chronic dieting. Participants scoring 15 or higher on the RS are considered to be restrained eaters; participants scoring less than 15 are considered to be unrestrained eaters. The RS has demonstrated adequate discriminant validity from social desirability measures and a high internal consistency, \( \alpha = .82 \) (Allison, Kalinski, & Gorman, 1992). In this study, Cronbach’s \( \alpha = .55 \). The sample RS mean was 17.29 (SD = 4.66).
Procedures

Each participant was tested individually in a private room. Upon arrival, the participant provided informed consent and was told: “The researchers are interested in how several body states influence cognitive performance. Each participant is randomly assigned to two body states. You have been assigned to a satiety state first. The researchers are interested in how fullness affects cognitive performance.”

The participant was then given one cup of vanilla ice cream (280 calories) and was instructed to consume the entire amount in order to achieve satiety. The consumption of ice cream was intended to act as a diet violation. We chose to administer one cup of ice cream because pre-testing indicated that this amount was perceived as large and diet-violating. After consuming the ice cream, the participant was given the Post-Eating Questionnaire, which included an item about current dieting.

In order to manipulate perceived diet violation or diet maintenance, the experimenter glanced at the participant’s responses on the questionnaire and said in the failure feedback condition, “Oh, you were on a diet. Sorry that ice cream made you break your diet.” In the success feedback condition, the experimenter said, “Oh, you were on a diet. Don’t worry; you haven’t broken it since that ice cream was low-fat.” In the control condition, the experimenter did not provide any feedback.

Then, a cognitive task in the form of the Remote Associates Test (RAT; Mednick & Mednick, 1967) was administered. The RAT consisted of 10 items randomly selected from the 40 items of Mednick & Mednick (1967)’s full RAT. Each RAT question presented participants with 3 cue words that are linked by a common fourth word, which is the correct answer. For example, the cue words “widow”, “bite”, and “monkey” would be linked by the common word “spider”. Only 10 items were chosen because the full test typically takes 40 minutes on average to complete. The experimenter explained that the task was a measure of cognitive ability. The number of correct responses was our measure of performance on a weight-loss-irrelevant task. The RAT task was chosen because other researchers have demonstrated it to be moderately challenging,
but not overly difficult (Mednick & Mednick, 1967). Participants were told to answer as many items as possible. They were given 10 minutes to complete the task.

After the cognitive task, the experimenter said, “As I explained earlier, this experiment assigns you to two body states. You have now been randomly assigned to the physical exertion state. The researchers are interested in how physical exertion influences cognitive performance.”

The participant was told to walk quickly on a treadmill set at a speed of 4 miles per hour for as long as she could or until she felt as if she had had a moderately intense walk. The treadmill was set at 4 miles per hour because jogging or running at a speed of 4.5 miles per hour is considered moderate physical activity (Physical Activity Guidelines Advisory Committee, 2008). We reduced the speed because we instructed participants to walk. The participant was instructed to ring a bell to indicate when she would like to stop walking. The experimenter then stopped the treadmill and recorded the amount of time spent walking.

Finally, the participant completed the Restraint Scale (Polivy, Herman, & Howard, 1988).

At the end of the session, the experimenter measured the participant’s height and weight for demographic purposes and provided a full debriefing.

**Results**

**Participant Characteristics**

Participants were 65 female undergraduate students who were currently dieting for weight-loss or weight-maintenance. They ranged in age from 18 to 26, with a mean age of 20. The BMI of the sample ranged from 16.7 to 40.1 and the mean sample BMI was 23.06 (SD = 4.10). Forty-four of the participants were categorized as restrained eaters and twenty were unrestrained eaters based on their scores on the Restraint Scale. One participant did not complete the Restraint Scale. Although we measured restraint, we did not include restraint in the analyses because all participants were current dieters and preliminary analyses showed no effect of restraint on
amount of time spent on the treadmill. Six participants were excluded from analyses because they were extreme outliers in the treadmill task (1 from the control condition, 3 from the success condition, and 2 from the failure condition). The mean number of minutes spent on the treadmill for the outliers in the control and success feedback conditions were about 7 standard deviations above the mean of those conditions. The time spent on the treadmill by outliers in the failure feedback condition was 3.5 to 4.5 standard deviations above the mean for that group. The treadmill task was stopped for outlier participants before they chose to finish walking due to time constraints in the lab (i.e., back-to-back appointments). All outliers walked on the treadmill for between 17 and 20 minutes before the task was stopped.

Weight-Loss-Relevant Task

First, we examined how type of feedback (success, failure, and no feedback) influenced time spent walking on the treadmill. It was hypothesized that dieters who received failure feedback would spend more time on the treadmill than would those who received success feedback or no feedback. An ANOVA revealed an effect of feedback condition on time spent on the treadmill, $F(2, 56) = 5.77$, $p = .005$. Those who received failure feedback spent more time on the treadmill ($M = 6.34$ minutes) than did those who received success feedback ($M = 3.45$ minutes), $p = .004$. Those who received success feedback and those who received failure feedback did not differ significantly from those who received no feedback ($M = 4.59$ minutes), $p = .23$ and $p = .39$, respectively. We also examined whether restraint influenced time spent walking on the treadmill. There was no effect of restraint, $F(1, 53) = .19$, $p = .67$, and no feedback x restraint interaction, $F(1, 53) = .06$, $p = .82$. It appears that participants worked harder on a weight-loss-relevant task after being told they had broken their diet than after being told they had not broken their diet. See Table 1 for means.

Irrelevant Task. Next, we examined how success and failure feedback influenced dieters’ performance on a goal-irrelevant task, namely the RAT. We hypothesized that dieters who received success feedback would perform better on the RAT compared to those who received failure and no feedback. In order to examine this question, we conducted an ANOVA on the number of RAT questions the participants answered correctly. There was a marginal effect of
feedback condition, \( F(2,56) = 2.85, p = .07 \). Participants who received failure feedback answered marginally more questions correctly (\( M = 3.10 \)) compared to participants who received success feedback (\( M = 1.63 \)), \( p = .05 \). Neither the failure feedback condition nor the success feedback condition, differed from the no feedback control condition (\( M = 2.14 \)), \( p = .39 \) and \( p = .74 \), respectively. When we examined the effect of restraint on performance on the RAT, we found no effect of restraint, \( F(1,53) = .001, p = .98 \), and no restraint x feedback interaction, \( F(1,53) = .97, p = .33 \). See Table 2 for means.

**Discussion and Conclusions**

In Dissertation Study 1, we found evidence that dieting success and failure feedback influenced subsequent behavior. After being told that they had violated their diets, dieters subsequently spent more time walking on a treadmill than did dieters who were told they had not violated their diets. This finding is in line with previous research that has demonstrated that failure results in greater persistence on a subsequent goal-related task possibly because of a desire to compensate for failure (Brunstein, 2000). Our finding was discordant, however, with research that suggests diet violation leads to disengagement from the dieting goal (i.e., subsequent overeating; e.g., Herman & Mack, 1975). The findings of Dissertation Study 1 suggest that diet violation predicts continued engagement in the weight-loss goal, rather than disengagement, at least when the subsequent relevant task is exercise. Dieters who received success feedback may not have felt a need to compensate, and, therefore, did not work as hard on the treadmill task as did those who received failure feedback. Dieters who received no feedback did not differ in amount of time spent on the treadmill from those who received success and failure feedback. This may be because their diets and weight-loss/maintenance goal were not made salient.

Dieters who received failure feedback also performed marginally better on the weight-loss-irrelevant task (i.e., the RAT) than did those who received success feedback. This finding was in contrast with our hypothesis. It is also in contrast with Brunstein (2000)’s finding that failure feedback led to disengagement from goal-irrelevant tasks and Fishbach et al. (2006)’s finding that success at a subgoal was related to better performance on goal-irrelevant tasks. It is possible that participants who received failure feedback sought to maintain a positive image of
themselves by performing well on another, unrelated task before they realized there would be an exercise task. Previous research in self-affirmation has demonstrated that being able to affirm an important aspect of the self after task failure or under ego threat has positive effects on motivation and self-control and decreases rumination about failure (Koole, Smeets, Knippenberg, & Dijksterhuis, 1999; Schmeichel & Vohs, 2009). Therefore, dieters who received failure feedback may have been motivated to self-affirm another important part of their identities (i.e., cognitive ability). It is also possible that dieters who received success feedback in our study had more positive or warm feelings about themselves which resulted in less persistence on subsequent tasks (Mischel & Coates, 1968). We did not have the data to test this hypothesis.

Dissertation Study 1 was not without limitations. We recruited current dieters and although exercise is often recommended and undertaken in conjunction with dieting for weight-loss (e.g., Klem, Wing, McGuire, Seagle, & Hill, 1997; Vartanian, Wharton, & Green, 2012), it is possible that some of our participants were not using exercise for weight-loss. Thus, the treadmill task may not have been relevant to some participants as weight-loss-goal-relevant pursuit. Additionally, we did not include manipulation checks; therefore, there was no measurement of whether or not participants thought exercise would help with weight-loss. Moreover, there was no measurement of whether or not participants believed the feedback they received from the experimenter. Likewise, the control/no feedback group may have perceived dieting success or failure without actually receiving feedback from the experimenter. The fact that relevant differences emerged despite these shortcomings suggests that the effect is reasonably robust.

Dissertation Study 1 also had some strengths. Previous research that has examined the influence of consuming a diet-breaking preload on subsequent behavior has focused on eating. By measuring exercise behavior, we were able to examine pursuit of a non-eating activity that is often undertaken in conjunction with dieting for weight-loss (Vartanian, Wharton, & Green, 2012). Further, we examined pursuit of both a weight-loss relevant and irrelevant activity after failure/success. Thus, we were able to examine how success and failure influenced pursuit of two different goals (i.e., the goal of weight-loss that current dieters possess and the goal of intellectual achievement that university students tend to possess).
Dissertation Study 1 provided preliminary support for our contention that diet success and failure would influence subsequent pursuit of weight-loss-relevant and irrelevant tasks. Therefore, it seems that diet failure and success have behavioral consequences. Specifically, diet failure was related to better performance than dieting success on a weight-loss-related task and marginally better performance on a weight-loss-irrelevant task. Our findings support the idea that experiences of failure may not be detrimental, but rather motivational, at least when attractive food is not available for consumption. In Dissertation Study 2, we turned our attention to the more immediate consequences of diet success and failure, specifically, self-perception, a mechanism that may mediate between diet success/failure and subsequent behavior.
Chapter 3
Dissertation Study 2

Introduction

Dissertation Study 2 was designed to examine whether diet-congruent and -incongruent behaviors influence subsequent behavior and attitudes about dieting. Self-Perception Theory (Bem; 1967) posits that we infer our attitudes and self-views from our behaviors in the same way an observer might. Previous work examining the tenets of Self-Perception Theory has demonstrated that behaviors can influence attitudes. For example, students who wrote counter-attitudinal essays changed their attitudes from pre-essay to post-essay in the direction of the essay (e.g., Bem & McConnell, 1970; Guild, Strickland, & Barefoot, 1977). There is also some evidence to suggest that changes in attitude and self-views influence subsequent behavior. For example, people who freely chose to sign a homelessness petition were more likely to see themselves as altruistic and more likely to subsequently volunteer to help with a food drive than were people who were paid to sign a homelessness petition (Burger & Caldwell, 2003). Thus, behaviors can change attitudes and attitudes can influence subsequent behavior.

There is limited research, however, investigating the relations between attitudes and self-change behaviors, such as dieting. On the one hand, previous research suggests that a diet violation affects subsequent weight-loss goal related behavior. Specifically, there is evidence that restrained eaters (i.e., chronic dieters) who consume a high-calorie preload subsequently overeat if there is an opportunity to consume more palatable high-calorie foods (e.g., Herman & Mack, 1975; Polivy, Herman, & Deo, 2010; Sin & Vartanian, 2012), suggesting disengagement from the weight-loss goal. The findings of Study 1, on the other hand, suggest that violating a diet predicts subsequent weight-loss goal engagement (i.e., better performance on an exercise task). Thus, research suggests that behaving in diet-congruent and incongruent ways influences subsequent behavior. However, we do not know if and how diet violations influence self-perception (i.e., attitudes about oneself as a dieter and about dieting). To our knowledge, only one study has examined the influence of self-perceptions on subsequent dieting behavior. Polivy and Herman (1991) found that, after consuming a high-calorie preload, participants who were
induced to see themselves as good or bad dieters ate less during a subsequent taste test than did participants who did not think about their dieting competence (control group). In this case, diet-related self-perception predicted diet-congruent behavior regardless of whether the self-perception was positive or negative. Thus, the literature indicates that diet violations may affect eating behavior and that manipulated self-perception may influence subsequent eating behavior. However, little is known about how self-perceptions are affected by diet-incongruent and diet-congruent behaviors in and of themselves.

Dissertation Study 2 thus examined the relations between diet-congruent and diet-incongruent behaviors and subsequent behavior and self-perceptions. We examined whether performing a diet-congruent behavior, a diet-incongruent behavior, or no diet-related behavior (i.e., selecting and eating a small diet-congruent snack, a diet-incongruent snack or not selecting a snack) influenced eating in a subsequent taste test. Dieters commonly use rules and strategies that involve reducing caloric intake and avoiding “forbidden foods” (Knauper, Cheema, Rabiau, & Borten, 2005); thus, selecting and eating an (un)healthy snack would be behaving (in)consistently with dieting. Then, we examined whether the amount eaten during the taste test predicted changes in the extent to which participants valued dieting and dieting outcomes and dieter identity (i.e., the degree to which dieting is central to one’s identity) from pre-experiment to post-taste test. We hypothesized that restrained eaters who initially made a diet-congruent snack selection would eat less of a high-calorie food in a subsequent taste test than would restrained eaters who did not select a snack or those who initially selected the diet-incongruent snack. Further, restrained eaters who made a diet-incongruent snack choice were expected to eat more during the taste test than restrained eaters who did not select a snack or those who selected a diet-congruent snack. These predictions were based on the assumption that dieters who selected a diet-incongruent snack would infer from their behavior that they do not value dieting or that dieting is unimportant, whereas the dieters who selected the diet-congruent snack would infer that they highly value dieting and that dieting is important to the self (e.g., Bem, 1967; Bem & McConnell, 1970). We also acknowledge the possibility that, in line with Brunstein (2000) and Study 1 findings, restrained eaters who selected a diet-incongruent snack would subsequently eat less than restrained eaters who selected the diet-congruent snack or no snack. This competing hypothesis is based on Brunstein’s (2000) suggestion that behaving in goal-incongruent ways
motivates efforts to repair goal pursuit. We hypothesized that unrestrained eaters’ eating behavior during the taste test would not be influenced by snack selection.

We also made predictions about the influence of behavior on self-perception. On the one hand, we anticipated that dieters who ate a large amount during the taste test would experience a downward shift in their diet values and dieter identity; in other words, they would think they valued dieting less than they had at baseline and view dieting as less central to their identities. On the other hand, those who restricted themselves during the taste test would experience no change or an increase in diet values and dieter identity. These hypotheses are based on previous work demonstrating that self-perceptions may be influenced by behaviors that are counter-attitudinal (e.g., Dolinski, 2000; Koppel & Arkowitz, 1974).

In sum, Dissertation Study 2 examined the effect of making a diet-congruent and diet-incongruent snack selection on subsequent eating behavior and whether caloric consumption of a fattening food would influence attitudes about the self as a dieter and diet values. Investigating these relations will allow us to better understand the role of self-perceptions in dieting behaviors and illuminate the processes that may be related to ultimate self-change success and failure.

**Method**

Participants were 96 female undergraduate students at the University of Toronto Mississauga. They volunteered for a study supposedly examining individual differences in perception. Data were discarded for one participant because she refused to participate in the taste test. Participants were run individually and given partial course credit or monetary compensation for their involvement in the experiment.

**Measures**

**Adapted Values Questionnaire** (Coelho, Polivy, Herman, & Pliner, 2008): The Adapted VQ was a modified version of the Values Questionnaire used by Trope and Fishbach (2000). It is a six-item measure that asks participants to rate, on an 11-point scale, the extent to which they value
losing weight, dieting, devoting efforts to eating less, maintaining a diet when others around them are eating unhealthy food, being thin, and overcoming urges to eat unhealthy food, on an eleven-point scale. The ratings on the items were summed to create a total score that ranged from 6 to 66; a higher score indicated greater value of dieting. The Adapted VQ has been shown to have high internal consistency, $\alpha = .87$ (Coelho et al., 2011). In our study, Cronbach’s $\alpha = .91$ pre-experiment and .87 post-taste-test. The sample Adapted VQ mean was 36.43 (SD = 14.04) at pre-experiment and 36.88 (SD = 13.81) after the taste test.

**Dieter Identity Scale** (unpublished measure): The DIS is an 11-item questionnaire that measures the extent to which dieting is central to one’s identity. Participants indicate on a 9-point scale the extent to which they agree with statements, such as “How important is it for you to control your eating?” and “To what extent is it gratifying to you to be seen as a dieter?”. Higher scores indicate greater identification with being a dieter. Participants also indicate whether or not they are currently dieting (yes/no). There is no published information about the psychometric properties of the scale. In the present study, Cronbach’s $\alpha = .94$ pre-experiment and .88 at post-taste-test. The sample Dieter Identity mean was 38.56 (SD = 18.90) pre-experiment and 39.23 (SD = 20.95) after the taste test.

**Snack Rating Questionnaire**: Participants rated the snack chips they ate during the taste test on several characteristics (e.g., good taste, saltiness, crunchiness). There were eight items and participants rated the characteristics on a nine-point scale.

