The Relationship Between Dieting History and Diet-Related Cognitive Schemata

Anna R. Walton

Pacific University
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THE RELATIONSHIP BETWEEN DIETING HISTORY AND DIET-RELATED COGNITIVE SCHEMATA

A THESIS

SUBMITTED TO THE FACULTY

OF

THE SCHOOL OF PROFESSIONAL PSYCHOLOGY

PACIFIC UNIVERSITY

HILLSBORO, OREGON

BY

ANNA R. WALTON

IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE

OF

MASTER OF SCIENCE IN CLINICAL PSYCHOLOGY

4/12/10

APPROVED: ______________________________

Daniel Muñoz, Ph.D.
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Abstract

Although diets are currently the primary treatment for obesity, there are many psychological and physiological barriers to weight loss and maintenance, including the lack of reinforcement one obtains from dietary restriction. The purpose of this study is to investigate the hypothesis that a more extensive dieting history is correlated with more negative thoughts, or schemata, about diets. One hundred fifty participants, including current dieters (28), past dieters (61), and non-dieters (61) took a survey that included questions about dieting history, the Revised Restraint Scale, the Eating Attitudes Test (EAT-26), and the Diet Schemata Questionnaire. Correlations and one-way analyses of variance (ANOVAs) were conducted, and the study’s main hypothesis was not supported by the data. Contrary to expectation, current dieters had significantly more positive associations with diets than the other groups. Possible explanations for these results, including study limitations, are discussed.

Keywords: Diet, restrictive eating, cognitive schemata, eating behavior, dieting attitudes
The Relationship between Dieting History and Diet-Related Cognitive Schemata

Obesity and dieting are frequently discussed topics in popular media as well as psychological and medical literature. In the United States, approximately 66% of the population is overweight and 33% is obese (Kolata, 2007). Obesity, defined by a body mass index of 30 and above, is arguably America’s number one health issue, and has been linked to certain cancers, heart disease, diabetes, and other health conditions (Centers for Disease Control and Prevention, 2009). Treatments for obesity include bariatric surgery and, more commonly, dieting. For the purposes of this study, a diet is defined as a purposeful effort to lose weight by significantly changing one’s eating habits for the amount of time necessary to achieve the desired weight loss. The goal of a diet is to lose weight and maintain the weight loss. However, this goal is rarely attained: Psychological research on dieting and eating issues illustrates that the vast majority of the time, long-term weight loss efforts fail (Gazzaniga & Heatherton, 2003; Heatherton, Polivy, & Herman, 1990; University of California, 2007). Although it is difficult for some people to start diets, the greater difficulty lies in maintaining the healthy diet and weight loss (Gazzaniga & Heatherton, 2003; University of California, 2007). Physiological, behavioral, emotional, and cognitive factors contribute to diet failures. Reworking treatments for obesity may be necessary, as dieting often creates more problems than it solves, such as patterns of extreme over- and under-eating (Heatherton, Polivy, & Herman, 1990).

The current study will explore the connection between a history of dieting behaviors and dieters’ cognitions. A core assumption of this study (stemming from cognitive-behavioral theories) is that cognitions have a strong impact on behaviors, and vice versa (Beck, 1972). When there is dissonance between the two, the resolution of this conflict restores cognitive-behavioral congruence (Gilovich, Keltner, & Nisbett, 2005). If someone attempts to diet but
hates feeling restricted by dietary limitations, this conflict can either be resolved by developing cognitions that justify the dieting behavior, or behaviors (such as overindulging) that justify the person’s negative cognitions about diets. Thus, the more negative cognitions one has about diets, the more likely the diet attempt will fail due to thoughts and feelings of deprivation, restriction, and lack of reinforcement. It follows that effective treatment for obesity would include not only a weight-loss program, but also psychoeducation about decreasing negative diet-related cognitions and increasing positive cognitions regarding healthy lifestyle behaviors.

Cognitive schemata are one of the factors that can impair weight loss efforts. Schemata are clusters of thoughts that help humans define who they are in relation to others. These thoughts help humans organize and make sense of emotions, behaviors, and physiological sensations in various contexts (Markus, 1977). Schemata can be conscious or unconscious, as well as fact-based or illogical. Most people have schemata for body weight, body image, and eating behavior (Markus, Hamill, & Sentis, 1987). However, some people are more “schematic” in this domain than others, in that they have extensive schemata relating to body weight, tend to think more about food, perfectionism, and body size, and tend to evaluate their self-worth on the basis of these schemata (Markus et al., 1987). One hypothesis is that the most “schematic” people in this domain develop disordered eating behaviors, the least “schematic” individuals do not care about body weight, dieting, or eating behaviors, and that dieters lie somewhere in the middle (Morris, Goldsmith, Roll, & Smith, 2001). Previous studies have supported the idea that restrictive dieting and negative self-schemata are correlated (Morris et al., 2001; Nauta, Hospers, Jansen, & Kok, 2000), and that negative schemata have a negative impact on treatment outcomes for obesity and eating disorders (Israel, Stolmaker, & Andrian, 1985). It is important that we
study diet schemata so that we can influence behaviors in a more positive, health-oriented
direction for individuals with eating disorders, obesity, and unhealthy dieting habits.

This study seeks to investigate the hypothesis that more extensive dieting histories are
correlated with more negative diet schemata. These negative schemata are hypothesized to be
major contributors to diet failures, and thus are highlighted as an important part of the change
process. If negative cognitions are indeed highly correlated with the extent to which one diets
and fails to maintain the weight loss, then the treatment of obesity should focus on how to
reframe these negative cognitions. It follows that positive reinforcement (having goals that strive
for a “healthy lifestyle” rather than weight loss) would be more effective than restrictive diet and
exercise practices that are ultimately more punishing than reinforcing. The principles of
cognitive and behavioral psychology have shown that positive reinforcement is a more effective
way to achieve a goal than negative reinforcement or punishment (Bandura, 2004; Leahy &
Holland, 2000). Understanding why diets fail is important, because only then can health
professionals target the barriers to obtaining a healthy lifestyle and healthy weight.

Defining Healthy, Restrictive, and Disordered Eating

Eating behaviors can be conceptualized along a continuum, ranging from
“healthy/normal eating” to “healthy dieting” to “restrictive dieting” to “eating-disordered
behaviors.” Disordered eating behaviors are significantly different from healthy eating behaviors,
and restrictive dieting may or may not fall into the category of “eating disordered” (American
Psychiatric Association, 2000). “Healthy eating” can be defined as eating patterns that promote
one’s physical and mental health. This includes eating a balanced and varied diet, eating three
healthy meals per day (along with healthy snacks), and eating when hungry and stopping when
full (Koenig, 2005; Wilson & Fairburn, 1993). Healthy eating patterns help individuals maintain their genetically-determined healthy weights.

Dieters can exhibit healthy dieting patterns, restrictive patterns, or eating-disordered patterns. Healthy dieters generally eat like healthy eaters, although some foods may be restricted. Restrictive eaters, on the other hand, regularly restrict food intake in order to lose weight. They do not eat according to their bodies’ internal signals, but rather according to an externally-defined weight-loss program (Koenig, 2005). Restrictive dieters, like people with eating disorders, have distorted cognitions about the importance of weight and body size (Wilson & Fairburn, 1993).

On the disordered end of the continuum, an eating disorder is a “severe disturbance in eating behavior” (American Psychiatric Association, 2000). Patterns of eating “junk food,” overeating without binging, and under-eating without consequences for physical or mental health would not qualify someone for an eating disorder because these behaviors do not differ significantly from “normal” eating habits. In addition to clear cases of anorexia nervosa and bulimia nervosa, disordered eating can also include the following: regular binge eating without purging, cases in which anorexic (restrictive) or bulimic (binge/purge) behaviors regularly occur but do not meet the frequency, duration, weight, or other less central criteria, and any other case in which a person is mentally and physically suffering because of disordered behaviors and thoughts about eating, shape, and/or weight (American Psychiatric Association, 2000).

Obesity, without the presence of binge eating disorder, bulimia, or ED-NOS, is not considered an eating disorder. However, obesity is physically unhealthy, and is a risk factor for many physical conditions (Centers for Disease Control and Prevention, 2009). This paper will not focus on differences in physical health or weight but rather differences in mental health as
defined by the continuum above. Dieting is arguably most salient to obese and overweight individuals, most of whom have extensive dieting histories (Goodrick, Poston, Kimball, Reeves, & Foreyt, 1998; Heatherton, Polivy, & Herman, 1990). In theory, dieting is healthier than obesity, but paradoxically, dieting to achieve a healthy weight can sometimes cause more problems than it solves if it sets individuals up for yo-yo dieting patterns, restrictive eating, and/or disordered eating (Heatherton, Polivy, & Herman, 1990).

*Why Diets Don’t Work: Physiological Reasons*

One theory of weight loss, “set point theory,” posits that the human endocrine system is set up in such a way that it is difficult for individuals to lose weight if they are at or below their body’s “set point” (Nisbett, 1972). According to this theory, human metabolic functions are similar to those of a thermostat, and have a homeostatic point that the body becomes accustomed to and seeks to maintain (Nisbett, 1972; Nelson, 2005). Just like a thermostat, the body’s signals turn on and off when necessary in order to increase or decrease heat, or calories ingested (Nelson, 2005). No matter how much a dieter tries to cognitively control her weight, the body often takes control and takes steps to get back to the set point to which it is accustomed (Nisbett, 1972). Set points are thought to vary for different individuals and at different stages of life, and individuals can reset their set points during periods of natural weight loss or weight gain (Nisbett, 1972). Overall, this theory maintains that the endocrine system and its secretion of hormones largely determines one’s weight and current set-point (Nelson, 2005).

Weight is largely determined by genetics, as shown by twin studies (Maes, Neale, & Eaves, 1997). They reviewed studies of over 25,000 monozygotic twins living with either their biological and adoptive parents, and concluded that genetics account for 50 to 90% of the variance in weight, with 67% being a figure from one such study (Maes, Neale, & Eaves, 1997).
The remaining variance is accounted for by error and environmental factors. Although humans have the power to change their environmental (food consumption and exercise) habits, they do not have the power to arbitrarily determine an ideal weight for themselves, reach this goal, and maintain this goal. Often, diet failures are due to the genetic impossibility of achieving and maintaining a certain weight. Thus, striving for a weight below one’s genetic set-point is a recipe for failure (and, quite possibly, unhealthy eating patterns such as binge eating).