**Restraint Scale** (Polivy, Herman, & Howard, 1988): The RS is a ten-item scale that measures chronic dieting. Participants scoring 15 or higher on the RS are considered to be restrained eaters; participants scoring less than 15 are considered to be unrestrained eaters. The RS has demonstrated adequate discriminant validity from social desirability measures and a high internal consistency, $\alpha = .82$ (Allison, Kalinski, & Gorman, 1992). The sample RS mean was 14.64 (SD = 5.61).

**Demographics Questionnaire**: Participants completed a short questionnaire assessing demographic variables, such as age, year in university, and ethnicity.
Procedure

Prior to the scheduled experiment date, participants were contacted via email or phone and were asked to complete a pre-experiment questionnaire, which included the Values Questionnaire and the Dieter Identity Scale. Each participant was asked to email the completed questionnaire to the experimenter no later than 24 hours prior to the scheduled appointment. The purpose of the pre-experiment questionnaire was to assess pre-experiment (or baseline) attitudes about dieting and being a dieter. Eighty-nine participants completed the pre-experiment questionnaire.

Participants were asked to refrain from eating and drinking (except water) for two hours prior to the experiment. When the participants arrived at the lab, informed consent was obtained. She was told that she would be participating in a study investigating individual differences in various modes of perception. The participant was assigned to one of three conditions. In the experimental conditions, the participant was offered a small snack and was told that the purpose of the snack was to ensure that all participants would start the experiment at the same level of satiety. The true purpose of the snack was to allow participants to make a diet-congruent or diet-incongruent decision. The experimental participants chose from apple slices (about a quarter of an apple; a diet-congruent choice) or a mini-doughnut (a diet-incongruent choice). Although the participants were free to choose their snacks, the experimenter tried to push participants to select one or the other snack by explaining that the apples or the doughnuts were a bit stale because the research assistant forgot to pick up fresh ones on that particular day. Participants in the control condition were not offered a snack, but instead completed an irrelevant picture viewing task in which they selected a picture of a landscape or cityscape to view.

After the participant finished eating the small snack or viewing the picture, the experimenter informed her that it was time to begin the experiment. The experimenter said, “Participants in our study are randomly assigned to provide their perceptions about several everyday items. You have been randomly assigned to a taste perception task.” In reality, all participants completed the taste perception task.
The experimenter then presented the participant with three heaping pre-weighed bowls of snack chips (Cheetos, Cool Ranch Doritos, and Fritos). Three types of snack chips were chosen in order to allow for personal preferences. The participant was instructed to taste and rate the three types of snack chips. She was also told to eat as many chips as she would like since there were plenty in the lab. The experimenter left the room for ten minutes while the participant completed the task. After ten minutes, the experimenter collected the bowls of chips to be weighed in another room. Meanwhile, the participant completed a packet of questionnaires, which included the Demographics Questionnaire, the Values Questionnaire, the Dieter Identity Scale, and the Restraint Scale. Finally, the participant’s height and weight were measured for demographic purposes and she was fully debriefed.

Results

Participant Characteristics

The 96 female undergraduate participants ranged in age from 18 to 31 with a mean age of 19.16. The BMI of the sample ranged from 16.86 to 41.48 with a sample mean BMI of 24.39 (SD = 5.78). Data for one participant were discarded because she refused to participate in the taste test. Two other participants did not complete the Restraint Scale. The sample consisted of 46 restrained eaters (20 in the healthy snack condition, 13 in the unhealthy snack condition, and 13 in the control condition) and 47 unrestrained eaters (15 in the healthy snack condition, 18 in the unhealthy snack condition, and 14 in the control condition). Final sample restraint scores ranged from 3 to 30 with a mean of 14.33 (SD = 5.60).

Snack selection and subsequent eating behavior

First, we examined whether snack selection influenced subsequent eating. We hypothesized that restrained eaters would eat less after selecting a diet-congruent snack and more after selecting a diet-incongruent snack compared to restrained eaters in the control condition. This pattern was not expected among unrestrained eaters. A 2 (restrained eater/unrestrained eater) x 3 (snack selection: apple, doughnut, no snack) ANOVA was conducted on total calories of snack chips
eaten. Neither restraint nor snack selection predicted subsequent caloric consumption, $F(1, 87) = 1.27, p = .26$ and $F(2, 87) = 1.14, p = .33$, respectively. Participants in the diet-congruent snack condition ($M=190.57$ calories) did not differ in number of calories eaten from those in the diet-incongruent snack condition ($M=195.32$ calories) or those in the control condition ($M=150.62$ calories). Restrained eaters ($M=201.45$ calories) did not eat significantly more or less than unrestrained eaters ($M=160.10$ calories). There was no interaction between restraint and snack selection, $F(2, 87) = 1.11, p = .33$. See Table 3 for mean chip calories consumed by restraint and condition.

*Food Intake and attitudes about dieting*

We were also interested in how dieters’ attitudes about dieting and being a dieter are influenced by food intake. It was hypothesized that restrained eaters who ate a lot during the taste test would report decreased diet values and dieter identity relative to baseline (pre-experiment) scores, whereas restrained eaters who restricted their eating during the taste test would report greater or unchanged diet values and identification with being a dieter relative to baseline (pre-experiment) scores. The sample mean pre-experiment diet values score was 35.93 ($SD = 14.17$) and the sample mean pre-experiment dieter identity score was 38.26 ($SD = 19.03$). Restrained eaters had higher initial diet values ($M = 43.89, SD = 10.86$) than did unrestrained eaters ($M = 26.95, SD = 12.30$), $F(1, 83) = 47.06, p < .001$. Restrained eaters also had higher pre-experiment dieter identity ($M = 49.54, SD = 18.49$) than did unrestrained eaters ($M = 26, SD = 10.31$), $F(1, 82) = 52.92, p < .001$.

In order to obtain change scores for the Values Questionnaire and Dieter Identity Scale, we subtracted the pre-experiment scores from the post-eating scores. Positive change scores indicated an increase in diet values or dieter identity from pre-experiment to post-eating, and negative change scores signified a decrease in diet values or dieter identity. A $2$ (restraint) x $2$ (median split calories eaten: a lot or a little) ANOVA on dieter identity change score revealed a main effect of restraint, $F(1, 84) = 10.24, p = .002$. A repeated measures ANOVA was used to clarify the effect. Restrained eaters increased in dieter identity from pre-experiment to post-taste test, $F(1, 84) = 10.16, p = .002$, whereas unrestrained eaters did not change in dieter identity, $F(1,
84) = 1.89, \( p = .17 \). See Figure 2. There was also a marginally significant effect of caloric intake on dieter identity change, \( F(1, 84) = 3.95, p = .05 \). Participants who ate a lot during the taste test increased in dieter identity from pre-experiment to post-taste test, \( F(1, 84) = 5.18, p = .03 \), whereas those who ate a little did not change in dieter identity, \( F(1, 84) = .29, p = .59 \) (see Figure 3). There was no difference in pre-experiment dieter identity, \( F(1, 84) = 1.73, p = .19 \), and no difference in post-taste-test dieter identity, \( F(1, 84) = .01, p = .95 \), between those who ate a lot and those who ate a little. There was also no interaction between restraint and food intake, \( F(1, 84) = .08, p = .78 \).

A 2 (restraint) x 2 (median split calories eaten: ate a lot or ate a little) ANOVA on diet values change scores revealed only a marginal main effect of caloric consumption, \( F(1, 85) = 2.97, p = .09 \). Participants who ate a lot marginally increased in diet values from pre-experiment to post-taste test, \( F(1, 85) = 3.37, p = .07 \). Those who ate a little during the taste test did not change in diet values, \( F(1, 85) = .36, p = .55 \) (see Figure 3). There was no effect of restraint on diet values change, \( F(1, 85) = 0, p = .98 \). There was also no difference in pre-experiment diet values, \( F(1, 85) = .25, p = .62 \), and no difference in post-taste test diet values, \( F(1, 85) = .39, p = .54 \), between those who ate a lot and those who ate a little. There was also no interaction between restraint and food intake \( F(1, 85) = .07, p = .79 \).

Although the taste test immediately preceded the diet attitude measures and thus were most likely to affect attitudes, we also examined whether and how snack selection influenced attitude change. A 2 (restraint) x 2 (median split calories eaten: ate a lot or ate a little) x 3 (snack selection: apple, doughnut, or no snack) ANOVA on dieter identity change revealed a main effect of restraint, \( F(1, 76) = 9.71, p = .003 \). Repeated measures ANOVAs revealed restrained eaters increased in dieter identity from pre-experiment to post-taste-test, \( F(1, 86) = 12.14, p = .002 \), whereas unrestrained eaters did not change in dieter identity, \( F(1, 86) = 2.38, p = .17 \). There was also a marginally significant main effect of caloric intake, \( F(1, 76) = 3.88, p = .05 \). People who ate a lot during the taste test showed a marginal increase in dieter identity from pre-experiment to post-taste-test, \( F(1, 88) = 3.60, p = .06 \), whereas people who ate a little during the taste test did not change in dieter identity, \( F(1, 88) = .41, p = .53 \). Snack selection did not predict
dieter identity change, $F(1, 76) = .25, p = .78$, nor were there any significant interactions, $ps > .05$.

**Discussion and Conclusions**

The aim of Study 2 was to determine whether behaving in a fashion that is congruent or incongruent with dieting would influence subsequent eating behavior and whether eating behavior would predict changes in attitudes about dieting. We did not find support for our hypotheses regarding the influence of diet-congruent and diet-incongruent behaviors on subsequent eating. There was no relation between snack selection and subsequent eating behavior. Although self-set dieting rules often involve the avoidance and reduced intake of high-calorie “forbidden foods” (Knauper et al., 2005), there was no direct measure of whether or not dieters in our study considered selecting and eating a doughnut to be a diet-incongruent behavior or a violation of dieting rules. Therefore, we cannot conclude from our study that diet-congruent and diet-incongruent behaviors have no impact on subsequent eating. Our findings (or lack thereof) are in line, however, with some previous research that has found no relation between diet violation (consuming a high-calorie preload) and subsequent eating (e.g., Jansen et al., 1988; Timko, Juarascio, & Chowansky, 2012).

In Study 2, we did find evidence that eating a lot or eating a little of high-calorie snack foods produces changes in self-perception of dieter identity and diet values. The self-perception literature has shown that engaging in counter-attitudinal activities may produce attitudinal changes (e.g., Bem & McConnell, 1970). Contrary to the self-perception hypothesis, however, eating a lot of a high-calorie snack was related to increases, not decreases, in dieter identity and diet values (marginal). Eating a little did not predict attitude shifts. Further, there was a main effect of restraint with restrained eaters increasing their dieter identity from pre-experiment to post-taste test regardless of the amount eaten. Previous research has found that exposure to temptation may activate thoughts of higher priority goals (Fishbach, Friedman, & Kruglanski, 2003); thus, eating a lot of chips in the taste test may have activated thoughts about healthy eating for everyone (restrained and unrestrained eaters), producing an increase in dieter identity and values. Restrained eaters may have increased in dieter identity from pre-experiment to post-taste test regardless of caloric consumption because eating chips at all (a lot or a little) may have
been viewed as a diet-incongruent activity, which may have resulted in increased activation of the weight-loss goal (similar to Fishbach, Friedman, & Kruglanski, 2003).

In sum, Dissertation Study 2 provides evidence that attitudes about dieting may shift as a result of behaving in diet-congruent and diet-incongruent ways. Although we found that calories consumed during the taste test predicted marginal diet-related attitude change, our results may have been confounded by the two activities the participants did: selecting a snack and then eating a fattening food. We do not know how simply selecting a snack per se influenced dieters’ attitudes about dieting and whether any influence carried over to the post-taste test measurement of diet values and dieter identity. Likewise, we did not measure diet-related attitudes after snack selection, so we were unable to test how attitude shifts influence subsequent behavior. Studies 3 and 4 were designed to address the shortcomings of Study 2 in order to better understand the influence of diet behaviors on self-perceptions and the mediating role of self-perceptions on subsequent behavior.
Chapter 4
Dissertation Study 3

Introduction

Dissertation Study 3 was designed to clarify the relation between diet-related behaviors and attitudes (i.e., diet values and dieter identity). Dissertation Study 2 provided initial evidence that eating a lot of a diet-incongruent food produced shifts in dieter identity and diet values, but the relation between eating and self-perceptions was not completely clear for two reasons. First, all participants took part in the snack chip taste test; therefore, everyone consumed at least a little of a potentially diet-violating, high-calorie food. Second, participants performed two different diet-related behaviors during the experiment (i.e., a snack selection and a taste test). Because we measured self-perception only after the taste test, we do not know if and how snack selection may have influenced self-perception without the taste test. Dissertation Study 3 was thus designed to determine whether a single diet-related behavior would influence attitudes about dieting.

We analyzed a subset of data from a larger study. The goal was to examine how behaving in a diet-congruent or diet-incongruent manner would influence diet values and dieter identification. In the larger study, dieters were exposed to food pictures or neutral pictures and then were given an opportunity to select a snack to take away. Partway through the study, we added our measures of dieter identity and dieting values (i.e., the Dieter Identity Scale and the Values Questionnaire). We were interested in collecting data examining how freely selecting an apple or no snack (diet-congruent decision) or selecting a cupcake (diet-incongruent decision) would influence participants’ self-perceived dieter identity and the extent to which they valued diet-related activities and outcomes. It was hypothesized that making a diet-congruent snack choice would result in an increase in, or no change in, diet values and dieter identity, whereas making a diet-incongruent snack choice would result in decreased diet values and dieter identity. These predictions are based on Self-Perception Theory’s assertion that we change our attitudes to coincide with our behaviors (Bem, 1967; Bem & McConnell, 1970). We tested whether or not
this relation between behavior and attitudes exists in a self-change behavior, such as dieting, because behaviors may influence attitudes and attitude change may be associated with ultimate self-change success or failure. The results of this study were also meant to inform our future research examining the relations between diet failures and successes, attitude change, and subsequent behavior.

**Method**

Participants were female undergraduate students recruited from the Introductory Psychology subject pool who had indicated that they were currently dieting. Twenty individuals completed this small study. One was excluded from analyses because she selected both snacks, leaving 19 participants (7 unrestrained eaters and 12 restrained eaters) who freely made a diet-congruent decision (i.e., selecting an apple or no snack) or a diet-incongruent decision (i.e., selecting a cupcake).

**Measures**

**Adapted Values Questionnaire** (Coelho, Polivy, Herman, & Pliner, 2008): The Adapted VQ is a modified version of the Values Questionnaire (Trope & Fishbach, 2000). Participants rated on a 11-point scale the extent to which they value losing weight, dieting, devoting efforts to eating less, maintaining a diet when others around them are eating unhealthy food, being thin, and overcoming urges to eat unhealthy food. The ratings on the items were summed to create a total score that ranged from 6 to 66; a higher score indicated greater diet values. The Adapted VQ has been shown to have high internal consistency, $\alpha = .87$ (Coelho et al., 2011). In our study, Cronbach’s $\alpha = .88$ at pre-experiment and .92 at post-experiment. The sample Adapted VQ mean was 41.40 (SD = 13.48) at pre-experiment and 41.92 (SD = 13.19) at post-experiment.

**Dieter Identity Scale** (unpublished measure): The DIS is an 11-item questionnaire that measures the extent to which dieting is central to one’s identity. Participants indicate on a nine-point scale the extent to which they agree with statements, such as “How important is it for you to control your eating?” and “To what extent is it gratifying to you to be seen as a dieter?” Ratings on the
items were summed to create a total score ranging from 11 to 99; higher scores indicate greater identification with being a dieter. There is no published information about the psychometric properties of the scale. In the present study, Cronbach’s $\alpha = .94$ at pre-experiment and .95 at post-experiment. The sample Dieter Identity mean was 48.55 (SD = 15.15) at pre-experiment and 49.5 (SD = 20.19) at post-experiment.

Restraint Scale (Polivy, Herman, & Howard, 1988): The RS is a 10-item scale that measures chronic dieting. Participants scoring 15 or higher on the RS are considered to be restrained eaters; participants scoring less than 15 are considered to be unrestrained eaters. The RS has demonstrated adequate discriminant validity from social desirability measures and a high internal consistency, $\alpha = .82$ (Allison, Kalinski, & Gorman, 1992). In the present study, Cronbach’s $\alpha = .82$. The sample RS mean was 16.69 (SD = 6.40).

Demographics Questionnaire: Participants completed a short questionnaire assessing demographic variables such as age, year in university, and ethnicity.

Procedure

Participants volunteered for a study of Perception and Memory. Prior to coming to the lab, participants were contacted via email and asked to complete a pre-experimental questionnaire and email it to the experimenter one day prior to the experiment. The pre-experimental questionnaire consisted of the Adapted Values Questionnaire (Coelho, Polivy, Herman, & Pliner, 2008) and the Dieter Identity Scale (unpublished measure). Upon arrival at the lab, the participant was randomly assigned to view and memorize the details of a picture of chocolate cake, chocolate chip cookies, or flowers. She completed filler tasks that consisted of a worksheet on which she answered questions about the pictures that she viewed (e.g., How many cookies were on the plate?; What color were the flowers?) and a list memorization task. The experimenter then told the participant that the next part of the experiment was not quite ready. The experimenter explained, “We usually give participants a snack to take away at the end of the experiment as a thank-you, but I’ll just let you take your snack now while you wait.” The
participant was presented with a box consisting of apples and Hostess cupcakes. The experimenter left the room during the snack selection process.

After selecting a snack, the participant completed a packet of questionnaires, including the Demographics measure, the Restraint Scale (Polivy, Herman, & Howard, 1988), the Adapted Values Questionnaire (Coelho et al., 2008), and the Dieter Identity Scale (unpublished measure). Meanwhile, the experimenter made note of the snack that the participant selected. At the end of the session, the participant’s height and weight were measured for demographic purposes. She was fully debriefed and awarded partial course credit.

Results

Nineteen participants’ data were included in the analyses. Six participants (two unrestrained eaters and four restrained eaters) selected the apple, five (two unrestrained eaters and three restrained eaters) selected the cupcake, and eight (three unrestrained eaters and five restrained eaters) selected neither snack. The mean age of the sample was 18.39 (SD = .70) with participants ranging in age from 18 to 21. The sample mean BMI was 21.99 (SD = 3.40) with BMIs ranging from 16.32 to 32.16.

The researchers were interested in how selecting a diet-congruent versus diet-incongruent snack would affect the extent to which participants valued dieting and identified as a dieter. Change scores were obtained by subtracting the pre-experiment Values Questionnaire and Dieter Identity Scale scores from the post-snack selection scores. Therefore, negative change scores indicated a decrease in diet values or dieter identity from pre- to post-experiment and positive change scores indicated an increase.

Diet Values. We were interested in how making a diet-congruent or diet-incongruent snack choice would influence the extent to which participants valued dieting and dieting outcomes.

First, we compared pre-experiment diet values of restrained and unrestrained eaters. Restrained eaters valued dieting and dieting outcomes to a greater extent than did unrestrained eaters pre-
experiment, $F(1, 17) = 14.07, p < .01$ (restrained $M = 48.58$; unrestrained $M = 29.86$). To examine whether snack selection influenced diet values, we conducted a 2 (snack selection: apple/neither, cupcake) x 2 (restraint) ANOVA on change in diet values. There was a main effect of snack selection, $F(1, 15) = 5.97, p = .03$. Individuals who selected the cupcake had greater change in diet values ($M = -6.60$) compared to those who selected the apple/neither snack ($M = .36$). Moreover, repeated measures t-tests revealed that participants who selected the apple or did not select a snack did not change in diet values from pre-experiment to post-snack selection, $t(13) = -.27, p = .79$ (pre-experiment $M = 42.21$; post-experiment $M = 42.57$). Those who selected the cupcake had marginally lower diet values at post-experiment than at pre-experiment, $t(4) = 2.24, p = .09$, (pre-experiment $M = 40.20$; post-experiment $M = 33.60$).

Further, there was a main effect of restraint, $F(1, 15) = 6.86, p = .02$. Restrained eaters exhibited more change in diet values from pre- to post-experiment ($M = -3.08$) than did unrestrained eaters ($M = 1.29$). Repeated measures t-tests, however, showed that among both restrained (pre-experiment $M = 48.58$; post-experiment $M = 45.5$) and unrestrained eaters (pre-experiment $M = 30.63$; post-experiment $M = 32.13$), pre-experiment values scores did not significantly differ from post-experiment values scores, $t(11) = 1.72, p = .11$ and $t(7) = -.87, p = .42$, respectively. Thus, the data show that restrained eaters’ diet values changed more from pre- to post-experiment than did unrestrained eaters’ diet values, but neither restrained eaters’ nor unrestrained eaters’ diet values changed significantly from pre- to post-experiment. There was no significant restraint x snack selection interaction, $F(1, 15) = 3.00, p = .104$. See Table 4 for diet value means pre- and post-experiment.

Dieter Identity. We were also interested in whether snack selection would influence dieter identity, or the extent to which participants identified as a dieter. First, we compared pre-experiment dieter identity of restrained and unrestrained eaters. Restrained and unrestrained eaters did not differ significantly in the extent to which they identified as dieters, $F(1,17) = 1.20, p = .29$ (restrained $M = 51.75$ and unrestrained $M = 43.71$). To examine whether snack selection influenced dieter identity, we conducted a 2 (snack selection: apple/neither snack, cupcake) x 2 (restraint) ANOVA on dieter identity change. This analysis revealed no effect of restraint on dieter identity change (restrained eaters $M = 2.75$; unrestrained eaters $M = -3.71$), $F(1, 15) = .54,$
Moreover, there was no effect of snack selected on dieter identity change (apple/neither $M = 3.00$; cupcake $M = -7.00$), $F(1, 15) = 2.39, p = .14$. There was no restraint x snack selection interaction, $F(1,15) = .54, p = .47$. Therefore, snack selection and restraint did not influence the extent to which restrained and unrestrained eaters identified with being a dieter. See Table 4 for dieter identity means pre- and post-experiment.

**Discussion and Conclusions**

These results should be taken with caution due to the small sample size. However, the patterns point to some interesting possibilities of how making diet-congruent versus diet-incongruent choices might influence dieters’ attitudes about dieting. Specifically, it seems that making diet-congruent snack choices and diet-incongruent snack choices may influence diet values even before eating the food. In our sample, individuals who chose the cupcake experienced a downward shift in diet values, whereas those who chose the apple or no snack did not experience a significant change in diet values. All of the participants in our study indicated that they were currently dieting. Thus, they all valued dieting to some extent (although restrained eaters valued dieting more highly than unrestrained eaters). Behaving in diet-incongruent ways produced a shift in attitudes about dieting (i.e., diet values), but behaving in diet-congruent ways did not. This finding is in line with self-perception research that has demonstrated that behaving in counter-attitudinal ways shifted attitudes but behaving in pro-attitudinal ways may not (e.g., Apsler, 1976). Perhaps diet-congruent behaviors were considered the status quo and thus attitudes remained stable, while diet-incongruent behaviors violated the status quo, necessitating a shift in attitudes. The results of this small study indicate that diet-related decisions may indeed influence attitudes about dieting.
Dissertation Study 4 was designed to examine the relations between diet violation (and diet maintenance), subsequent self-perceptions and attitudes about dieting, and eating behavior. Although Dissertation Study 2 found no evidence that behaving in diet-incongruent or diet-congruent ways predicted future eating behavior, perhaps this was because selecting and consuming a small snack of apple slices or a mini-doughnut was not necessarily perceived as a diet-violating or diet-maintaining behavior. Previous research in the area of eating regulation has found that restrained eaters (i.e., chronic dieters) who consume a large amount of a high-calorie food may overeat subsequently when palatable, high-calorie foods are available, whereas restrained eaters who do not break their diets initially continue to refrain from overeating (e.g., Herman & Mack, 1975; Sin & Vartanian, 2012). This evidence suggests that diet violation predicts further violation (counterregulation). The boundary model (Herman & Polivy, 1983) further clarifies the effect of consuming a high-calorie food on subsequent consumption. The model posits that our eating behavior occurs on a spectrum and is controlled by boundaries. On the ends of the spectrum are hunger and satiety, biological aversive forces that motivate eating and cessation of eating. Eating that is not motivated by hunger occurs in the range of biological indifference. It is in this range that eating behavior is motivated by non-biological forces, such as norms and palatability. Herman and Polivy suggest that dieters have another boundary: the diet boundary, which appears in the zone of biological indifference. As long as consumption does not surpass the diet boundary, dieters will continue to behave in diet-congruent ways. Once consumption surpasses the diet boundary, dieters will counterregulate (i.e., continue to overeat) until satiety is met. This model, therefore, suggests that in order for counterregulation to occur, dieters must perceive that the diet boundary has been surpassed. Studies by Polivy (1976), Spencer and Fremouw (1979), and Herman, Polivy, and Deo (2010) support the idea that perceived diet violation is the key to explaining when dieters overeat after a preload and when they do not. All of these studies found that it is dieters’ perception of having consumed a high-
calorie food (i.e., violating the diet), not the actual caloric content of the preload, that predicts subsequent overeating. Thus, eating behavior of dieters from Study 2 may not have been affected by consuming a small diet-incongruent snack because the diet boundary was not exceeded and thus the diet was not perceived to have been broken. Unfortunately, this assertion cannot be tested because there was no measure of whether or not participants in Study 2 perceived that they had broken their diets.

Although there is ample evidence to support counterregulation after diet violation, several studies have also found no evidence of counterregulation (e.g., Timko, Juarascio, & Chowansky, 2012; Tomiyama, Moskovich, Haltom, & Mann, 2009). In fact, one study found that dieters regulated, or compensated, after consuming a high-calorie preload (i.e., they ate less after violating a diet than after maintaining it; O’Connell et al., 2005). Similarly, Dissertation Study 1 found that dieters who were told that they had broken their diets spent more time walking on a treadmill than did dieters who were told that they had not broken their diets. These studies are in line with results of studies by Brunstein (2000) and Frankel and Snyder (1978) who found that, after task failure, people were more motivated and worked harder on subsequent relevant tasks than after success. Moreover, Counteractive Control Theory (Trope & Fishbach, 2000) suggests that encountering temptations or potential challenges to a long-term goal boosts motivation to pursue the long-term goal. Therefore, dieters who face a challenge to their diet may be more likely, rather than less likely, to stick to their diets. Several eating/dieting-related studies have supported the hypotheses of Counteractive Control Theory (e.g., Fishbach, Friedman, & Kruglanski, 2003; Kroese, Evers, & Ridder, 2009). Given the contradictions in the literature, it is not completely clear how diet violations influence subsequent eating or weight-loss goal-directed behavior. Thus, the first aim of Dissertation Study 4 was to clarify the relation between violating or maintaining a diet and subsequent consumption of high-calorie palatable foods.

The second aim of Dissertation Study 4 was to examine the relation between diet violation or maintenance on subsequent self-views and attitudes about dieting. Self-Perception Theory posits that we infer our attitudes and self-views from observing our own behaviors (Bem, 1967). For example, people who wrote counter-attitudinal essays shifted their attitudes in the direction of the essay (Bem & McConnell, 1970; Guild, Strickland, & Barefoot, 1977). Similarly, people
who freely chose to sign a homelessness petition subsequently viewed themselves as more altruistic compared to people who signed the petition for monetary reward (Burger & Caldwell, 2003). Thus, our behaviors can produce shifts in self-views and attitudes. While Dissertation Studies 2 and 3 provided some preliminary evidence that attitudes about dieting may shift in response to selecting diet-congruent or diet-incongruent snacks, this evidence is not conclusive. The findings of Study 2 suggest that eating a lot of a high-calorie snack food may be associated with subsequently higher diet values and dieter identity, whereas the findings of Study 3 suggest that making a diet-incongruent snack choice reduces diet values, while making a diet-congruent snack choice does not affect diet values. Moreover, in neither study did we measure whether participants believed a diet violation had taken place. The perception of having violated a diet is important in the study of how diet violation/maintenance affects subsequent behavior (Polivy, 1976; Polivy, Herman, & Deo, 2010; Spencer & Fremouw, 1979) and thus may be important in determining how diet violation/maintenance influences self-views and attitudes. To our knowledge no study outside of this dissertation has examined the influence of diet violations and maintenance on subsequent attitudes about dieting and self-views. By studying diet attitudes and diet-related self-views, we can examine how they may be related to ultimate dieting success and failure.

The final aim of Dissertation Study 4 was to examine whether self-views and attitudes mediate the relation between diet violation/maintenance and subsequent eating. Although there has not been any work examining the mediation question directly, one study has examined how dieters’ self-perceptions influence subsequent eating behavior. Participants in Polivy and Herman (1991)’s study were randomized to see themselves as good dieters, bad dieters, or they received no manipulation. They then consumed a high-calorie preload (or not). Subsequent eating was measured. Restrained eaters who saw themselves as “good” or “bad” dieters ate less than did the control/no self-perception group. Thus, it seems that thinking about dieting ability (good or bad) and being presented with a challenge to the diet suppresses dieters’ eating compared to not thinking about dieting ability. Although no other research has examined the effects of self-perceptions on eating behavior and no study at all has examined diet attitudes on subsequent behavior, there is evidence that self-views are related to health behaviors. For example, people who view themselves as overweight (regardless of actual weight status) were more likely to have
sedentary lifestyles than those who did not view themselves as overweight (Antronette et al., 2006). Similarly, self-perceived competence at performing health behaviors predicts engagement in health behaviors (Sabiston & Crocker, 2008). Clearly, there is reason to believe that self-perceptions may be related to diet behaviors.

Thus, the aim of Dissertation Study 4 was to examine the influence of diet violation and maintenance on self-perceptions and eating behaviors and the mediating role of self-perception in the prediction of subsequent behavior. In this study, participants consumed a diet-violating preload or they did not. Subsequent eating of high-calorie snacks was measured, as well as self-views and attitudes about dieting.

Hypotheses

Based on what literature there is, we propose the following hypotheses:
1. Because there exists contradictory evidence regarding how diet violation and diet maintenance affect subsequent weight-loss goal-related pursuit, we made competing hypotheses regarding this question. On the one hand, we expected that restrained eaters who violated their diets would subsequently eat more of a high-calorie food than would restrained eaters who did not commit a diet violation. In our study, diet violation was defined as self-perceived diet violation (i.e., the participant had to have felt that her diet was broken after consuming the high-calorie preload). We defined diet violation in this way because of research evidence suggesting that it is dieters’ perception of having violated the diet, not the actual caloric content or size of the preload that predicts subsequent overeating (e.g., Polivy, 1976; Spencer & Fremouw, 1979). Our hypothesis is based on previous research that has demonstrated counterregulation after diet violation (e.g., Herman & Mack, 1975; Sin & Vartanian, 2012). This prediction is also based on research in the area of self-perception that suggests that, through self-view and attitude changes, behaviors predict similar subsequent behavior (e.g., Burger & Caldwell, 2003). On the other hand, it is possible that restrained eaters who violated their diet would subsequently eat less of a high-calorie food than would restrained eaters who maintained their diets. This competing hypothesis is in line with a body of literature that has demonstrated that consuming a high-calorie preload does not necessarily predict subsequent overeating (e.g., Timko, Juarascio, &
and studies that have found task failure or diet violation to improve goal pursuit (Brunstein, 2000; O’Connell et al., 2005; Study 1 of this dissertation). It was expected that unrestrained eaters would compensate after consuming a high-calorie preload and thus eat less after consuming a high-calorie preload than after consuming a no-calorie preload (e.g., Herman & Mack, 1975; Polivy, Herman, & Deo, 2010).

2. Restrained eaters who violated their diets would subsequently perceive themselves more negatively (i.e., as bad dieters, less likely to ultimately succeed at dieting). Violators would also value dieting and dieting outcomes less than would diet maintainers (i.e., those who did not break their diets). This prediction is based on Self-Perception Theory (Bem, 1967) which suggests that behaving counter-attitudinally predicts attitudinal shifts in the direction of the behavior. Unrestrained eaters were expected to exhibit the same patterns as restrained eaters but the effect may be less pronounced or insignificant because unrestrained eaters were not expected to value dieting as highly or see themselves as especially good dieters in the first place.

3. Self-perceptions were also expected to mediate the relation between diet violation or maintenance and subsequent eating. Therefore, we hypothesized that, compared to diet maintainers, dieters who violated their diets would have more negative self-perceptions and value dieting less, which would lead to subsequent overeating. Diet maintainers were expected have more positive self-views and attitudes about dieting than diet violators, which would lead to less subsequent eating than diet violators. This prediction is in line with previous research that has found that behaviors predict attitudinal changes and that attitudinal changes predict future behavior (e.g., Burger & Caldwell, 2003; Dolinski, 2000).

**Method**

Participants were 169 female undergraduate students recruited from the Introduction to Psychology subject pool. They signed up for a study ostensibly examining the relation between personality and taste perception. Several requirements for participation were listed on the experiments sign-up page: 1) must be female, 2) must be able and willing to consume various
foods in the lab, 3) must be dieting for weight-loss or weight-maintenance, 4) must refrain from eating for 3 hours prior to the appointment. Participants were run individually and given partial course credit for participation.

**Measures**

**Self-Perception Questions:** These questions examined participants’ self-views. Participants were asked to rate on a 10-point visual analog scale the extent to which they agreed with various statements about their characteristics. Although many characteristics were listed (e.g., “I am reliable”; “I am good at making friends”), the characteristics of interest to us pertained to dieting (e.g., “I am a good dieter”; “I am a bad dieter”; “I am likely to succeed at my diet”). Higher scores indicated more agreement with the statement.

**Dieting Behavior Questions:** Participants provided information about their current diet and dieting goals. Questions assessed whether participants were currently dieting, the reason for dieting, and the type of diet being followed.

**Adapted Values Questionnaire** (Coelho, Polivy, Herman, & Pliner, 2008): The Adapted VQ is a modified version of the Values Questionnaire (Trope & Fishbach, 2000). Participants rated on a 11-point scale the extent to which they value losing weight, dieting, devoting efforts to eating less, maintaining a diet when others around them are eating unhealthy food, being thin, and overcoming urges to eat unhealthy food. The ratings on the items were summed to create a total score that ranged from 6 to 66; a higher score indicated greater diet values. The Adapted VQ has been shown to have high internal consistency, $\alpha = .87$ (Coelho et al., 2011). In our study, Cronbach’s $\alpha = .81$ at pre-experiment and .79 at post-experiment. The sample Adapted VQ mean was 40.65 (SD = 11.14) at pre-experiment and 41.27 (SD = 10.33) at post-experiment.