Why Diets Don’t Work: Restrictive Eating and the Binge-Restriction Cycle

Dietary plans commonly call for restriction. Whether one is restricting fats, carbohydrates, overall calories, or portion sizes, diets include restriction in order to lead to the desired goal of weight loss. However, for the dieter, cognitive restriction and physiological hunger are at odds, and one has to win out. Restrictive dieting leads to a fairly consistent state of hunger, which the dieter must learn to tolerate (Ruderman, 1986). However, one theory is that when dieters tune out their hunger signals, they also dampen their satiety signals, making them more susceptible to binge eating (Ruderman, 1986). The very thing (restrictive eating) that dieters expect to lead to weight loss frequently results in the opposite (Heatherton, Polivy, & Herman, 1990; Polivy & Herman, 1992; Ruderman, 1986; Wilson & Fairburn, 1993). Dieters often become cognitively “disinhibited” when they perceive that they have overeaten; they tend to overeat not because of laziness or lack of restriction, but as an escape from their restrictive thoughts (Ruderman, 1986). Therefore, dieting often results in the opposite of what it is intended to do. If one eats according to a diet plan for four days and then binges on high-calorie food items, then the purpose of the diet has been defeated. To the extent that dieting results in subsequent binge eating, it is not an effective treatment for overweight or obesity.
Throughout the literature, the same pattern emerges again and again: when dieters and/or restrictive eaters are required to eat a high-calorie “preload” of food (typically a milkshake or two), they subsequently ingest more, not less, than their non-dieting and non-restricting counterparts (Boon, Stroebe, Schut, & Jansen, 1998; Heatherton, Polivy, & Herman, 1990; Herman & Mack, 1975; Ruderman, 1986). These findings are contrary to what one would expect if dieters’ behavior were consistent with their restrictive cognitions. This pattern has been called the “what-the-hell effect” or “disinhibited eating” (Herman & Mack, 1975, p. 647). Disinhibition allows dieters to think something along the lines of, “What the hell—I might as well eat a large bowl of ice cream since I’ve already ruined my diet by drinking two milkshakes.” In this urge-driven state, dieters temporarily free themselves from their dietary restrictions, knowing that they will later have to compensate with more restriction (and in the case of bulimia, purging) in order to make their behavior consistent with their restrictive thoughts.

Disinhibited eating is posited to result from numerous factors, including low-self-esteem and poor emotional regulation after “ego threats” (Heatherton, Polivy, & Herman, 1990, p. 103). Disinhibition may also be the result of physiological hunger. Dieters may try to convince themselves about the positive aspects of dieting, but during periods of disinhibited eating, negative diet schemata are theoretically more likely to be activated. Dieters may temporarily allow their desire for food to override their cognitive intentions. Over time, the natural desire for food can override intentions of weight loss, resulting in negative schemata about diets, because dieting runs contrary to these natural desires.

In addition, the “what-the-hell effect” is a form of “all-or-nothing” thinking, in that dieters perceive that they only have two choices: complying with the diet or not complying with the diet (Wilson & Fairburn, 1993). All-or-nothing thinking is common in the “dieting
disorders,” in that it reduces ambiguity, increases a perception of control, and gives the dieter strict guidelines to adhere to (Butow, Beumont, & Touyz, 1993, p. 119). This type of thinking can have profound consequences for the dieter, because it can set up a cycle of binging and restricting/purging that may lead to weight maintenance or gain rather than weight loss (Heatherton, Polivy, & Herman, 1990). Wilson and Fairburn (1993) advise dieters to “adopt a regular pattern of eating and overall food consumption” (p. 265) and reduce (rather than increase) restrictive cognitions in order to decrease the likelihood of binging and the all-or-nothing thinking pattern that feeds unhealthy patterns of binging and restricting.

On a larger scale, the binge-restriction cycle is amplified in the case of yo-yo dieting. Dieters may spend years cycling back and forth between periods of restraint and excess, which commonly leads to weight gain in the long term due to metabolic reasons (weight is gained more easily and rapidly in periods of famine) (Nelson, 2005). Although people do not necessarily become obese because of restrictive dieting (Wilson & Fairburn, 1993), obesity in the U.S. has increased rather than decreased since the advent of dieting programs (Kolata, 2007; Polivy & Herman, 1992). For the vast majority of people, restrictive diets are not an effective solution to the problem, and may even be perpetuating the problem (Heatherton, 2003; Polivy & Herman, 1992; University of California, 2007).

When Dieting Works

Weight loss can be maintained, but people generally arrive at this goal by implementing realistic lifestyle changes rather than crash diets. The vast majority of individuals who lose weight and keep it off in the long term lose the weight slowly and/or adopt a healthy diet and exercise program that is realistic for them for a lifetime (Polivy & Herman, 1992; Laliberte, Newton, McCabe & Mills, 2007). Studies of successful dieters have identified the presence of a
“triggering event,” eating breakfast, eating healthy (low in fat and calories) meals, eating balanced meals (rather than restricting and binging), and regular, vigorous exercise as keys to weight maintenance after dieting (Klem, Wing, McGuire, Seagle, & Hill, 1997, p. 239; Wing & Phelan, 2005). There is a common misconception that “will power” is the key to successful weight loss, whereas psychological literature demonstrates the opposite: “Health habits are not changed by an act of will. It requires motivational and self-regulatory skills” (Bandura, 2004, p. 151). According to Bandura (2004) setting short-term goals every day and rewarding oneself immediately after the short-term goals are achieved is the most effective way to motivate oneself. In addition, self-efficacy (believing in one’s ability to achieve) must be present in order for long-term goals to be reached (Bandura, 2004).

The Healthy Lifestyle Solution

Laliberte et al. (2007) and Polivy and Herman (1992) argue that in order to decrease eating-disordered behaviors such as binging, purging, and restrictive dieting, one should “‘strive for a healthy lifestyle and accept one’s natural weight’” (Laliberte et al., 2007, p. 853). They advocate for a “non-dieting” solution that posits a healthy lifestyle as the goal, as well as purposeful acceptance of the weight that results naturally from a healthy lifestyle. Laliberte et al. (2007) argue against attempts to control one’s weight through restrictive dieting or other measures that are countered by the body’s homeostatic mechanisms. The results of their study indicate that eating-disordered behaviors, low self-esteem, and body dissatisfaction are positively correlated with the belief that one’s weight can and should be controlled, and negatively correlated with the belief that one should strive for a healthy lifestyle (Laliberte et al., 2007). Therefore, having positive schemata about living a healthy lifestyle is connected with healthier behaviors and higher self-esteem. Theoretically, if individuals can change their negative
schemata about diets into positive schemata about living healthily, the focus will shift to the rewarding rather than the punishing aspects of being healthy, which may be a more effective solution to the problem of obesity than restrictive dieting. The healthy lifestyle solution involves setting realistic, reasonable goals for health that require effort but are not impossible, with weight loss being a side effect but not a primary goal. In the current study, dieters who have positive schemata about diets are expected to display thinking patterns congruent with this lifestyle pattern.

*Cognitive Schemata and Their Role in Dieting Patterns*

Although behavioral interventions are often a focus of treatment, the cognitive component of disordered eating patterns must be addressed in order to treat the whole individual and maintain treatment gains (Hart & Chiovari, 1998; Israel et al., 1985). Research has shown that dieters are more “schematic” in that they think about weight and food consumption more often than non-dieters (Hart & Chiovari, 1998; Markus et al., 1987). Cognitive schemata can include general thought patterns, but this paper focuses on diet-, weight-, and food-related schemata. While these schemata can contribute to dieting successes, they can also dampen physiological signals of hunger, and thus eating becomes a cognitively-mediated activity rather than a biologically-mediated activity (LeBel, Lu, & Dube, 2008). Cognitively determining when one eats can be dangerous in that it often results in not eating when hungry, not stopping when physically full, and cognitive disinhibition and binge eating (LeBel, et al., 2008; Ruderman, 1986). When we conceptualize eating disorders along a continuum, there is reason to believe that restrictive dieters suffer from similar dysfunctional thoughts as people with eating disorders, although the thoughts may be less severe or less frequent (Morris et al., 2001; Butow et al.,
Therefore, a full review of the literature on cognitive schemata in relation to dieting and eating disorders is indicated.

On a general level, self-schemata are defined as “cognitive generalizations about the self, derived from past experience, that organize and guide the processing of self-related information contained in the individual’s social experiences” (Markus, 1977, p. 64). Markus found that participants who were “schematic” (clearly defined) regularly conceptualized themselves in more polarized terms, rigidly held these views of themselves across situations, and were quick to refute evidence that was inconsistent with their self-schemata (Markus, 1977, p. 63). Well-defined self-schemata may lead to selective attention, selective memory encoding, and selective memory retrieval, and this biased information processing can then lead to cognitive distortions (Markus, 1977).

Maladaptive cognitive distortions are invariably present in restrictive eaters (Morris et al., 2001). Markus et al. (1987), along with others, have postulated the link between self-schemata and weight-related schemata. They theorized that everyone has “universal schemas” about body size, but that “schematic” people (restrictive eaters) have “particularistic schemas” in this domain that add the aspect of self-judgment to body weight (Markus et al., 1987, p. 51). In different terms, everyone is aware of their general body size, but not everyone thinks about excess body fat in a judgmental, self-critical manner. They hypothesized that people process self-relevant weight information (in the form of body silhouettes and adjectives) more quickly than information not pertaining to the self. This prediction was supported by their results.

In another theoretical article, Vitousek and Hollon (1990) postulated that “eating-disordered individuals develop organized cognitive structures (schemata) around issues of weight and its implications for the self that influence their perceptions, thoughts, affect, and behavior”
Weight-related schemata serve as the basis for these individuals’ self-worth; they cannot and do not escape from constant thoughts about weight and food until their disorder is treated. Although it is considered normative in U.S. society to highly value thinness and fitness, only people with eating issues pathologically apply this collective judgment to their own self-schemata, narrowing their self-worth to how they measure up on this one criterion (Vitousek & Hollon, 1990). Eating disorders, from this perspective, involve “dissatisfaction with the self, deflected onto the body” (Vitousek & Hollon, 1990, p. 197). Schemata serve many functions for people with eating disorders, including simplifying life by narrowing one’s list of responsibilities, eliminating ambiguity in life, and allowing the individual to have control over something (Vitousek & Hollon, 1990). In fact, they compared the mindset of an eating-disordered individual to that of a religious fundamentalist: “Each [mindset] provides a clear template for evaluating daily experience; each prescribes a simple set of rules for seeking safety and avoiding danger” (p. 192). Overall, cognitive schemata organized around one central premise are powerful, and in this case, they give the illusion that sticking to one’s strict eating regimen will lead to success and control in life.

Restrictive dieters tend develop obsessions with food to the point that their self-schemata are organized around eating and weight (Hart & Chiovari, 1998). They compared scores on the Eating Obsessive-Compulsiveness Scale in four groups, with each group representing a different dieting status category. They found that “dieters are significantly more obsessed with thoughts of eating and…food than are nondieters” (Hart & Chiovari, 1998, p. 427). In addition, they concluded that food-related obsessions lead to counterproductive thoughts that sabotage weight loss. For example, dieters may develop feelings of deprivation because some of their favorite foods are forbidden, and dieters must actively inhibit thoughts related to the desirability of these
foods in order to not eat them. In the process, an obsession with the “target of the inhibition” develops (Pennebaker, 1985, as cited in Hart & Chiovari, 1998, p. 427). Even though dieters try to cognitively control their food intake and weight, their bodies will signal the need for particular nutrients in order to get their needs met, which may result in disinhibited eating. Results of this study suggest that negative thoughts about diets develop as a result of restrictive dieting, consistent with the current study’s hypothesis.

Israel et al. (1985) looked at the effect of positive or negative self-talk on dysfunctional cognitions in obese and overweight individuals trying to diet. “Positive cognitions” were defined as thoughts that were effective in helping the individual lose weight (such as “eating the rest of the box of cookies will not make me any happier than eating two of them”), whereas “negative cognitions” were defined as thoughts that led to the individual berating herself or making excuses for overeating (such as “well, I blew it with that doughnut, now the day is shot”) (Israel et al., 1985, p. 551). They did not find a significant difference in positive versus negative thinking in dieting versus non-dieting populations; however, they found a higher prevalence of both positive and negative thoughts in the dieting group, suggesting that schemata related to weight and food were more salient for dieters. In addition, they found that within dieters, having more negative thoughts was related to more dieting failures. This idea supports the current study’s hypothesis that dieters, in comparison with non-dieters, have more negative thoughts about diets, which in turn contribute to diet failures.