**State Self-Esteem Scale** (Heatherton & Polivy, 1991): This is a 20-item scale that measures a participant’s self-esteem at a given point in time. The 20 items are subdivided into 3 components of self-esteem: performance self-esteem, social self-esteem, and appearance self-esteem. Participants answer using a 5-point scale, and responses to items are totaled to create a composite
state self-esteem score; higher scores indicate higher state self-esteem. The scale has been shown
to have high internal consistency, Cronbach’s $\alpha = 0.92$, and it has been shown to be responsive to
temporary changes in self-evaluation. In our study, Cronbach’s $\alpha = 0.80$. The mean sample state
self-esteem score was 70.86 (SD = 10.69).

**Taste Rating Questionnaire:** Participants rated the three types of snack chips that they tasted on a
visual analog scale. Participants rated the chips on several dimensions, including saltiness,
bitterness, and liking. The items of interest were three items examining participants’ liking for
the chips, including the extent to which participants liked the chips, would purchase the chips,
and found the chips good-tasting. Higher scores indicated more positive ratings of the chips.
Cronbach’s $\alpha$ for the Taste Rating Questionnaires of the three chips ranged from 0.88 to 0.93.

**Demographics:** This is a short questionnaire on which participants provided basic information
about themselves, including age, year in school, and ethnicity.

**Restraint Scale** (Polivy, Herman, & Howard, 1988): The RS is a 10-item scale that measures
chronic dieting. Participants scoring 15 or higher on the RS are considered to be restrained
eaters; participants scoring less than 15 are considered to be unrestrained eaters. The RS has
demonstrated adequate discriminant validity from social desirability measures and a high internal
consistency, $\alpha=0.82$ (Allison, Kalinski, & Gorman, 1992). In the present study, Cronbach’s $\alpha =
0.77$. The sample RS mean was 14.91 (SD = 5.44).

**Post-Experiment Questionnaire:** Several questions were used to gauge participants’ experience
during the experiment. For example, participants indicated whether or not the milkshake preload
violated their diets and whether they knew the purpose of the study. These questions served as
manipulation checks.

**Procedure**

**Pre-Experiment:** After signing up and prior to participation in the in-lab session, participants
received a pre-experiment questionnaire via email. Participants were required to complete and
submit the pre-experiment questionnaire between 2 and 7 days prior to the in-lab appointment. This time frame is consistent with previous eating research that has used a pre-experiment questionnaire (e.g., Timko et al., 2012). The pre-experiment questionnaire included the Dieting Behavior Questions, Self-Perceptions Measure, and the Values Questionnaire. In order to reduce suspicion about the purpose of the study, participants were also asked to answer questions about sleep and study habits, as well as their perceptions about the importance of goals and activities related to general health, academics, and social relationships. The pre-experiment questionnaire was designed to provide background information about participants’ dieting and eating habits, as well as baseline self-perception and attitudes about dieting.

**Experiment:** At the in-lab session, the participant gave informed consent and was assigned to consume a milkshake or a glass of water.

*Diet Violation/Maintenance Manipulation:* The experimenter explained that the researchers were interested in the relation between personality and taste perception, specifically how one taste would influence another taste. The participants then drank a 15 oz. chocolate or vanilla milkshake or a 15 oz. glass of lemon or lime water.

After consuming the milkshake or water, the participant completed a packet of questionnaires. All participants completed the State Self-Esteem Scale. Half of the participants also completed the Self-Perceptions Measure and the Values Questionnaire. Only half of the participants completed the self-perception and attitude measures after consuming the preload because we were concerned that answering questions about dieting might influence participants’ subsequent eating behavior. By having only half of the participants complete the self-perception/attitudes measures immediately after the manipulation, we were able to obtain data on self-perception immediately following diet violation/maintenance and also unpolluted behavioral data for those who did not complete the self-perception and attitudes measures in the lab.

*Behavioral Measure:* After completing the post-milkshake/water questionnaires, the participant was told that she would be tasting and rating three types of snacks (Cheetos, Potato Chips, and Cool Ranch Doritos). The snacks were presented in three large bowls that had been
surreptitiously weighed in another room. The participant rated each snack on the Taste Rating Form. The participant was told she could eat as many chips as she liked and was given 10 minutes to complete the ratings. After 10 minutes, the experimenter removed the bowls to be re-weighed in another room.

The participant next completed another set of questionnaires, including the Demographics Questionnaire and the Restraint Scale. The experimenter collected this questionnaire before giving the participant the Post-Experiment Questionnaire. Finally, the participant was fully debriefed as to the true purpose of the study. Weight and height were measured for demographic purposes.

Results

Participants were 169 female undergraduate students. Twenty-eight participants did not pass the manipulation check (18 participants did not think the milkshake broke their diets and 10 thought the water broke their diets) and were thus excluded from analyses. One other participant was excluded from analyses because she refused to participate in the taste test and one participant did not complete the Restraint Scale. The final sample consisted of 139 participants (68 restrained eaters and 71 unrestrained eaters). Participants ranged in age from 18 to 43; the mean age was 19.04 years (SD = 2.75). The sample mean BMI was 24.09 (SD = 4.81 range = 15.9 - 41.1).

Pre-experiment self-perception and diet values

At pre-experiment, restrained and unrestrained eaters did not differ in their ratings of themselves as good dieters, as bad dieters, self-control ability, and as likely to succeed at dieting, ps > .05. Restrained eaters did, however, value dieting and dieting outcomes more (M = 45.03) than did unrestrained eaters (M = 36.78), t(131) = 4.64, p < .001. Those randomly assigned to consume a milkshake and those assigned to consume water did not differ initially in good dieter self-perception, t(135) = 1.16, p = .25, bad dieter self-perception, t(134) = .27, p = .79, and perceived likelihood of ultimate dieting success, t(135) = .76, p = .45. Those in the milkshake condition and those in the water condition also did not differ in initial diet values, t(132) = .30, p = .72.
How does diet violation or maintenance influence self-perceptions and attitudes about dieting?

First, we examined the effect of diet violation (consuming a milkshake) and non-violation (consuming a glass of water) on subsequent self-perception (i.e. good dieter, bad dieter, and likelihood of ultimately succeeding at dieting). It was hypothesized that participants who violated their diet by consuming the milkshake would have lower good dieter self-perception, lower perceived likelihood of succeeding at dieting, lower state self-esteem, and higher bad dieter self-perception than would participants who consumed the water. This effect was expected to be carried by restrained eaters. A 2 (diet violation yes/no) x 2 (restraint) ANOVA was conducted on each self-perception outcome. The analysis pertaining to good dieter self-perception revealed a main effect of condition, \( F(1, 70) = 6.42, p = .014 \). Participants who consumed the milkshake had higher good dieter self-perception (\( M = 4.87 \)) than did participants who consumed the water (\( M = 3.84 \)). There was no effect of restraint, \( F(1, 70) = .02, p = .90 \), and no interaction between restraint and diet violation, \( F(1,70) = 1.08, p = .30 \). The ANOVA on bad dieter self-perception revealed no significant effect of restraint, \( F(1, 70) = .02, p = .89 \), no effect of diet violation, \( F(1, 70) = 1.62, p = .21 \), and restraint x diet violation interaction, \( F(1, 70) = .19, p = .66 \). Likewise, there was no effect of restraint, \( F(1, 70) = .18, p = .68 \), no effect of diet violation, \( F(1, 70) = .63, p = .43 \), and no restraint by diet violation interaction effect, \( F(1, 70) = .01, p = .94 \), on perceived likelihood of ultimate dieting success. Finally, there was no effect of diet violation on state self-esteem, \( F(1, 135) = 2.03, p = .15 \) and no diet violation by restraint interaction, \( F(1, 135) = .82, p = .37 \). There was, however, a main effect of restraint, \( F(1, 135) = 6.86, p = .01 \). Restrained eaters reported lower states self-esteem (\( M = 68.40 \)) than unrestrained eaters (\( M = 73.28 \)).

We also conducted a 2 (diet violation: yes/no) x 2 (restraint) ANOVA on diet values (i.e., the extent to which participants valued dieting and dieting outcomes). It was expected that diet values would be lower among those who consumed the milkshake than among those who consumed water. This effect was expected to be especially true among restrained eaters. There was a significant main effect of restraint, \( F(1, 70) = 11.11, p = .001 \); as was the case pre-experiment, restrained eaters had higher diet values (\( M = 45.13 \)) than did unrestrained eaters (\( M = 37.07 \)).
= 37.19). There was also a marginal main effect of diet violation, \( F(1, 1, 70) = 3.04, p = .09 \). Those who consumed water reported marginally higher diet values (\( M = 44.21 \)) than did those who consumed the milkshake (\( M = 39.48 \)). There was no diet violation by restraint interaction, \( F(1, 70) = 1.54, p = .90 \). See Table 5 for mean self-perception and values by violation/maintenance and restraint.

**Does diet violation or maintenance predict subsequent eating behavior?**

We examined whether violating a diet (by consuming the milkshake) or maintaining the diet (by consuming water) predicted subsequent intake during a taste test. It was expected that restrained eaters who violated their diets would consume more calories during the taste test than would restrained eaters who did not violate their diet. Unrestrained eaters were expected to regulate; that is, unrestrained eaters who consumed the milkshake were expected to eat less during the taste test than unrestrained eaters who consumed water. Because some participants completed the self-perceptions and attitudes measures after consuming the milkshake or water and some did not, an ANOVA was conducted including time of completion of self-perceptions and attitudes measures as an independent variable to determine if completing these measures influenced eating behavior; it did not, \( F(1, 131) = .399, p = .529 \). Therefore, a 2 (diet violation: yes/no) x 2(restraint) ANOVA was conducted on calories consumed during the taste test. There was a main effect of diet violation, \( F(1, 135) = 10.693, p = .001 \). Participants who consumed water ate more calories subsequently (\( M = 269.97 \)) than did participants who consumed the milkshake (\( M = 184.91 \)). There was no main effect of restraint, \( F(1, 135) = 1.02, p = .31 \), but there was a violation by restraint interaction, \( F(1, 135) = 5.489, p = .02 \). Unrestrained eaters in the water condition ate more (\( M = 306.69 \)) than did unrestrained eaters in the milkshake condition (\( M = 230.73 \)), \( p < .001 \). Restrained eaters who consumed the milkshake did not significantly differ in subsequent caloric consumption from restrained eaters who consumed water, \( p = .52 \). Among participants who consumed the milkshake, restrained eaters ate more subsequently (\( M = 214.72 \)) than did unrestrained eaters (\( M = 155.85 \)), \( p = .01 \). There was no significant difference between the subsequent consumption of restrained (\( M = 230.73 \)) and unrestrained eaters who drank water (\( M = 306.69 \)), \( p = .378 \). See Figure 5.
**Does self-perception predict subsequent eating behavior?**

We also examined the effect of post-milkshake/water self-perception and diet values on caloric intake. It was hypothesized that viewing oneself more positively in regards to dieting (i.e., a good dieter, not a bad dieter, more likely to ultimately succeed at dieting, higher state self-esteem) would predict less consumption of a high-calorie food compared to viewing oneself negatively. It was also predicted that higher diet values would predict reduced eating of a high calorie food compared to low diet values. We regressed diet violation, restraint, and self-perception variables on caloric consumption. There was only a main effect of violation, $B = -78.54$, $SE = 34.46$, $t = -2.28$, $p = .03$. Those who consumed the milkshake subsequently ate fewer calories than those who consumed water. Post-violation/maintenance self-perception and values did not predict eating: good dieter self-perception, $B = -18.22$, $SE = 17.16$, $t = -1.06$, $p = .29$; bad dieter self-perception, $B = -16.73$, $SE = 13.49$, $t = -1.24$, $p = .22$; likelihood of success, $B = 7.67$, $SE = 10.13$, $t = .76$, $p = .45$; state self-esteem, $B = 1.77$, $SE = 1.69$, $t = 1.05$, $p = .30$; values, $B = -.83$, $SE = 1.75$, $t = -1.31$, $p = .22$.

Because we had information about participants’ initial self-perception and diet values, we examined whether pre-experiment self-perceptions and values predicted eating during the taste test. A regression examining the effects of diet violation, restraint, pre-experiment good dieter, bad dieter, likelihood of success, and values on eating revealed no effects beyond that of condition described above, $ps > .05$.

**Do self-perceptions and diet attitudes mediate the relation between diet violation/non-violation and subsequent caloric consumption?**

We hypothesized that diet violation/non-violation would influence subsequent eating because of its effect on self-perception and attitudes about dieting. We found evidence that consuming water predicted higher caloric consumption than consuming a milkshake. We also found some evidence that violation/maintenance predicted subsequent (good dieter) self-perception and diet values. However, we did not find evidence that self-perceptions are associated with subsequent
eating behavior. Therefore, in accordance with guidelines established by Baron and Kenny (1986), mediation was not tested.

Discussion and Conclusions

The aim of Dissertation Study 4 was to examine the influence of diet violation and maintenance on subsequent self-perception and attitudes about dieting and eating behavior. Further, Dissertation Study 4 investigated whether self-perceptions and attitudes mediated the relation between diet violation/maintenance and subsequent behavior. We found evidence that violating or maintaining a diet predicted eating behavior. Specifically, participants who consumed water subsequently ate more snack chips than did those who consumed a milkshake. This pattern was carried by unrestrained eaters. Restrained eaters, on the other hand, consumed the same amount of snack chips regardless of whether they had initially consumed water or a milkshake. Therefore, unrestrained eaters demonstrated regulation, as expected, but restrained eaters demonstrated neither regulation nor counterregulation. This finding was unexpected but is in line with some previous research that has found no relation between consumption of a high-calorie preload and subsequent eating (e.g., Timko, Juarascio, & Chowansky, 2012; Tomiyama, Moskovich, Haltom, & Mann, 2009).

We found evidence that diet violation or maintenance predicted attitudes about dieting. As expected, participants who consumed water reported that they valued dieting and dieting outcomes to a marginally greater extent than did participants who consumed a milkshake. This finding is in line with Self-Perception Theory’s assertion that our attitudes are inferred from our behaviors (Bem & McConnell, 1970). Surprisingly, there was no diet violation/maintenance by restraint interaction. We also found some evidence that violating or maintaining a diet predicted subsequent self-perception. While most types of self-perception were unrelated to diet violation or maintenance, participants who consumed a milkshake reported higher good dieter self-perception than did participants who consumed water. This finding was not in line with our predictions nor was it in line with Self-Perception Theory. It is possible that participants did not view a single diet violation to be reflective of dieting ability and thus reported that they were, in
general, good dieters. Further, diet violators may have reported higher good dieter self-perception than did diet maintainers because diet violators viewed consumption of the milkshake as a challenge to the diet. According to Counteractive Control Theory (Trope & Fishbach, 2000), experiencing a temptation or challenge to a long-term goal increases motivation to pursue that goal. Perhaps participants who consumed the milkshake felt motivated to continue dieting and thus rated themselves as better dieters than did participants who consumed water.

Diet violation/maintenance did not predict most self-perception outcomes. It is possible that being assigned to consume a single diet-breaking food in a lab setting did not produce shifts in self-views. Work in the area of self-perception has found that behaviors are more likely to affect self-views and attitudes when they were done of free will, rather than when the behavior was viewed as forced or rewarded in some way (e.g., Apsler, 1976; Burger & Caldwell, 2003). Dissertation Study 4 also found no evidence that self-perception and attitudes predict subsequent eating behavior, and we were therefore unable to test whether self-perception mediated the relation between diet violation/maintenance and subsequent eating. On one hand, these findings (or lack thereof) point to the possibility that diet-related self-perceptions and attitudes do not predict eating. On the other hand, they may only suggest that single instances of diet violation in the lab do not have particularly strong influences on self-perception and that these self-perceptions, in turn, do not have effects on behavior in the lab.

Dissertation Study 5 was designed to examine the relations between diet violation, self-perceptions and attitudes, and eating behavior in the real world using the experience sampling method. By using experience sampling, we should be able to overcome certain shortcomings of investigating our questions in the lab. Specifically, we would be able to examine multiple instances of diet violation and maintenance and their effects on subsequent self-perception, attitudes, and eating. Participants’ eating behavior would also be performed under conditions of free choice; therefore, we will be better able to examine the effect of diet violations and maintenance on self-views and attitudes. By using experience sampling to study the relations between diet violation/maintenance, self-perceptions and attitudes, and subsequent eating behavior in the real world, we may gain a better understanding of the role that self-perceptions and attitudes play in the ultimate success or failure of diets.
Chapter 6
Dissertation Study 5

Introduction

To this point, our research had not found definitive evidence that dieters’ self-perceptions are influenced by diet-congruent and diet-incongruent behaviors, and we have found some contradictory evidence related to how behaving in diet-congruent or diet-incongruent ways affects subsequent diet-related behavior. In order to examine these questions more closely, we designed a study investigating the immediate influence of diet violation and diet maintenance in the real world. Dissertation Study 5 used Experience Sampling Method (ESM) to examine real-world diet violations/maintenance and their influence on dieter self-perceptions, attitudes, and subsequent behavior. ESM was designed to study idiographic information, or within-person patterns of behavior. It involves a naturalistic, repeated survey protocol (Conner et al., 2009). Therefore, ESM was suited to Dissertation Study 5, which gathered data from participants throughout the day over seven days.