Morris et al. (2001) attempted to map networks of thoughts in order to clarify the differences in self-schemata between dieters and non-dieters. They instructed participants to visually organize 27 weight- and non-weight-related words according to their “relatedness” (p. 201), and then mathematically calculated the distance between each word and every other word
to create networks that represented self-evaluative thought patterns. Weight- and non-weight-related words were closely lumped together for dieters, but for non-dieters, weight-related words were clumped together into a network of thoughts that was separate from non-weight-related words like “success,” “self-esteem,” and “popularity” (Morris et al., 2001, pp. 208-209). Dieters viewed weight- and food-related terms as central to their self-concept, whereas non-dieters did not. They concluded that “restrained eaters and eating-disordered patients have difficulty modifying their behavior due to highly polarized and rigid self-schemata in which weight has become maladaptively central,” (Morris et al., 2001, p. 212). Overall, research on how restrictive eaters conceptualize themselves illustrates that body weight and food consumption makes up an unhealthy, unrepresentative portion of their self-evaluation. For treatment of eating issues to be effective, interventions must address cognitive self-schemata in order to support long-term gains.

Overall, previous research tends to support the hypothesis that dieters have more salient and/or negative schemata about diets than nondieters. Cooper and Fairburn (1992, as cited in Boon et al., 1998) studied participants’ cognitive reactions to looking in a mirror, getting weighed, and eating foods that dieters may perceive as forbidden. They found that people with eating disorders had “more negative thoughts related to eating, weight, and shape” than a non-eating-disordered or non-dieting population, whereas dieters’ cognitions fell between the two groups in terms of negativity (Boon et al., 1998, p. 28). Boon et al. (1998) also found that current dieters had more weight-related negative thoughts (as compared to nondieters) while eating. Thus, dieters have negative schemata not only about the restrictions of dieting, but also about food itself. The pairing of food, a pleasant stimulus necessary for life, with negative thoughts may be adaptive for the dieter in maintaining a weight loss program, but may also lead to confusion and unhealthy attitudes towards food.
The process of developing negative schemata about diets is hypothesized to work as follows: as dieters begin to feel restricted due to physiological sensations of hunger and the idea that certain foods or behaviors are forbidden, they begin to associate the diet with negativity and loss. The dieter perceives the loss of food choice, meal satisfaction, taste, and even social situations surrounding food. This attitude of negativity toward diets may explain why they fail; they are not reinforcing, and obsessive thoughts about diets and deprivation can lead to self-sabotage (Hart & Chiovari, 1998).

The Current Study

This thesis addresses the following research questions: Do people with extensive dieting histories and/or current restrictive eating habits have significantly more negative schemata about diets than people who have never dieted? The primary hypothesis of this study is that extensive dieting histories and/or current restrictive eating habits will be correlated with negative diet schemata. It is expected that the higher frequency, intensity, and duration of diet attempts are related to more yo-yo dieting, extreme dieting behaviors, and an end result of weight gain, which are all expected to be correlated with negative diet schemata. This study subsequently speculates that if dieting history and negative schemata are correlated, there is reason to believe that people are discouraged by diets, do not find them reinforcing, and would benefit from an alternative approach to weight loss and health. An alternative approach to dieting would involve restructuring inaccurate self-schemata, focusing on health rather than weight loss, and increasing perceptions that people are “adding on” to their self worth with rewarding ways of thinking and behaving rather than “taking away” reinforcing activities from themselves by engaging in restrictive eating patterns.
Method

Participants

Participants were 156 individuals, 18 of whom were college undergraduates and 138 of whom were recruited via Facebook and Google webmail. The 18 undergraduate students completed a paper-and-pencil survey, while all other participants filled out the survey online at surveymonkey.com. Both versions of the survey were identical. Six individuals did not fully complete the survey, and their data was excluded. The analysis in the present study is based on the remaining 150 participants.

The majority of respondents were Caucasian and female. Height and weight values were obtained from participants, and Body Mass Index (BMI) was computed using the calculator from http://www.nhlbisupport.com/bmi/. The mean BMI of participants was 24.7, with a standard deviation of 4.73. See Table 1 for a summary of participant statistics.

Table 1

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<td>Non-dieter</td>
<td>61</td>
<td>40.7%</td>
</tr>
<tr>
<td>Past dieter</td>
<td>61</td>
<td>40.7%</td>
</tr>
<tr>
<td>Current dieter</td>
<td>28</td>
<td>18.4%</td>
</tr>
</tbody>
</table>

Materials

Participants completed a questionnaire that assessed demographic information, dieting history, degree of restraint, degree of eating-disordered cognitions and behaviors, and attitudes
toward diets. Questions about dieting history assessed the frequency, duration, type, outcome, and satisfaction level of past and present diets. An operational definition for “diet” was provided to clarify that the research focus was on purposeful reductions in food intake rather than day-to-day eating habits. Because certain questions that assessed dieting frequency and duration allowed for open-ended responses, responses like “too many times to count” were coded as “20 diets” and “60 months dieting” because these numbers represented the highest quartile of other participants’ responses.