ESM has been used to study some aspects of dieting in the past. Hofmann et al. (2012) examined daily temptations (including those related to eating behaviors and dieting) and resistance to temptation. They found that more temptation was related to more resistance and more resistance was related to less enactment of the temptation. Hofmann and colleagues concluded that people are quite good at self-control overall. Other studies have more directly examined the factors associated with dieters’ desires to eat and eating behavior. Kronick et al. (2011) used ESM to study dieters’ compensatory beliefs, behavioral intentions, and overall daily caloric consumption. They found that dieters who had more compensatory beliefs and intentions (e.g., “I can eat this cake because I’ll compensate for it later.”), consumed more calories overall than did those who did not have these beliefs and intentions. Further, Kubiak et al. (2008) used ESM to study the role of rumination in the eating behavior of obese adolescents enrolled in a weight-loss program. They found that daily hassles and negative affect increased desire to eat and that rumination mediated the relationship. Therefore, ESM is useful for the study of dieters’ daily behaviors. Although these previous studies pinpointed some factors that may affect dieters’ eating
behaviors, only one ESM study has examined the effect of diet violations on subsequent eating. Tomiyama and colleagues (2009) asked dieters to report on eating behavior every hour for two days. They found no evidence of counterregulation (i.e., no evidence that diet violations were associated with subsequent violations).

The first aim of Dissertation Study 5 was to examine the relation between diet violation/maintenance and subsequent eating behavior. Previous research has found contradictory evidence regarding how experiences of failure and diet violations affect subsequent goal pursuit. In the eating regulation literature, there is ample evidence suggesting that consuming a high-calorie preload predicts subsequent overeating (counterregulation; e.g., Herman & Mack, 1975; Sin & Vartanian, 2012). There is also evidence to suggest that consuming a preload does not influence subsequent eating; that is, diet violations are not detrimental to the weight-loss goal (e.g., Jansen et al., 1988; Tomiyama et al., 2009). Outside of the eating regulation literature, there is also evidence to suggest that task failure may in some cases improve motivation (e.g. Brunstein, 2000). Study 1 of this dissertation supported the latter; it was found that dieters who received diet failure feedback performed better on a subsequent weight-loss-relevant exercise task than did those who received diet success feedback.

By using ESM, our research can also aid in the understanding of how diet violations/diet maintenance, self-views and attitudes, and subsequent eating behaviors are related outside of the lab, in the real world. Self-Perception Theory suggests that our behaviors have the power to influence and shift our attitudes and self-views (Bem, 1967). Although previous research has found that behaving in ways incongruent with personally-held attitudes produced shifts in attitude in the direction of the incongruent behavior (e.g., Bem & McConnell, 1970; Guild, Strickland, & Barefoot, 1977), the previous studies of this dissertation did not produce such conclusive findings. Dissertation Study 3 produced findings most in line with those reported in the self-perception literature; dieters who selected an unhealthy snack decreased in diet values from pre-experiment to post-snack selection, whereas dieters who selected a healthy snack did not change in diet values. Dissertation Studies 2 and 4 produced some contradictory results. In Dissertation Study 2, attitudes shifted after participants consumed a lot of a high-calorie snack; however the shift was in an unexpected direction. Specifically, people who ate a lot of a high-
calorie snack increased in diet values from pre-experiment to post-experiment. Similarly, we found in Study 4 that people reported higher good dieter self-perception after diet violation than after non-violation. No other self-perceptions were affected by diet violation/non-violation in Study 4. Study 4 also found that those who violated their diet reported marginally lower diet values than did those who did not violate their diets; this is in line with Self-Perception Theory. Higher good dieter self-perception(from Study 4) and higher diet values (from Study 2) after diet violation may be in line with Counteractive Control Theory (Trope & Fishbach, 2000), which posits that temptations and challenges to long-term goals may actually boost motivation to pursue the goal, rather than be detrimental to goal-pursuit. Therefore, dieters who violate their diets might experience a boost in intentions to diet (and/or compensate for violation; Kronick et al., 2011) and diet values, which may be enough for dieters to see themselves as good dieters. Clearly, there is no conclusive information about how self-views and attitudes are affected by diet violation. Accordingly, the second goal of Dissertation Study 5 was to examine the effect of diet violations on self-perceptions and attitudes using ESM.

Outside of this dissertation, only one study has examined the influence of self-perception on subsequent eating behavior in a laboratory setting. In a study by Polivy and Herman (1991) participants were induced to see themselves as good dieters, bad dieters, or they received no manipulation before they either violated their diets by consuming a large preload or did not violate their diets. Participants then took part in a supposed taste test during which their consumption of a high-calorie food was measured. Restrained eaters in the “good dieter” and “bad-dieter” conditions had lower intake than did restrained eaters in the control/no self-perception condition. Thus, thinking about dieting ability (good or bad) and being presented with a challenge to the diet suppressed dieters’ intake compared to not thinking about dieting ability. Although no other study has examined the influence of self-perceptions on eating or dieting behavior, a body of research has examined the association between self-perceptions and engagement in health behaviors. This research has demonstrated that the way people perceive themselves predicts behaviors better than how people actually are. For example, people who viewed themselves as overweight led more sedentary lifestyles than did people who perceived themselves as normal weight, regardless of actual weight status (Antronette et al., 2006). The third aim of Dissertation Study 5 was, thus, to examine using ESM whether diet-related self-
perceptions (after diet violation or maintenance) predicted subsequent reported eating. Further, we planned to test whether self-perceptions mediated the relation between diet violation and subsequent behavior.

**Hypotheses**

We hypothesized that diet violations and diet maintenance would influence dieters’ self-perceptions and attitudes about dieting. Specifically, if dieters experienced a diet violation, they should subsequently report more negative attitudes about dieting (i.e., less valuing of dieting and diet-related outcomes) and they should perceive themselves more negatively in areas related to dieting (i.e., less of a good dieter, more of a bad dieter, lower in self-control ability, less likely to ultimately succeed at dieting) compared to dieters who maintained their diets. This precise question has not been examined in the eating/dieting literature, but the self-perception literature has found that people infer attitudes and self-views from behaviors (i.e. Bem, 1967; Burger & Caldwell, 2003). Thus, if they infer their own attitudes from their behavior, dieters who violate their diets should subsequently view themselves more negatively (in areas related to dieting) and they should infer more negative attitudes about dieting compared to dieters who did not violate their diets. Alternatively, dieters who violated their diets might subsequently view themselves more positively in areas related to dieting and might value dieting more than dieters who did not violate their diets. This alternative hypothesis is in line with Kronick et al.’s (2011) finding that diet violation was related to more compensatory intentions and Counteractive Control Theory (Trope & Fishbach, 2000), which suggests that challenges to the long-term dieting/weight-loss goal may result in increased motivation to diet.

We also hypothesized that diet violation and diet maintenance would predict subsequent eating. Because there is evidence to suggest that the direction of the effect of violation on subsequent eating may go either way, we present two alternative hypotheses. It is possible that dieters who violate their diets would be more likely to violate their diets again at the next eating episode compared to non-violators. Previous research has found that dieters who violate their diets (by consuming a high-calorie preload) go on to overeat in a subsequent taste test (e.g., Herman & Mack, 1975). However, it is also possible that diet violation may predict less likelihood of
subsequent violation compared to diet maintenance. This second prediction is based on Dissertation Study 1’s finding that dieters performed better on an exercise task after receiving diet failure feedback than after receiving diet success feedback. There is a larger body of literature that has found failure to be related to better performance on goal-related activities (e.g., Brunstein, 2000; O’Connell, 2005).

Further, we hypothesized that self-perceptions would mediate the relation between diet violation or diet maintenance and subsequent eating. Therefore, dieters who violated their diets should subsequently violate their diets because of more negative diet-related self-perceptions and more negative attitudes about dieting. Dieters who maintain their diets should continue to maintain their diets because of more positive diet-related self-perceptions and more positive attitudes about dieting. This prediction is in line with previous research that has found that attitudes and self-views predict behavior (e.g., Burger & Caldwell, 2003).

Finally, we expected that the effects predicted above should be especially pronounced in some participants. We explored several individual difference variables (i.e., self-regulatory success, self-compassion, dieter identity, general valuing of dieting and dieting outcomes, and dietary restraint) that may affect how dieters react to diet violations and maintenance. The moderating role of restrained eating was explored because restrained eaters (i.e., chronic dieters) have been shown to be especially vulnerable to overeating after diet violation (e.g., Herman & Mack, 1975). It was also expected that self-compassion would moderate the effects of violation on self-perceptions and behavior. Self-compassion refers to self-knowledge, a sense of common humanity, and mindfulness. It is correlated with many positive outcomes, such as stable self-worth and less rumination, and more secure attachment (Neff, 2009). Research has also found self-compassion to be beneficial to diet maintenance. For example, self-compassion is positively associated with intuitive eating and negatively associated with overeating after consuming a high-calorie preload (Adams & Leary 2007; Schoenefeld & Webb, 2013). Further, we anticipated that perceived self-regulatory success may influence how dieters respond to diet violation. There is a body of research pointing to the importance of perceived self-regulatory success in successful dieting. For example, Meule, Papies, and Kubler (2012) found perceived self-regulatory success in dieting (PSRS) to be negatively related to BMI and rigidity in dieting
rules, both of which are associated with better dieting outcomes. It is possible that dieters who consider themselves to be generally successful eating self-regulators may not be influenced by momentary failures in the same way that dieters low in perceived self-regulatory success may be affected. Perceived self-regulatory success in dieting may be an interesting predictor of responses to diet violation and maintenance because previous research has demonstrated that perceptions are better predictors of diet/health behavior than is reality (e.g., Antronette et al., 2006). Previous research, thus, suggests that individual difference factors may play a role in how dieters’ behaviors and self-perceptions/attitudes are affected by experiences of diet violation and maintenance.

In sum, Dissertation Study 5 was designed to examine several questions:

1. How do experiences of diet violation and maintenance influence subsequent self-perceptions and attitudes about dieting?
2. Do experiences of diet violation and maintenance predict subsequent eating behavior?
3. Do self-perceptions and attitudes about dieting mediate the relation between diet violation/maintenance and subsequent eating?
4. What role do individual differences play in determining the relations between diet violation/maintenance, self-perception and attitudes, and subsequent eating behavior?

Method

Participants were 79 female current dieters from the Introductory Psychology and paid participants pools at the University of Toronto Mississauga during the spring and summer of 2014. Participants attended an in-lab session before beginning the experience-sampling part of the study. During the experience-sampling portion of the study, participants received seven questionnaires per day for seven consecutive days. Five participants dropped out of the study after the in-lab session and before starting the ESM questionnaires, leaving us a total of 74 participants.

Materials administered during the in-lab session
**Demographics**: Participants provided general demographic information, including age and year-in-university. Participants also responded to questions regarding their current diets (type of diet, currently dieting yes/no, previous experience with dieting).

**Restraint Scale** (Polivy, Herman, & Howard, 1988): The RS is a 10-item scale that measures chronic dieting. Participants scoring 15 or higher on the RS are considered to be restrained eaters; participants scoring less than 15 are considered to be unrestrained eaters. The RS has demonstrated adequate discriminant validity from social desirability measures and a high internal consistency, $\alpha=.82$ (Allison, Kalinski, & Gorman, 1992). In this ESM study, Cronbach’s $\alpha = .69$. The sample RS mean was 17.56, $SD = 5.05$.

**Perceived Self-Regulatory Success Scale** (Fishbach, Friedman, & Kruglanski, 2003): The PSRS is a three-item self-report measure of perceived dieting success. The three items are embedded within other items in order to obscure the purpose of the measure from participants. Participants respond to the items using a 7-point Likert scale. Participants scoring one or more standard deviations above the mean are considered to be successful self-regulators and participants scoring one or more standard deviation below the mean are considered to be unsuccessful self-regulators. Meule, Papies, and Kubler (2012) found Cronbach’s $\alpha = .72$ and .79. They also concluded that the PSRS scale is a valid measure of dieting success because it correlates negatively with other variables associated with less dieting success, such as Body Mass Index, dieting rigidity, food cravings, concern for dieting, food addiction, and binge eating. In the ESM study, Cronbach’s $\alpha = .70$. The sample PSRS mean score was 12.04, $SD = 3.24$.

**Adapted Values Questionnaire** (Coelho, Polivy, Herman, & Pliner, 2008): This measure was adapted from the Values Questionnaire used by Trope and Fishbach (2000) and consists of six items measuring the extent to which participants value losing weight, dieting, devoting efforts to eating less, maintaining a diet when others around them are eating unhealthy food, being thin, and overcoming urges to eat unhealthy food. Participants respond on an 11-point scale, ranging from “not at all important” to “very important”. The ratings on the items were summed to create a total score that ranged from 6 to 66; a higher score indicated greater diet values. The Adapted VQ has been shown to have high internal consistency, $\alpha = .87$ (Coelho et al., 2011). For our
sample, Cronbach’s \( \alpha = .83 \). The mean score for our sample was 44.22, SD = 11.09. In our study, the Adapted VQ was administered in-lab to capture general attitudes about dieting and also during the ESM part of the study to capture momentary diet values.

**Dieter Identity Scale** (unpublished scale): This is an 11-item measure in which participants indicate on a nine-point scale (1 being “not at all” and 9 being “extremely”) the extent to which they consider dieting to be central to their identity. There has not been any published information about the validity and reliability of this scale. For this study, Cronbach’s \( \alpha = .90 \). The sample mean score was 52.05, SD = 15.62.

**Self-Compassion Scale** (SCS, Neff, 2003): This is a 12-item measure of self-compassion. The measure consists of three subscales associated with the three components of self-compassion: self-kindness, common humanity, and mindfulness. Participants indicate their agreement with items using a five-point scale. The responses are averaged in order to obtain the score. Previous work has demonstrated that the SCS has high internal consistency, \( \alpha = .93 \) (Neff, 2003). In our study, Cronbach’s \( \alpha \) for the overall scale was .75. The sample mean score was 2.84, SD = .63.

**Materials administered via Qualtrics**

**Experience Sampling Questionnaire:** The Experience Sampling Questionnaire was designed to capture participants’ self-report of eating behaviors, self-views, and attitudes about dieting throughout the day. The questionnaire was programmed and administered using Qualtrics, an online survey and data collection platform. The questionnaire asked participants whether or not they had eaten since the last prompt and whether or not they violated their diets. Participants also rated their agreement on a 10-point line with various current self-views, including “I am a good dieter”; “I am a bad dieter”, “I have excellent self-control”, and “I am likely to ultimately succeed at my diet”. Participants also completed the Adapted Values Questionnaire and a one-item measure of self-esteem (i.e., “In this moment, I am someone with high self-esteem”). See Appendix A for ESM questionnaire.

**Procedure**
Participants signed up for a study supposedly examining personality and daily habits. They were invited to the lab in groups of four or fewer for a session in which they completed a packet of in-lab questionnaires. After the participants completed the questionnaire, the experimenter explained the experience-sampling portion of the study. Participants were told that for seven consecutive days after the in-lab session, they would be completing short questionnaires on Qualtrics, an online survey and data collection platform. Participants were prompted via email to complete the Experience Sampling Questionnaire 7 times per day for 7 consecutive days. The prompts occurred during seven two-hour blocks between 10am and 10pm. Similar methods have been used in other ESM research (Hofmann et al., 2011; Kronick et al., 2011; Kubiak et al., 2008). In addition, participants were prompted to report on sleep habits, energy levels, spending behavior, and drinking habits, in order to mask the purpose of the study. Participants were encouraged to attend to the questionnaire prompt within an hour of its arrival and to respond to as many prompts as possible. Participants were awarded 25 cents for each completed Experience Sampling Questionnaire. At the end of the seven-day period, participants came back to the lab for payment and debriefing.

Data and Analyses

Analyses involved Multilevel Modeling. Each participant provided violation and self-perception data over the course of seven days. A two-level model was used in order to account for participant data nested within days by estimating a random intercept for each day using variance components covariance structure and the Satterthwaite method of estimating degrees of freedom.

First, we examined whether dieters were more likely to violate their diets or not violate their diets after an instance of diet violation. Data were included in this analysis if participants reported eating behavior within two or four hours (or two prompts) of each other. For example, if participants reported eating at 10am and then again at 12pm, this data was included in the analysis. If participants reported eating at 10am and then not again until 4pm, the effect of eating at 10am on eating at 4pm was not tested. Then, we examined whether diet violation or maintenance was associated with subsequent self-perception and attitudes. In this analysis, we examined the effect of violation or non-violation on self-perceptions within a prompt. For
example, if participants responded to a prompt at 12pm, both eating behavior and self-perceptions were measured. The effect of eating at 12pm (or having eaten between 10 and 12) on self-perceptions at 12pm was assessed. Additionally, we examined whether self-perceptions and attitudes predicted subsequent eating. Specifically, we examined whether self-perception during a prompt immediately preceding an eating episode or within 4 hours (two prompts) preceding the eating episode predicted violation/non-violation during the eating episode. If analyses revealed a relation between diet violation or maintenance and subsequent eating behavior, we planned to examine whether self-perceptions mediated this effect. Finally, we examined whether and how individual difference variables measured in-lab (i.e. restraint, self-compassion, etc.) moderated the relations between diet violation, self-perceptions and attitudes, and subsequent behavior.

Participants were encouraged to respond to as many prompts as possible and were paid for each completed ESM questionnaire. Despite our efforts to encourage compliance, participants responded to only 50% of the prompts, leaving us with 1,917 cases for analysis.

**Results**

*Sample Characteristics.* Participants were 79 female undergraduate students who indicated that they were currently dieting for weight-loss or weight-maintenance. Of these 79 participants, 74 completed both the in-lab and experience-sampling portions of the study (56 restrained eaters and 18 unrestrained eaters). The mean age of the sample was 20.41 (SD = 3.44) years, with participants ranging from 18 to 44 years of age. Fifty-five participants indicated that they were currently dieting for weight-loss and 18 indicated that they were dieting for weight-maintenance (One participant skipped this question.). On average participants reported having undertaken 3.46 (SD = 3.30; range = 0 to 20) previous diets. The sample mean BMI was 23.12 (SD = 4.93, range = 16.33 to 43.31).

*Diet violation/maintenance and subsequent eating*

The study examined whether diet violation or maintenance predicted subsequent diet violation/maintenance. Multilevel logistic regression was used to examine this question to take into
account nested data and because the dependent variable in this case was binary (violated diet: yes/no). Violation predicted less likelihood of subsequent violation, \( b = -0.88, SE = .318, t(501) = -2.767, p = .006 \), odds ratio = .42:1. See Figure 6. Perceived self-regulatory success helped to explain how diet violation/maintenance relates to subsequent violation/maintenance, \( b = -0.27, SE = .10, t(485) = -2.57, p = .011 \), odds ratio = .77:1. Previous violation did not predict subsequent eating behavior among those low in PSRS, \( b = -0.44, SE = .37, t(500) = -1.18, p = .24 \). Among those high in PSRS, violation was associated with less likelihood of subsequent violation, \( b = -1.59, SE = .47, t(499) = -3.42, p = .001 \), odds ratio = .20:1. See Figure 7.

**Diet violation/maintenance and subsequent self-perception**

It was hypothesized that violating or maintaining a diet would predict dieters’ subsequent self-perceptions. After instances of diet violation, it was expected that dieters would see themselves less positively compared to after instances of diet maintenance. Dieter self-perception was assessed using ratings of being a good dieter, being a bad dieter, perceived self-control ability, momentary self-esteem, and likelihood of ultimately succeeding at dieting.

We begin by presenting analyses on good and bad dieter self-perception. There was a main effect of diet violation on good dieter self-perception in that dieters’ ratings of being a good dieter were lower after diet violation \( (M = 4.31) \) than after diet maintenance \( (M = 6.99) \), \( b = -2.31, SE = .390, t(755.09) = -5.91, p < .001 \). Similarly, dieters’ bad dieter self-perception was higher after violation \( (M = 6.07) \) than after non-violation \( (M = 3.28) \), \( b = 1.67, SE = .44, t(733.46) = 3.81, p < .001 \). There was also a significant violation x perceived self-regulatory success (PSRS) interaction effect and a violation x diet values interaction effect on good dieter self-perception, \( b = .84, SE = .04, t(812.46) = 2.09, p = .037 \), and \( b = -.04, SE = .17, t(773.81) = -2.27, p = .024 \), respectively. The effect of violation on bad dieter self-perception, on the other hand, was moderated only by self-compassion, \( b = -8.98, SE = 2.31, t(747.43) = -2.75, p = .006 \).

Simple effects showed that perceived self-regulatory success (PSRS) predicted good dieter self-perception after diet violation, \( b = .02, SE = .07, t(73.18) = 3.29, p = .002 \), but not after diet maintenance, \( b = .12, SE = .07, t(83.63) = 1.75, p = .085 \). After violation, those high in PSRS had
higher good dieter self-perception ($M = 6.85$) than those low in PSRS ($M = 5.43$), but there was no difference between high ($M = 7.93$) and low PSRS ($M = 7.14$) after diet-maintenance. See Figure 8.

Furthermore, general diet values (measured at the in-lab session) moderated the effect of violation on good dieter self-perception, $b = -.38$, $SE = .18$, $t(758.39) = -2.14$, $p = .033$. The extent to which participants valued dieting and dieting outcomes did not predict good dieter self-perception after diet maintenance, $b = -.036$, $SE = .021$, $t(82.80) = -1.75$, $p = .083$. Diet values did, however, predict good dieter self-perception after violation, $b = -.057$, $SE = .020$, $t(72.94) = -2.83$, $p = .006$. After violation, highly valuing dieting and dieting outcomes was associated with lower good dieter self-perception ($M = 5.43$) compared with not highly valuing dieting and dieting outcomes ($M = 6.70$). See Figure 9.

Self-compassion moderated the relation between diet violation and bad dieter self-perception. Self-compassion did not predict bad dieter self-perception after diet maintenance, $b = -.308$, $SE = .388$, $t(79.88) = -.79$, $p = .430$, but it did predict bad dieter self-perception after diet violation, $b = -.958$, $SE = .374$, $t(68.45) = -2.56$, $p = .013$. Those higher in self-compassion had lower bad dieter self-perception after violation ($M = 3.29$) compared to those lower in self-compassion ($M = 4.49$), while those high and low in self-compassion did not differ in bad dieter self-perception after diet maintenance (high self-compassion $M = 2.36$; low self-compassion $M = 2.74$). See Figure 10.

Diet violation also predicted dieters’ perceptions of self-control ability. Violation was associated with less perceived self-control ability ($M = 4.0$) compared to diet maintenance ($M = 6.43$), $b = -1.51$, $SE = .37$, $t(778.54) = -4.03$, $p < .001$. This effect was moderated by self-compassion, $b = .61$, $SE = .28$, $t(797.44) = 2.20$, $p = .028$, and the extent to which participants valued dieting and dieting outcomes, $b = -.07$, $SE = .02$, $t(804.75) = -3.90$, $p < .001$. Levels of self-compassion did not predict self-perceived self-control ability after diet maintenance, $b = .32$, $SE = .26$, $t(92.17) = 1.21$, $p = .228$. However, self-compassion did predict self-control ability after violation, $b = .77$, $SE = .24$, $t(71.65) = 3.20$, $p = .002$. After violation, participants higher in self-compassion reported greater perceived self-control ability ($M = 6.29$) compared to participants lower in self-
compassion ($M = 5.32$). See Figure 11. Similarly, diet values did not predict perceived self-control ability after diet maintenance, $b = -.02, SE = .01, t(93.70) = -1.36, p = .176$, but did predict perceived self-control ability after violation. People who valued dieting and dieting outcomes highly reported lower perceived self-control ability after violation ($M = 5.31$) compared to their counterparts who did not value dieting as highly ($M = 6.21$), $b = -.04, SE = .01, t(72.73) = 3.21, p = .002$. See Figure 12.

Participants also reported on perceived likelihood of ultimately succeeding at dieting after diet violation or diet maintenance. Participants reported greater likelihood of success after instances of dieting maintenance ($M = 6.37$) compared to instances of dieting violation ($M = 4.42$), $b = -.82, SE = .33, t(798.37) = -2.51, p = .012$. This effect was moderated by the extent to which participants valued dieting and dieting outcomes, $b = -.03, SE = .01, t(821.85) = -2.15, p = .032$. Diet values did not predict perceived likelihood of success after diet maintenance, $b = -.02, SE = .01, t(88.0) = -1.61, p = .112$, but it did predict perceived likelihood of success after violation, $b = -.04, SE = .01, t(72.73) = -2.94, p = .004$. After violation higher diet values were related to lower perceived likelihood of success ($M = 5.37$) compared to low diet values ($M = 6.27$). See Figure 13.

Analyses comparing momentary self-esteem after violation and after non-violation indicated only a violation x perceived self-regulatory success interaction, $b = .09, SE = .03, t(845.06) = 2.78, p = .006$. There was an effect of violation on momentary self-esteem for those low in perceived self-regulatory success, $b = -.95, SE = .12, t(831.04) = -7.66, p < .001$, but not for those high in perceived self-regulatory success, $b = -.22, SE = .16, t(858.51) = -1.35, p = .177$. Among those low in perceived self-regulatory success, violation was associated with lower momentary self-esteem ($M = 5.43$) than maintenance, ($M = 6.09$). Perceived self-regulatory success did not influence momentary self-esteem after diet maintenance, $b = .08, SE = .06, t(83.74) = 1.39, p = .167$, but did influence momentary self-esteem after violation, $b = .16, SE = .06, t(73.23) = 2.88, p = .005$. After violation, those high in perceived self-regulatory success reported higher momentary self-esteem ($M = 6.56$) than those low in perceived self-regulatory success ($M = 5.43$). See Figure 14.
Diet violation/maintenance and subsequent attitudes about dieting

Participants reported on the extent to which they valued dieting and dieting outcomes after diet violation and diet maintenance. It was hypothesized that, after instances of diet violation, dieters would report less momentary valuing of dieting and diet outcomes compared to after instances of dieting maintenance. The data did not support this hypothesis. Diet values were not affected by experiences of diet violation/maintenance, $b = .73$, $SE = 1.53$, $t(690.14) = .48$, $p = .63$. There were no interactions. Diet values measured in the lab, however, predicted diet values during the ESM portion of the study, $b = .70$, $SE = .13$, $t(65.26) = 5.56$, $p < .001$, demonstrating that diet values were relatively stable.

For a summary of findings related to the effect of diet violation/maintenance on subsequent self-perceptions and diet-related attitudes, see Table 6.

Self-perception and subsequent eating

We examined whether self-perception predicted subsequent diet violation or maintenance. On its own, greater good dieter self-perception predicted less likelihood of reported diet violation, $b = -.01$, $SE = .006$, $t(644) = -2.09$, $p = .037$, odds ratio: .99:1. Bad dieter self-perception on its own did not significantly predict subsequent eating reports, $b = .01$, $SE = .006$, $t(586) = 1.85$, $p = .065$, odds ratio = 1:1. Bad dieter self-perception interacted with self-compassion to predict subsequent violation/maintenance, $b = -.03$, $SE = .014$, $t(565) = -2.16$, $p = .031$, odds ratio = .97:1. Self-compassion did not predict subsequent reported violation among those who reported low bad dieter self-perception, $b = -.51$, $SE = .30$, $t(584) = -1.67$, $p = .10$. However, self-compassion did predict violation among those who reported high bad dieter self-perception, $b = -.76$, $SE = .33$, $t(580) = -2.33$, $p = .02$, odds ratio = .47:1. Every 1-unit increase in self-compassion was associated with .47-unit decrease in likelihood of reported diet violation among those who saw themselves as bad dieters. See Figure 15.

On its own, high perceived self-control ability predicted less likelihood of subsequent violation, $b = -.18$, $SE = .065$, $t(660) = -2.714$, $p = .007$, odds ratio = .84:1. Perceived self-control also interacted with perceived self-regulatory success to predict subsequent eating, $b = -.05$, $SE = .02,
\( t(632) = -2.06 \), odds ratio = .95:1. Among those who rated their self-control ability as high at the most recently reported eating episode, high perceived self-regulatory success predicted less likelihood of subsequent violation, \( b = -.21, SE = .06, t(650) = -3.46, p = .001 \), odds ratio = .81:1. That is, every 1-unit increase in PSRS predicted .81-unit less likelihood of subsequent violation among those who rated themselves high in self-control ability. PSRS did not predict subsequent violation/non-violation among those who rated themselves low in self-control ability. See Figure 16. This effect was not found among those low in PSRS.

On their own, high perceived likelihood of ultimate dieting success and high momentary self-esteem predicted less likelihood of subsequent violation, \( b = -.19, SE = .07, t(658) = -2.58, p = .010 \), odds ratio = .83:1 and \( b = -.16, SE = .07, t(632) = -2.22, p = .027 \), odds ratio = .86:1. They did not, however, interact with any of the individual difference variables. Diet values did not predict subsequent violation/maintenance, \( b = .01, SE = .01, t(636) = .75, p = .452 \).

For a summary of findings related to the effect of self-perceptions and attitudes on subsequent reported violation/maintenance, see Table 7.

**Mediation**

We hypothesized that self-perceptions and attitudes about dieting would mediate the relation between violations/maintenance and subsequent violations/maintenance. This hypothesis was tested using a variant of the causal steps approach (Baron & Kenny, 1986), amended for 1-1-1 multilevel mediation (Zhang, Zyphur, & Preacher, 2009) because the predictor and the mediator varied across responses. Thus, the response-level averages of violations and self-perception scores and attitude scores were included as a covariate in the final model and violation and self-perception and attitude scores were group-mean centered in the final model.

Three multilevel models were run for each possible mediator: good dieter self-perception, bad dieter self-perception, perceived self-control, perceived likelihood of ultimately succeeding at dieting, momentary self-esteem, and diet values. First, self-perception and attitude scores were modeled as a function of the diet violation/maintenance immediately preceding it. Then, diet violation/maintenance was modeled as a function of previous violation/maintenance. Finally, diet
violation/maintenance was modeled as a function of preceding violation/maintenance, average preceding self-perception or attitude scores, and group-mean centered preceding self-perception or attitude scores.

We found at Step 2 that violation predicted less likelihood of subsequent violation, \( b = -0.880, SE = 0.32, t(501) = -2.767, p = 0.006 \). We now present findings at Step 1 for each potential mediator. Violation predicted lower good dieter self-perception, \( b = -1.678, SE = 0.198, t(408.61) = -8.47, p < 0.001 \), higher bad dieter self-perception, \( b = 1.722, SE = 0.201, t(368.98) = 8.42, p < 0.001 \), lower perceived self-control, \( b = -1.63, SE = 0.19, t(427.29) = -8.59, p < 0.001 \), and lower perceived likelihood of ultimately succeeding at dieting, \( b = -1.27, SE = 0.157, t(422.72) = -8.06 \). Additionally, diet violation did not significantly predict momentary self-esteem and diet values, \( b = -0.27, SE = 0.16, t(399.24) = -1.69, p = 0.09 \) and \( b = -1.49, SE = 0.77, t(357.88) = -1.92, p = 0.06 \), respectively. Because the independent variable did not significantly predict the potential mediating variables diet values and momentary self-esteem, the test of mediation was not performed on these variables.

At Step 3, both preceding self-perception/attitude and preceding violation/maintenance were included in the multilevel model to predict violation/maintenance. When both violation/maintenance and self-perception were included in the analysis, good dieter self-perception did not predict subsequent violation/maintenance, \( b = -0.012, SE = 0.008, t(643) = -1.538, p = 0.13 \). Therefore, a test of mediation was not possible for this potential mediator.

Bad dieter self-perception predicted higher likelihood of subsequent violation, \( b = 0.02, SE = 0.01, t(438) = 2.03, p = 0.04 \). The effect of violation on subsequent violation/maintenance was no longer significant when bad dieter self-perception was also included in the model, \( b = -0.64, SE = 0.37, t(438) = -1.74, p = 0.08 \). Sobel Z for the mediation effect was 5.02, \( p < 0.001 \). This analysis suggests that bad dieter self-perception mediates the relation between violation and subsequent violation/maintenance, but also that the mediation is inconsistent. That is, violation predicted less likelihood of subsequent diet violation except when bad dieter self-perception is added to the equation, in which case, violation predicts subsequent violation through its relation to higher bad dieter self-perception. See Figure 17 for an illustration of the mediating effect of bad dieter self-
perception on the relation between diet violation and subsequent reported violation. Moreover, higher perceived self-control significantly predicted lower likelihood of subsequent violation, $b = -0.27, SE = 0.10, t(482) = -2.66, p = .008$. The effect of violation on subsequent violation was still significant but to a lesser degree, $b = -0.76, SE = 0.36, t(482) = -2.11, p = .036$, suggesting that perceived self-control partially mediates the relation between violation and subsequent violation/maintenance, Sobel $Z = 2.58, p = .01$. See Figure 18 for an illustration of the mediating effect of perceived self-control on the relation between diet violation and subsequent reported violation. We also found that perceived likelihood of success predicted less likelihood of subsequent violation, $b = -0.25, SE = 0.10, t(482) = -2.48, p = .014$. The effect of violation on subsequent violation/maintenance was still significant but to a lesser extent, $b = -0.74, SE = 0.35, t(482) = -2.11, p = .035$, Sobel $Z = 2.38, p = .02$. See Figure 19 for an illustration of the mediating effect of perceived likelihood of ultimately succeeding at dieting on the relation between diet violation and subsequent reported violation. This suggests that partial mediation occurred. Again, the partial mediations can be interpreted in terms of inconsistent mediation; violation predicted less likelihood of subsequent violation unless perceived self-control or likelihood of ultimate dieting success was added to the equation. If violation predicted lower perceived self-control and lower perceived likelihood of succeeding at dieting, then violation predicted higher likelihood of reported subsequent violation through its relation to self-perception.

**Discussion and Conclusions**

In Dissertation Study 5, we examined the relations between diet violation/maintenance, self-perceptions and attitudes, and subsequent diet violation/maintenance outside of the lab. Over the course of a week, current dieters reported on their eating behaviors and diet-related self-views and attitudes. We found evidence that diet violation/maintenance predicts subsequent self-perceptions and some attitudes about dieting. In line with our hypotheses, dieters who reported diet violations subsequently viewed themselves less favorably in diet-related domains (i.e., less of a good dieter, more of a bad dieter, less perceived self-control, and having a lower likelihood of ultimate dieting success). This finding is also in line with studies in the Self-Perception literature that have found that behaviors influence self-views and attitudes such that they shift in
the direction of the behavior (e.g., Bem & McConnell, 1970). Therefore, for dieters, behaving in diet-incongruent ways predicted negative diet-related self-perceptions. Contrary to hypotheses, and to Self-Perception Theory (Bem, 1967), we did not find evidence that committing diet violations predicted less valuing of diet-related behaviors and outcomes; there was no relation between diet violation/maintenance and diet values. Diet values may not be linked to a single instance of diet violation/maintenance because the extent to which dieting and dieting outcomes is valued might be an enduring individual difference variable. Our data suggest that general diet values and momentary diet values are highly related.