*Revised Restraint Scale.*

The Revised Restraint Scale (Herman & Polivy, 1980) consists of 10 items that make up two factors, “subjective concern for dieting” and “weight fluctuation” (van Strien, Breteler, & Ouwens, 2002, p. 791). This measure consists of a Likert scale ranging from 0 to 3 or 4, with possible scores ranging from 0 to 40. For women, scores of 16 and above indicate dietary restraint that is significantly higher than average, and for men, scores of 12 and above indicate dietary restraint that is significantly higher than average (Herman & Polivy, 1980). One internal consistency estimate for this scale is .83, and another reliability estimate is .64, with both estimates obtained from samples of obese women (Johnson, Lake, & Mahan, 1983, in Timmerman & Gregg, 2003). However, some sources indicate that the Revised Restraint Scale should not be used in obese populations, as it tends to overestimate restrictive eating patterns in this group (Timmerman & Gregg, 2003). Other internal consistency estimates depend on the population tested; the scale has good reliability when used with normal-weight groups ($r = .86$ or .79), variable reliability for dieting obese groups ($r = .83$ or .51), and poor reliability for non-dieting obese groups ($r = .50$ or .51) (Ruderman, 1986).
The Eating Attitudes Test or EAT-26 (Garner, Olmsted, Bohr, & Garfinkel, 1982) consists of 26 questions that assess eating-disordered food- and weight-related cognitions and behaviors. The EAT-26 is a commonly used clinical screening tool for eating disorders, and scoring above the cutoff can indicate a clinically significant eating issue (Ocker, Lam, Jensen, & Zhang, 2007). Each item is scored on a 6-point scale, with “often” given the value of 1, “usually” given the value of 2, and “always” given the value of 3, with the remaining choices (“sometimes,” “rarely,” and “never”) given the value of 0 (except for question 26, which is reverse-scored). Scores range from 0 to 78. An individual must score 20 or higher in order to make the clinical cutoff, which indicates a preoccupation with food and weight that is significantly different than the average person (Garner et al., 1982). However, a score of 20 or higher does not necessarily mean that the individual has an eating disorder, and more commonly indicates the presence of subclinical dieting or ED-NOS than anorexia nervosa (Ocker, Lam, Jensen, & Zhang, 2007). The EAT-26 has been split into three factors, which are “dieting,” “bulimia and food preoccupation,” and “oral control” (Garner et al., 1982).

When tested in anorexic and non-anorexic samples, the internal reliability of the EAT-26 was .94, indicating high reliability in distinguishing between individuals with and without eating disorders (Berland, Thompson, & Linton, 1986). The EAT-40 correlates highly (.90) with the EAT-26, and the former has a criterion validity of .87, pointing to high criterion validity in the latter as well (Berland, Thompson, & Linton, 1986). When the factors of the EAT-26 are compared to factors of other measures of eating disorders, concurrent validity for the EAT-26 is adequate, as correlates range from .26 to .77.
**Diet Schemata Questionnaire.**

The Diet Schemata Questionnaire (Muñoz, 2006) includes 75 words that can be associated with diets, such as “health,” “loss,” and “restrict.” Participants choose the words that they associate with diets, and the number of positive, negative, and neutral words is tallied in each category for each participant. These numbers make up the current study’s dependent variable. In order to determine whether words were labeled as positive, neutral, or negative, a focus group of 7 raters rated the valence of each word. An initial analysis of interrater agreement was conducted to determine which words would be labeled positive, negative, and neutral. Cohen’s kappa was obtained across all 7 raters, with an average agreement of .497, indicating moderate agreement. If at least 4 out of 7 raters agreed on the valence of a word, the word was rated as such. After the valences (positive, negative, and neutral) were applied to each word in the Diet Schemata Questionnaire, another interrater reliability analysis was conducted using Cohen’s kappa. The average agreement was .634, indicating good agreement.

**Procedure**

For both the version administered in person and the online survey, participants gave informed consent, completed the questionnaire, and were thanked for their time. For the version administered in person, students were given human participants pool credit in exchange for their participation. The average participant took approximately 15 minutes to complete the survey, which included four sections: Demographics and dieting history (Appendix A), Revised Restraint Scale (Appendix B), Eating Attitudes Test or EAT-26 (Appendix C), and Diet Schemata Questionnaire (Appendix D). Participants were split into groups of “dieters” and “non-dieters” (and in the second analysis, “current dieters,” “past dieters,” and “non-dieters”) after completion of the questionnaire.
Results

Correlation coefficients were computed among the following variables: number of positive diet words endorsed, number of neutral diet words endorsed, number of negative diet words endorsed, EAT-26 total score, Restraint Scale total score, dieting status (current dieter, past dieter, or non-dieter), and months total dieting. Correlations among number of words endorsed and other variables are presented in Table 2, with none reaching statistical significance at the .05 level. However, examinations of intercorrelations among dieting history, the EAT-26, and the Revised Restraint Scale yielded significant relationships at the .01 level.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>Positive</th>
<th>Neutral</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAT-26 Total</td>
<td>.088</td>
<td>.050</td>
<td>.036</td>
</tr>
<tr>
<td>Restraint Scale Total</td>
<td>.160</td>
<td>.052</td>
<td>.015</td>
</tr>
<tr>
<td>Ever dieted?</td>
<td>.132</td>
<td>.001</td>
<td>.003</td>
</tr>
<tr>
<td>Currently dieting?</td>
<td>.207</td>
<td>.004</td>
<td>.159</td>
</tr>
<tr>
<td>Total months dieting</td>
<td>.048</td>
<td>.030</td>
<td>.044</td>
</tr>
</tbody>
</table>

Absolute values presented.

Table 3

<table>
<thead>
<tr>
<th></th>
<th>EAT-26 Total</th>
<th>Restraint Scale Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restraint Scale Total</td>
<td>.576*</td>
<td>--</td>
</tr>
<tr>
<td>Ever dieted?</td>
<td>.343*</td>
<td>.622*</td>
</tr>
<tr>
<td>Currently dieting?</td>
<td>.437*</td>
<td>.467*</td>
</tr>
<tr>
<td>Total months dieting</td>
<td>.342*</td>
<td>.362*</td>
</tr>
</tbody>
</table>

* = $p < .01$; absolute values presented.
In addition, a one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between dieting status (assessed by the question *have you ever been on a diet?*) and thoughts about diets. The independent variable, dieting status, had two levels: individuals who had dieted and individuals who had not. The dependent variable, diet schemata, had three levels: number of positive words endorsed, number of neutral words endorsed, and number of negative words endorsed. None of the analyses indicated significant results at the .05 level. The number of positive words endorsed did not significantly differ between groups, $F(1, 148) = .108, p > .05$, partial $\eta^2 = .017$. Furthermore, the number of neutral words endorsed did not significantly differ between groups, $F(1, 148) = .986, p > .05$, partial $\eta^2 = .000$. Lastly, the number of negative words endorsed did not significantly differ between groups, $F(1, 148) = .974, p > .05$, partial $\eta^2 = .000$.

Given the lack of statistically significant results for historical dieting status (analyzing dieters versus non-dieters), it was hypothesized that the schemata of current dieters might be influencing the results. A secondary one-way analysis of variance (ANOVA) was conducted to evaluate this possibility, and the relationship between current dieting status and thoughts about diets was investigated. The independent variable, current dieting status, had three levels: individuals who were currently on a diet, individuals who had dieted in the past, and individuals who had never dieted. The dependent variable, diet schemata, had three levels: number of positive words endorsed, number of neutral words endorsed, and number of negative words endorsed. The number of positive words endorsed significantly differed between groups, $F(2, 147) = .040, p < .05$, partial $\eta^2 = .043$. The strength of this relationship was small, indicating that among current dieters, 4% of the variance was accounted for by the dependent variable (number
of positive words endorsed). Significant results were not obtained for number of neutral or negative words across groups.

Follow-up tests were conducted to evaluate pairwise differences among the means. The homogeneity of variance assumption was met for all levels of the dependent variable, so comparisons were conducted using Tukey’s HSD. A post-hoc analysis of the number of positive words endorsed by different groups revealed that there was a significant difference between the current dieters ($M = 9.46, SD = 6.69$) and the other two groups, past dieters ($M = 6.84, SD = 5.42$) and non-dieters ($M = 6.08, SD = 5.81$). In different terms, current dieters’ thoughts about diets were significantly more positive than the other two groups. However, there was no significant difference between the means of past dieters and non-dieters in regard to number of positive words endorsed.

Discussion

The primary hypothesis of this study, that dieters have more negative thoughts about diets than non-dieters, was not supported by the data. There were no significant correlations between schemata (positive, negative, or neutral) about diets and measures of dietary restraint, including the Revised Restraint Scale, the EAT-26, number of months dieting, and total months dieting. In the primary ANOVA, there was no significant difference between dieters and non-dieters in number of negative words endorsed, and in the secondary ANOVA, there was no significant difference between current dieters, past dieters, and non-dieters in number of negative words chosen. The post-analysis hypothesis that current dieters would have significantly more positive cognitions about diets was supported by the data, as current dieters associated significantly more positive words with diets than past dieters and non-dieters.
Since dieters were expected to have more negative thoughts than non-dieters, the result that they had more positive thoughts was surprising, because this result countered existing literature about thoughts that develop as a result of dieting. Restrictive diets and eating-disordered behaviors can lead to distorted cognitions, emotional imbalances, physiological consequences, and even depressive thinking patterns, so logically, one would expect negative thoughts to develop in extreme dieters (Polivy & Herman, 1990; Ruderman, 1986; Wilksch & Wade, 2004). Perhaps the current dieters in this study were not extremely restrictive, and thus had reason to view diets positively, a possibility that will be explored later in this discussion.

Certain psychological theories offer possible explanations for the unexpected finding that current dieters think of diets in positive terms. First, self-verification theory states that individuals will go to great lengths to justify their current situation and selectively attend to attitude-congruent stimuli, regardless of whether the effects on one’s ego are positive or negative (Gilovich et al., 2005; Swann, Pelham, & Krull, 1989). For example, even though depressed individuals know that depression is not fun or rewarding, they will commonly justify their current thoughts and behaviors and defend ideas that they are worthless, lazy, or stupid, even in the face of contradictory evidence (Gilovich et al., 2005; Swann et al., 1989). There is reason to believe that the same principle applies to dieting, such that dieters think of diets positively so that they can justify their current behavior. Along the same vein, the theory of cognitive dissonance suggests that when there is a discrepancy between thoughts and behaviors, one will line up with the other to increase cognitive-behavioral congruence (Gilovich, Keltner, & Nisbett, 2005). Restrictive dieting may elicit opposing behaviors and thoughts by discouraging eating behaviors that feel good in the short-term, such as eating ice cream. Therefore, cognitions that are congruent with more long-term, positive aspects of dieting may increase as a result of dieting in
order to resolve the cognitive dissonance. Further research is needed to explore these hypotheses, as cognitive dissonance and self-verification are merely possible explanations for the current research findings.

Current dieters may think of diets positively for more concrete, practical reasons as well. They may find diets rewarding because of feelings of mastery that develop as they progress toward their highly-valued goal. They may find diets rewarding because they value the pro of weight loss and increased health as more salient than the con of being hungry. Dieters may be able to withstand short-term pain because they highly value the benefits of long-term gain.

The study’s methodological issues point to another possible explanation for positive thoughts among current dieters. Only 7 of the 28 dieters (25%) in the present study met the cutoff criteria for the EAT-26, suggesting that only one-fourth of current dieters in this study were engaged in clinically significant and/or extreme dieting patterns. Therefore, the label “current dieter” is not synonymous with the label “restrictive dieter,” which is another reason that current dieters may think of diets positively. People who diet in moderation may not have experienced the consequences of extreme diets, such as severe hunger, constantly wanting what one cannot have, denial of the need to eat, restriction of social activities that involve “forbidden” foods, eating binges, and physiological consequences. Therefore, the typical current dieter in this study may associate positive words with diets because they are not experiencing the negative aspects of diets and are truly having positive experiences dieting.