We also found evidence in Study 5 that diet violation/maintenance predicts subsequent reported eating behavior. Contrary to our hypothesis, we found evidence that, overall, people who reported a diet violation at one eating episode were less likely to report a diet violation at the subsequent eating episode. Therefore, diet violation predicted less diet-breaking behavior at the next eating episode compared to maintaining a diet. This finding contrasts with the counterregulation literature. Past research has found that dieters who violated their diets by consuming high-calorie foods subsequently overate when other high-calorie foods were available (e.g., Herman & Mack, 1975; Sin & Vartanian, 2012). Dieters in our experience sampling study seemed instead to regulate their eating; that is, they refrained from further diet violation after committing an initial diet violation. Our finding suggests that, in the real world, dieters are generally good at self-regulation, at least immediately following a diet violation. Our research is in line with the findings of Dissertation Study 1, which found that dieters spent more time exercising after being told they had violated their diets than after being told they had maintained their diets. It is also in line with research that had demonstrated that task failure predicts better performance on subsequent related tasks (e.g., Brunstein, 2000). Future research might examine why dieters were less likely to violate their diets immediately following a diet violation.

Although participants were overall less likely to report subsequent diet violation after an initial diet violation, further analysis of the data suggests that this may not always be true. When we considered the associations between self-perceptions and likelihood of subsequent diet violation, we found that higher levels of positive diet-related self-perceptions (e.g., perceptions of being a good dieter and of likelihood of dieting success) were related to less likelihood of subsequent
violation, and lower levels of positive self-perceptions were related to more likelihood of subsequent violation. This finding is in line with research that has shown that self-perceptions are associated with subsequent behavior (e.g., Dolinski, 2000; Sabiston & Crocker, 2008). We also found some initial evidence of mediation. Of our possible mediators (i.e., self-perceptions and attitudes), only bad dieter self-perception, perceived self-control, and perceived likelihood of ultimate dieting success at least partially mediated the relation between diet violation/maintenance and subsequent likelihood of diet violation/maintenance. Specifically, our data suggest that diet violation predicted lower likelihood of subsequent diet violation unless the initial violation was related to negative self-perceptions. Therefore, our research suggests that it is not true across the board that diet violations necessarily predict better subsequent dieting behaviors; dieters who feel more positively about themselves after diet violation may be the ones who are more able to subsequently maintain their diets, while those who feel more negatively about themselves after diet violation may subsequently continue to violate their diets. Because partial mediation was found in our study, future research should replicate this finding. Further, future studies might explore other variables that may mediate the relation between diet violation and subsequent weight-loss goal-directed pursuit. For example, researchers might examine whether rumination mediates the relation between diet violation and subsequent diet-related behaviors. Previous research has found a link between rumination and desire to eat (Kubiak et al., 2008).

Although our examination of individual difference moderators was mostly exploratory in nature, our findings suggest that perceived self-regulatory success, self-compassion, and the extent to which people generally value dieting and dieting outcomes were significant moderators of the relation between diet violation/maintenance, self-perceptions, and subsequent reported behaviors. Our study adds to previous research that has identified these factors as important for predicting dieting outcomes (e.g., Adams & Leary 2007; Fishbach, Friedman, & Kruglanski, 2003; Meule, Papiès, & Kubler, 2012).

In sum, Dissertation Study 5 examined the relation between diet violation/maintenance, self-perception/attitudes, and subsequent behavior. The findings of this study shed light on how these factors interact outside of the lab. Our findings demonstrated that behaviors influenced self-
perceptions. Moreover, instances of violation predicted less likelihood of subsequent violation overall. This relation is complicated, however. Our study found initial evidence that self-perceptions may at least partially mediate the relation between diet violation and subsequent violation. Specifically, our research suggests that diet violations predict less subsequent violation only if positive self-perceptions were maintained after violation. Although this research points to self-perception as one avenue by which the effect of diet violation on subsequent violation may be explained, it also points to the possibility that other mediators are involved and should be explored.
Chapter 7

General Discussion

Although dieting for weight loss or weight maintenance is prevalent in North America (Brownell, 1991; Fayet, Petocz, & Samman, 2012; Kruger, Galuska, Serdula, & Jones, 2004), sustained success at dieting (i.e., losing weight and maintaining the weight loss) is difficult to achieve (Wing & Phelan, 2005). This dissertation examined the immediate behavioral, self-perceptual, and attitudinal consequences of diet violation and diet maintenance in order to better understand some of the factors that may be related to ultimate dieting success or failure. We examined the relations between diet violation and maintenance, self-perceptions, attitudes about dieting, and subsequent diet-related behaviors in four experimental and one experience-sampling study.

The goal of restrained eating is to limit caloric intake in order to lose or maintain weight; however, there is evidence to suggest that dieting may make restrained eaters, or chronic dieters, vulnerable to overeating after diet violations. Restrained eaters who violate their diets (or perceive themselves to have violated their diets) by consuming a high-calorie preload have been found to subsequently overeat other high-calorie foods (e.g., Herman & Mack, 1975; Polivy, Herman, & Deo, 2010; Sin & Vartanian, 2012). Other research, however, has found no evidence that diet violation leads to counterregulation (e.g., Jansen et al., 1988; Timko, Juarascio, & Chowansky, 2012; Tomiyama et al., 2009). Further, outside of the eating literature, research suggests that failure at goal-relevant tasks may improve motivation and performance on subsequent goal-relevant tasks (e.g., Brunstein, 2000; Matherly, 1986). Clearly, there is uncertainty about how diet violation might affect subsequent pursuit of the dieting goal. Therefore, the first purpose of this dissertation was to examine the effects of diet violation and diet maintenance on subsequent diet-goal-directed behaviors.

Studies 1, 4, and 5 provided some evidence that receiving diet failure feedback or violating a diet was beneficial to subsequent weight-loss goal pursuit. Specifically, dieters who received diet failure feedback in Study 1 subsequently spent more time walking on a treadmill than did dieters who received diet success feedback. Likewise, dieters in Study 4 and the experience sampling
study demonstrated eating regulation after a reported diet violation. The results of these studies suggest that dieters do not (necessarily) counterregulate after diet violation; rather, they may regulate or compensate after diet violation. These findings are also in line with previous research that has demonstrated better performance on relevant tasks after initial failure (e.g., Brunstein, 2000). Contrary to Studies 1 and 5, Studies 2 and 4 (when examining restrained eaters only) found no evidence of compensation after diet violation. The lack of significant findings in Study 2 may be due to participants not perceiving the consumption of a small diet-incongruent snack to be a diet violation. We cannot be sure what participants thought of the diet-congruent/diet-incongruent snacks because there was no manipulation check. The restrained eaters in Study 4 did confirm that consuming a large milkshake was diet-violating; however, they neither regulated nor counterregulated subsequently (in line with the findings of Jansen et al., 1988). A summary of effects of violation on subsequent behavior by study can be found in Table 8. This table also contains effect sizes and observed power for each effect.

There are several possible explanations for our contradictory findings. First, dieters in Study 1 may have spent more time on the treadmill after violation because the treadmill task presented an opportunity to compensate for the violation without regulating eating. Second, dieters may be better at regulating eating after dieting violation in the real world than in a contrived lab setting. For example, dieters in Study 4 were subsequently presented only with a high-calorie snack to taste and rate. Dieters in the ESM study (Study 5) may not have experienced an equivalent temptation at the subsequently reported eating episode. Finally, the rigidity or flexibility of dieting rules may explain the contradictory findings. Flexible dieting is positively correlated with perceived self-regulatory success in dieting, which, in turn, is associated with indicators of actual dieting success (e.g., lower BMI and successful avoidance of high-calorie foods; Meule, Westenhofer, & Kubler, 2011; Papes, Stroebe, & Aarts, 2008). It is possible that dieters with more rigid dieting rules (i.e., restrained eaters) may find it more difficult to regulate after a diet violation than dieters with more flexible dieting rules. However, although our studies’ findings were inconsistent, none of our studies found evidence of counterregulation.

The second aim of this dissertation was to examine the relations between diet violation, self-perceptions, and attitudes about dieting, as well as to test whether self-perceptions and attitudes mediate the relation between diet violations and subsequent weight-loss goal-related behavior.
Self-Perception Theory (Bem, 1967) posits that we infer our attitudes and personal attributes from our behaviors, especially when those attitudes and attributes are either uncertain or are characterized by ambivalence. According to Goal Conflict Theory (Stroebe et al., 2008), dieters have conflicting goals: the goal of losing weight and the goal of consuming palatable food. Thus, dieters feel ambivalent about food and the act of dieting. Because of this ambivalence, it is plausible that dieters may infer their diet-related attitudes and self-perceptions from their behaviors. The examination of self-perceptions and attitudes is important because previous research has found them to be predictive of future behavior (e.g., Burger & Caldwell, 2003; Dolinski, 2000).

In our studies, we found some support for our hypothesis that diet violation/maintenance would predict attitudes about dieting and diet-related self-perceptions. However, we found evidence that self-perceptions predicted subsequent behavior only in Study 5. In Studies 2 through 5, there was at least some evidence that diet-congruent and diet-incongruent behaviors predicted subsequent attitudes and self-perceptions. Contrary to our hypotheses, self-perceptions and attitudes shifted in an unexpected direction in Studies 2 and 4. Dieters reported that they valued dieting and dieting outcomes to a higher extent and felt dieting to be more central to their identity after behaving in a diet-incongruent than in a diet-congruent way in Study 2. Similarly, participants in Study 4 rated themselves higher in good dieter self-perception after consuming a diet-violating milkshake than after consuming water. The findings of Studies 3 and 5 were more in line with our hypotheses and the predictions of Self-Perception Theory. That is, behaving in diet-congruent ways predicted higher diet values than did behaving in diet-incongruent ways (Study 3), and people reported less positive views of the self as a dieter after committing a diet violation than after maintaining a diet (Study 5). See Table 8 for a summary of effects of violation on subsequent self-perceptions by study.

It is possible that the results of Studies 2 and 4 contradicted those of Studies 3 and 5 because of the circumstances surrounding diet-incongruent behaviors or diet violations. Previous research has demonstrated that being able to justify a goal-inconsistent behavior makes that behavior more likely and more acceptable (De Witt Huberts, Evers, & Ridder, 2014). In Studies 2 and 4, participants were required to break their diets for the sake of the experiment. Participants may have subsequently viewed themselves more positively and had more positive attitudes because
they attributed the violation to participation in the experiment, rather than a personal failure. Thus, participants knew that the experiment had required them to consume a high-calorie food that they normally would not consume; that is, they are good dieters because they do not usually do what they were forced to do in the lab. Conversely, participants freely made decisions about snack selection and eating in Studies 3 and 5; thus, diet violations in these studies produced negative feelings about the self and less positive attitudes about dieting, possibly because participants attributed the violation to personal choices and failures. This interpretation is also in line with research demonstrating that self-perceptions are more likely to change in the direction of a counterattitudinal behavior when the behavior was perceived to be freely chosen (e.g., Apsler, 1976).

Although we found some evidence that diet violations predicted self-perceptions, we found evidence to support our hypothesis that self-perceptions and attitudes would predict subsequent diet-related behavior only in Study 5. In this study, we found that more positive diet-related self-perceptions predicted less likelihood of subsequent diet violation compared to more negative self-views. Specifically, dieters who viewed themselves as better dieters, higher in self-control ability, and more likely to ultimately succeed at dieting were more likely to stick to their diets. In no other study did we find a relation between self-perceptions and subsequent behavior. Our findings are in line with work in the area of Self-Perception Theory demonstrating that shifts in self-perceptions predict subsequent behavior (e.g., Burger & Caldwell, 2003). They are also in line with research that has found a link between positive perceptions of health behavior self-efficacy and engagement in health behaviors (e.g., Sabiston & Crocker, 2008). Because we found support for our hypothesis that self-perceptions predicted behavior only in Study 5, further research is required in order to replicate the findings. It is also important to note that our self-perception variables were not all equally important for predicting subsequent diet violation. It appears that some self-perceptions may be stronger predictors of subsequent behavior than others. Specifically, perceived self-control ability and perceived likelihood of ultimately succeeding at dieting were stronger predictors of subsequent likelihood of dieting violation than perceptions of being a good or bad dieter. This finding suggests that self-efficacy-related self-perceptions (rather than entity-related self-perceptions) may be especially important predictors of behavior. This issue is discussed further in the Future Directions section. See Table 9 for a summary of findings regarding the effect of self-perceptions on subsequent behavior.
In Study 5, we were also able to test whether self-perceptions and attitudes mediated the relation between diet violation and subsequent likelihood of violation. It was found that lower bad-dieter self-perception, higher perceived self-control, and higher perceived likelihood of ultimately succeeding at dieting after diet violation partially explained the relation between violation and lower subsequent likelihood of violation. Although we found that diet violation was related to less likelihood of subsequent violation, our mediation analysis suggests that this may not always be the case. Self-perceptions may help to explain when violations predict subsequent non-violation and when they do not. Specifically, diet violation predicted less subsequent likelihood of violation unless bad dieter self-perception, perceived self-control, and perceived likelihood of subsequent violation were included as mediators. When these mediators were considered, the relation between diet violation and less subsequent violation was reduced or made insignificant. This suggests that diet violation predicts less subsequent violation unless dieters experience higher bad dieter self-perception, lower perceived self-control, or lower perceived likelihood of success after diet violation, in which case, negative self-perceptions predicted subsequent violation. Our findings also suggest that, while self-perceptions explain some of the relation between violation and subsequent likelihood of violation/maintenance, there are other factors that may mediate the relation between diet violation or maintenance and subsequent diet violation/maintenance.

A final aim of this dissertation was to explore how individual difference variables moderate relations between diet violation/maintenance, self-perceptions/attitudes, and subsequent diet-related behavior. We found evidence in Study 5 that individual difference factors, such as self-compassion, perceived self-regulatory success, and the extent to which dieting and dieting outcomes are generally valued, interacted with diet violation to predict self-perception and likelihood of diet violation. Specifically, for those high in self-compassion, those high in perceived self-regulatory success, and for those who valued dieting to a lesser extent, diet violation was not as detrimental to diet-related self-views. These factors also predicted less likelihood of violation after initial violation. Our findings are in line with previous research that has demonstrated positive effects of self-compassion in diet maintenance after violation and positive associations between perceived self-regulatory success and adherence to diets (Adams & Leary, 2007; Papies, Stroebe, & Aarts, 2008). Our findings add to the existing literature and
demonstrate that it is important to consider individual difference variables when examining the influence of diet violation on subsequent behavior and self-perception.

Several limitations should be recognized when considering the findings of this dissertation. First, our measurement of diet violation/diet-incongruent behavior varied from study to study. In Studies 1 through 3, participants received failure/success feedback or selected high-calorie foods that are generally diet-inconsistent or low-calorie foods that are generally considered diet-consistent. However, participants in these studies did not report on whether they felt that their behaviors actually violated their diets. Participants in Studies 4 and 5, on the other hand, did indicate whether or not a diet violation occurred. Past research has demonstrated that perceived diet violation is a better predictor of subsequent overeating than is actual caloric content of the food consumed (e.g., Herman, Polivy, and Deo, 2010; Polivy, 1976; Spencer & Fremouw, 1979). Because perception of diet violation is crucial when defining a diet violation, it may be hard to draw conclusions about Studies 1 through 3.

Another limitation of the studies in this dissertation is that the results of the studies are inconsistent with one another, making it difficult to draw conclusions. The direction of the effect of violation on subsequent self-perception and attitudes was contradictory in our studies. On the one hand, there was evidence in Studies 2 and 4 that behaving in diet-incongruent ways predicted more positive attitudes about dieting and about the self as a dieter. On the other hand, Studies 3 and 5 provided evidence that behaving in diet-incongruent ways predicted more negative attitudes about dieting (Study3) and more negative self-views (Study5). Likewise, our findings regarding behavior following diet violation were inconsistent from study to study. Although we found that behaving in diet-incongruent ways predicted better diet/weight-loss behaviors in Studies 1 and 5, there was no evidence of a relation between violation and subsequent eating behaviors in Studies 2 and 4. Contradictory findings within our series of studies make it difficult to draw conclusions. Similar to the first limitation, contradictory findings may have resulted from inconsistent ways of defining diet violation. Future investigations might determine how dieters define diet violation in order to more consistently study effects of diet violation. Contradictory findings may also be explained by conditions present in each study. As discussed above, Studies 2, 4, and 5 examined the influence of diet violation on subsequent eating behavior and self-perceptions, and they produced contradictory findings. This may be because participants
in the lab are forced to break their diets and then are required to at least taste a subsequent high-calorie food. Outside of the lab, diet violations cannot be explained by being “forced” to consumed an unhealthy food, and people may avoid high-calorie foods altogether after a diet violation. At the same time, we acknowledge that, outside of the lab, people may attribute diet violation to “circumstances” and may not take responsibility for diet violations.

Despite these limitations, the present dissertation provides some preliminary evidence that diet violations are related to self-perceptions and subsequent behavior. Diet violations predict subsequent self-perceptions and some attitudes about dieting. In turn, these self-perceptions may be one factor that predicts subsequent behavior. This dissertation provides the first test of whether self-perceptions mediate the relation between diet violation and subsequent eating behavior. Future studies might replicate our finding that self-perceptions have a partial mediating effect and may examine other mediators in the relation between diet violation and subsequent behavior. By examining mediators, research may shed light on factors that may help to predict ultimate dieting success.

**Future Directions**

Our results provide preliminary evidence that diet violations affect both self-perceptions and behaviors. There is also some evidence that self-perceptions may predict subsequent behaviors. The direction of these effects is unclear, however, and further research is required to more fully understand the nature of the relations between behaviors, self-perceptions, and subsequent dieting/weight-loss goal pursuit. Future research might first examine how dieters define a violation. Previous research has demonstrated that it is perceived violation that predicts subsequent eating behavior (e.g., Polivy, 1976). In our studies, violation was defined as consumption of a high-calorie preload (and receipt of failure feedback), selection of diet-incongruent snacks, and self-defined violation. It is important to determine how violations are defined in order to effectively manipulate diet violation and maintenance experimentally.

We found some evidence that self-perceptions predict subsequent likelihood of violation in Study 5 but not in Study 4. Future research might examine the relation between self-perceptions and subsequent diet/weight-loss goal pursuit in order to clarify whether this relation is reliable. In Study 5, we also found evidence that some types of self-perceptions may be more predictive
of future behavior than others. Specifically, perceived self-control and perceived likelihood of succeeding at dieting were stronger predictors of subsequent violation than perceptions of being a good or bad dieter. This finding suggests that self-efficacy-related self-perceptions may be especially important in the prediction of subsequent goal pursuit. Indeed, self-efficacy has been linked to the performance of health behaviors and adherence to treatment (e.g., Bandura, 2004). Previous research has also found that diet violation predicts lower self-efficacy (e.g., McKee, Ntoumanis, & Taylor, 2014) and that high self-efficacy is linked to successful weight-loss (Elfhag & Rossner, 2005). Future research might further examine self-efficacy self-perceptions and their role in mediating the relation between diet violations and subsequent goal pursuit.

As discussed above, how diet violations are attributed may affect whether and how they affect self-perceptions. When people are able to attribute a goal-inconsistent behavior to a source outside of themselves, they are more likely to enact the goal-inconsistent behavior and to view the transgression as an exception rather than the norm (De Witt Huberts, Evers, & Ridder, 2014). Future research might examine diet violation attributions more closely to determine whether they predict subsequent weight-loss goal pursuit and self-perceptions. For example, an experiment may manipulate dieters’ perceptions of choice in violating a diet (e.g., by forcing a preload or by subtly coercing participants to violate a diet) and then measure the violation’s effect on subsequent self-perceptions and eating behavior. There is evidence to suggest that counter-attitudinal behaviors are most likely to change self-perceptions when they are freely chosen, rather than forced (Apsler, 1976). We speculated above that violation attribution and perceptions of choice may have influenced our self-perception findings. Further research is required to determine whether this was the case. Moreover, previous research has also demonstrated that attributions can affect subsequent goal pursuit. On the one hand, making justifications for goal-inconsistent behavior predicted goal re-engagement in some studies (e.g., Smith, O’Neil, & Rhodes, 1999). On the other hand, it has also been found that justifying goal-inconsistent behaviors predicted continued goal-disengagement (Prinsen, Evers, & Ridder, 2016). Clearly, a closer examination of diet violation justifications and attributions and their effect on self-perception and behaviors is warranted.
Conclusions

Previous research has found that behaviors predict self-perceptions and that self-perceptions, in turn, can influence subsequent behavior. Past research has also found that goal-related task failure or diet violation may be related to a variety of behavioral outcomes (e.g., increased pursuit of goal-directed behavior, disengagement from goal-directed behavior, or no effect at all). This dissertation examined the relations between diet violation, self-perceptions/attitudes about dieting, and subsequent behavior. We found some preliminary evidence that diet violation predicts self-perception (e.g., perceptions of the self as a good/bad dieter, perceived self-control ability and likelihood of ultimately succeeding at dieting) and attitudes (i.e., dieter identity and diet values). We also found some evidence that dieters may regulate, rather than counterregulate after diet violation (but this finding was not consistently obtained). Our final study also found that self-perceptions may at least partially mediate the relation between diet violation and likelihood of subsequent violation. That is, more negative self-perceptions after diet violation may predict subsequent violation, rather than subsequent diet maintenance.

Taken together, the studies of this dissertation provide preliminary evidence that diet violations affect subsequent self-views and goal pursuit and that self-perceptions may, in turn, predict subsequent behavior. Although our studies produced inconsistent results, it is evident that self-perceptions may be one factor, but certainly not the only one, that may explain the effect of diet violation on subsequent goal pursuit. Thus, this dissertation begins to tease apart the relations that exist between diet violations, self-perceptions and attitudes about dieting, and subsequent behavior. Clearly, the relations are complex and further research is necessary in order to better understand the relations and the factors that may moderate them. Future research is also necessary in order to determine whether and how these relations predict ultimate dieting or weight-loss success and failure.
References


Tables

Table 1. Minutes spent on the treadmill by condition

<table>
<thead>
<tr>
<th></th>
<th>Success</th>
<th>Failure</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes spent on</td>
<td>3.45 (2.21)</td>
<td>6.34 (3.52)</td>
<td>4.59 (2.09)</td>
</tr>
<tr>
<td>treadmill</td>
<td>n=24</td>
<td>n=21</td>
<td>n=14</td>
</tr>
</tbody>
</table>
Table 2. Number of RAT items answered correctly by condition (Study 1)

<table>
<thead>
<tr>
<th></th>
<th>Success</th>
<th>Failure</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAT correct</td>
<td>1.63 (1.95)</td>
<td>3.10 (2.14)</td>
<td>2.14 (2.18)</td>
</tr>
<tr>
<td>responses</td>
<td>n=24</td>
<td>n=21</td>
<td>n=14</td>
</tr>
</tbody>
</table>
Table 3. Calories of chips consumed by restraint and snack selected (Study 2)

<table>
<thead>
<tr>
<th>Snack Selected</th>
<th>Restrained Eaters</th>
<th>Unrestrained Eaters</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>228.20 (n=20)</td>
<td>140 (n=15)</td>
<td>190.57 (n=35)</td>
</tr>
<tr>
<td>Doughnut</td>
<td>218.88 (n=13)</td>
<td>178.3 (n=18)</td>
<td>195.32 (n=31)</td>
</tr>
<tr>
<td>Control</td>
<td>142.42 (n=13)</td>
<td>158.23 (n=14)</td>
<td>150.62 (n=27)</td>
</tr>
<tr>
<td>Total</td>
<td>201.45 (n=46)</td>
<td>160.10 (n=47)</td>
<td>180.56 (N=93)</td>
</tr>
</tbody>
</table>
Table 4. Mean Dieter identity and diet values scores (SD) pre- and post-experiment by snack selection and restraint (Study 3)

<table>
<thead>
<tr>
<th></th>
<th>Restrained Eaters</th>
<th>Unrestrained Eaters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Apple/neither</td>
<td>Cupcake</td>
</tr>
<tr>
<td><strong>Pre Values</strong></td>
<td>48.11 (10.58)</td>
<td>50.00 (14.73)</td>
</tr>
<tr>
<td><strong>Post Values</strong></td>
<td>50.25 (9.45)</td>
<td>39.00 (17.58)</td>
</tr>
<tr>
<td><strong>Pre Dieter Identity</strong></td>
<td>51.00 (10.98)</td>
<td>54.00 (18.19)</td>
</tr>
<tr>
<td><strong>Post Dieter Identity</strong></td>
<td>57.5 (19.04)</td>
<td>47.00 (23.26)</td>
</tr>
</tbody>
</table>
Table 5. Mean self-perception and values by diet violation condition and restraint (Study 4)

<table>
<thead>
<tr>
<th></th>
<th>Violated Diet</th>
<th>Maintained Diet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Restained (n = 22)</td>
<td>Unrestrained (n = 24)</td>
</tr>
<tr>
<td>Good Dieter</td>
<td>4.67 (1.75)</td>
<td>5.05 (2.06)</td>
</tr>
<tr>
<td>Bad Dieter</td>
<td>4.47 (2.17)</td>
<td>4.16 (2.47)</td>
</tr>
<tr>
<td>Likely to Succeed</td>
<td>5.78 (1.90)</td>
<td>5.60 (2.68)</td>
</tr>
<tr>
<td>Diet Values</td>
<td>43.33 (9.49)</td>
<td>35.96 (10.27)</td>
</tr>
</tbody>
</table>
Table 6. Effect of diet violation on subsequent self-perception and attitudes about dieting (Study 5)

<table>
<thead>
<tr>
<th>Self-perception/Attitude</th>
<th>b</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good dieter***</td>
<td>-2.31</td>
<td>.39</td>
</tr>
<tr>
<td>Bad dieter***</td>
<td>1.67</td>
<td>.44</td>
</tr>
<tr>
<td>Perceived self-control***</td>
<td>-1.51</td>
<td>.37</td>
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<tr>
<td>Perceived likelihood of success*</td>
<td>-.82</td>
<td>.33</td>
</tr>
<tr>
<td>Momentary self-esteem</td>
<td>-.21</td>
<td>.32</td>
</tr>
<tr>
<td>Diet values</td>
<td>.73</td>
<td>1.53</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01 ***p < .001
Table 7. Effects of self-perception and attitudes on likelihood of subsequent violation (Study 5)

<table>
<thead>
<tr>
<th>Self-perception/Attitude</th>
<th>b</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good dieter*</td>
<td>-.01</td>
<td>.006</td>
</tr>
<tr>
<td>Bad dieter</td>
<td>.01</td>
<td>.006</td>
</tr>
<tr>
<td>Perceived self-control**</td>
<td>-.18</td>
<td>.065</td>
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<tr>
<td>Perceived likelihood of success*</td>
<td>-.19</td>
<td>.07</td>
</tr>
<tr>
<td>Momentary self-esteem*</td>
<td>-.16</td>
<td>.07</td>
</tr>
<tr>
<td>Diet values</td>
<td>.01</td>
<td>.01</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01 ***p < .001
Table 8. Summary of research findings: effect of violation on subsequent self-perception and behavior

<table>
<thead>
<tr>
<th>Study</th>
<th>Violation manipulation or violation type</th>
<th>Level of control</th>
<th>Behavior effect direction</th>
<th>Behavior effect size</th>
<th>Observed Power</th>
<th>Self-perception effect direction</th>
<th>Self-perception effect size</th>
<th>Observed Power</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Experimenter feedback</td>
<td>Low</td>
<td>Regulation</td>
<td>$\eta^2=.17$</td>
<td>.85</td>
<td>Increase in Values</td>
<td>$\eta^2=.03$</td>
<td>$.50</td>
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<td>2</td>
<td>Small snack $\rightarrow$ self-perception Chip consumption $\rightarrow$ behavior</td>
<td>Medium</td>
<td>No effect</td>
<td>$\eta^2=.02$</td>
<td>.24</td>
<td>Increase in Values Dieter identity</td>
<td>$\eta^2=.05$</td>
<td>.40</td>
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<tr>
<td>3</td>
<td>Snack selection</td>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td>Decrease in Values</td>
<td>$\eta^2=.19$</td>
<td>.63</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No effect on Dieter Identity</td>
<td>$\eta^2=.13$</td>
<td>.30</td>
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<tr>
<td>4</td>
<td>Pre-load consumption</td>
<td>Low</td>
<td>Regulation (for current dieters) No effect for restrained eaters</td>
<td>$\eta^2=.07$</td>
<td>.90</td>
<td>Increase in Good dieter</td>
<td>$\eta^2=.08$</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>No effect on Bad Dieter</td>
<td>$\eta^2=.02$</td>
<td>.02</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Likelihood of dieting success</td>
<td>$\eta^2=.009$</td>
<td>.12</td>
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<td></td>
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<td></td>
<td></td>
<td>Self-esteem</td>
<td>$\eta^2=.01$</td>
<td>.29</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Values</td>
<td>$\eta^2=.04$</td>
<td>.41</td>
</tr>
<tr>
<td>5</td>
<td>Self-defined violation</td>
<td>High</td>
<td>Regulation</td>
<td>$\beta=-.88$</td>
<td>.22</td>
<td>Decrease in Good dieter</td>
<td>$\eta^2=.07, \eta^2=.19$</td>
<td>.49, .96</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Self-control</td>
<td>$\eta^2=.02, \eta^2=.38$</td>
<td>.16, .98</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Likelihood of dieting success</td>
<td>$\eta^2=.02, \eta^2=.37$</td>
<td>.16, .98</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Increase in Bad dieter</td>
<td>$\eta^2=.12, \eta^2=.33$</td>
<td>.78, .98</td>
</tr>
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</table>
Table 9. Summary of research findings: effect of self-perception on subsequent behavior (tested only in Studies 4 and 5)

<table>
<thead>
<tr>
<th>Study</th>
<th>Violation manipulation or violation type</th>
<th>Level of control</th>
<th>Behavior effect direction</th>
<th>Behavior effect size</th>
<th>Observed power</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Pre-load consumption</td>
<td>Low</td>
<td>No effect of Good dieter Bad dieter Likelihood of dieting success State self-esteem Values</td>
<td>( \eta^2 = .0001 ) ( \eta^2 = .01 ) ( \eta^2 = .01 ) ( \eta^2 = .12 ) ( \eta^2 = .0001 )</td>
<td>.04 .14 .14 .05 .04</td>
</tr>
<tr>
<td>5</td>
<td>Self-defined violation</td>
<td>High</td>
<td>Positive self-perceptions predicted less subsequent violation Good dieter Bad dieter Self-control Likelihood of success</td>
<td>( \beta = -.01 ) ( \beta = .01 ) ( \beta = -.18 ) ( \beta = -.21 )</td>
<td>.05 .22 .06 .06</td>
</tr>
</tbody>
</table>
Figures

Figure 1. Illustration of mediation hypothesis (Introduction)
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Figure 17. Inconsistent mediation in which bad dieter self-perception mediates the relation between diet violation and likelihood of subsequent violation (Study 5)

Sobel Z = 5.02***

Bad dieter self-perception

$b = 1.72**$, $SE = .20$

$b = -.88**$, $SE = .32$

Diet violation

$SE = .37$

Likelihood of subsequent violation

$b = .02*$, $SE = .01$

$b = -.64$, $SE = .37$

*p < .05, **p < .01, ***p < .001
Figure 18. Inconsistent partial mediation in which perceived self-control mediates the relation between diet violation and likelihood of subsequent violation (Study 5)

Sobel $Z = 2.58^*$

Perceived self-control

$\beta = -1.63^{***}$, $SE = .19$

Diet violation $\beta = -.88^{**}$, $SE = .32$

Likelihood of subsequent violation $\beta = -.76^*$, $SE = .36$

$p < .05$, $**p < .01$, $***p < .001$
Figure 19. Inconsistent partial mediation in which perceived likelihood of ultimately succeeding at dieting mediates the relation between diet violation and likelihood of subsequent violation (Study 5)

Sobel Z = 2.38*

Perceived likelihood of diet success

\[ b = -1.27^{***}, \quad SE = .16 \]

Diet violation

\[ b = -.88^{**}, \quad SE = .32 \]

Likelihood of subsequent violation

\[ b = -.74^{*}, \quad SE = .35 \]

*\( p < .05 \), **\( p < .01 \), ***\( p < .001 \)
Appendix A

ESM Questionnaire (Study 5)

Prior to our notification, did you eat?
- Yes, I ate since the last notification.
- I'm currently eating.
- I'm not eating and I have not eaten since the last notification.

What exactly did you eat? Tell us what foods you ate and how many portions of each.
Were you eating in public (cafeteria, restaurant) or private (home, dorm)?
- In public
- In private

Were you eating alone (totally alone) or with others?
- Alone
- With others

During the eating episode, were you tempted to violated/break your diet?
- Yes
- No

Rate the strength of the temptation.

<table>
<thead>
<tr>
<th></th>
<th>very weak</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of temptation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Did you violate your diet during your last eating episode?
- Yes
- No
To what extent do you agree with the following statements right now?

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 2 4 6 8 10</td>
<td>0 2 4 6 8 10</td>
</tr>
<tr>
<td>I am a good dieter</td>
<td>I am a bad dieter</td>
</tr>
</tbody>
</table>

Rate your self-control ability.
- I have terrible self-control
- I have excellent self-control

How likely are you to succeed at your diet?
- Very unlikely to succeed
- Very likely to succeed

Do you plan to continue dieting today?
- Yes
- No
- I am not currently dieting today.
Please rate the following statements according to how important they are to you right now.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all important</th>
<th>Moderately important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Losing weight</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Getting high course marks</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Getting adequate sleep</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Dieting</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Devoting efforts to eating less</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Wearing fashionable clothes</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Maintaining a diet when others are eating unhealthy foods</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Being thin</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Being viewed as powerful</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Being viewed as moral</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Overcoming urges to eat unhealthy foods</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
To what extent do you feel the following right now?

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tense</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Angry</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Worn out</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lively</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Successful</td>
<td>○</td>
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<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Anxious</td>
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<td>○</td>
</tr>
<tr>
<td>Sad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Grouchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energetic</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Unworthy</td>
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<td>○</td>
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<td>○</td>
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<tr>
<td>Uneasy</td>
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<tr>
<td>Happy</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Carefree</td>
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<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Discouraged</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Like a failure</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

In this moment, I am someone with high self-esteem.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1     2     3     4     5     6     7     8     9</td>
<td></td>
</tr>
<tr>
<td>In this moment, I am someone with high self-esteem</td>
<td>○     ○     ○     ○     ○     ○     ○     ○     ○</td>
<td></td>
</tr>
</tbody>
</table>
Since the last prompt, did you...

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>want to consume alcohol?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>feel like taking a nap?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>think about your study habits?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>consider exercising?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>want to purchase something?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Did you consume alcohol?
○ Yes
○ No

Did you sleep or nap since the last prompt?
○ Yes
○ No

Did you make any purchases since your last prompt?
○ Yes
○ No

We thank you for your time spent taking this survey. Your response has been recorded.