Additional evidence points to the idea that restrictive, extreme dieters were underrepresented in the current study. The Revised Restraint Scale appeared to be too liberal in classifying restraint, and the EAT-26 appeared to be too conservative. Only 9 out of 150 participants (6%) scored above the EAT-26 clinical cutoff of 20, but 77 out of 150 participants
(51%) met criteria for dietary restraint as measured by the Revised Restraint Scale. Assuming that the Revised Restraint Scale and the EAT-26 are reliable and valid measures, this data suggests that most dieters in this sample were slightly (as opposed to extremely) restrictive eaters, since only 6% met the EAT-26 criteria for clinically significant restriction. Unexpected results may have been obtained because not enough “restrictive” dieters were represented in this study.

The second discussion point is the lack of statistical significance in all other analyses. Although a correlation between negative thoughts about diets and dieting history was expected, there were no significant correlations between diet schemata and measures of dietary restraint, including the Revised Restraint Scale, the EAT-26, number of months dieting, and total months dieting. Additionally, the ANOVAs also yielded a lack of statistical significance between dieters and non-dieters in number of negative words endorsed. Explanations for this lack of significance parallel the earlier discussion, and could include resolving cognitive dissonance, thoughts of self-verification, feelings of mastery, relative equality of diet pros and cons, and methodological issues. Because no significant results were obtained (other than the positive result discussed earlier), there is reason to believe that attitudes toward diets are just as diverse within dieting groups as they are between dieting and non-dieting groups. The results suggest that dieting status does not determine positive or negative thoughts about diets. A better predictor of one’s thoughts about dieting may be self-efficacy appraisals, the belief in one’s ability to achieve the desired outcome. Further research is needed to evaluate this possibility and elucidate the factors that influence how one develops negative or positive thoughts about dieting.

The study’s limitations may affect its external validity. First, participants were not randomly chosen from the population; instead, they self-selected to complete the survey.
Therefore, this study may over-represent dieters or people interested in eating issues. Since participants were largely college students and friends of family members obtained via snowball and availability sampling, this study is not intended to represent a random selection of people from the U.S. population. Females, Caucasians, and young people are over-represented in this sample in comparison to the U.S. population. According to the 2008 census, African-Americans, Hispanics, males, and non-college-age individuals are underrepresented in this sample in comparison to the general population (U.S. Census Bureau, 2008). Although educational and economic status data were not obtained, it is assumed that this sample under-represents individuals without college degrees and individuals of low SES. However, since the average (modal) individual with eating/dieting issues in the U.S. is young, Caucasian, and female (Kring et al., 2009), the results of this study are not without merit. The results of this study may be representative of similar populations. Further research is needed in more diverse samples in order to generalize the results to racial and ethnic minorities, men, people of low SES, and people with clinically significant eating issues.

Another limitation of the study was that the dependent variable, thoughts about diets, was rated by seven raters who had good but not excellent agreement with the final value given to each of the words. The average value of agreement was .634, which leaves plenty of room for error. Thus, there is a possibility that some of the words were incorrectly classified, and that the seven raters interpreted certain words in a different manner than the entire sample. A future research project that excludes the contested words with less agreement may yield more accurate results.

The prediction that current and historical dieting status is positively correlated with negative diet schemata was not supported. Since previous research supports this hypothesis, it
would be premature to conclude that there is no link between the two constructs. However, the current research begs a more cautious look at the connection between dieting and negative thoughts. There are many possible explanations for the current results. It is possible that dieters in this study are already implementing the “healthy lifestyle solution”—that is, rejecting the idea of crash diets and dieting moderately and in accordance with their body’s signals of hunger and satiation (Laliberte et al., 2007). An alternate possibility is that dieters in this study are using common psychological processes in order to cognitively justify behaviors like dietary restriction that are unrewarding in the short-term. In reality, peoples’ reasons for dieting, attitudes toward dieting, attitudes toward food, and thoughts about shape, weight, and eating are as diverse as people themselves.

On a larger scale, the problem of obesity and barriers to weight loss still exist. One of the possible barriers to healthy lifestyles could be negative schemata. Although negative schemata did not appear to be a significant barrier for the current sample, answering the question of why diets fail is important for the health of frustrated dieters. Rather than being a primary reason that dieters rarely achieve their desired outcomes, negative diet schemata may simply be one of the many reasons that diets are difficult to stick to. Just as any mental health issue involves a complex interconnection between physiology, behavior, cognition, emotion, and external environments, the same is true for dieting behavior. Future research can help elucidate the reasons that diets often fail, and what can be done to improve the physical and mental health of people stuck on the roller coaster of yo-yo, extreme, or frustrating diets.
References


APPENDIX A

SECTION A: DEMOGRAPHIC INFORMATION AND DIET HISTORY

1. Height:_______________________ Weight:_____________________

2. Age _______________

3. Sex
   a. Male       b. Female    c. Transsexual or transgendered

4. Race (please circle all that apply)
   a. Asian/East Indian
   b. Black/African-American
   c. Hispanic/Latino
   d. Middle Eastern
   e. Native American (continental U.S.)
   f. Native Alaskan/Aleutian
   g. Native Hawaiian/Pacific Islander
   h. White/Caucasian
   i. Other (please specify)_________________________

5. What was your highest weight (at your current height)?___________________________

6. What was your lowest weight (at your current height)?____________________________

7. Have you ever been on a diet before? 
   a. Yes
   b. No (PLEASE SKIP TO SECTION B)

8. Are you currently on a diet?   a. Yes    b. No

9. Which types of diets have you tried? (please circle all that apply)
   a. Very low carbohydrate diet (e.g., Atkins)
   b. Low carbohydrate diet (e.g. South Beach, the Zone)
   c. Low fat diet
   d. Portion control diet (e.g. Weight Watchers, Jenny Craig)
   e. Low calorie diet
   f. Medical weight loss (e.g., Meridia, Xenical)
   g. Other (please specify)________________________________________

10. a. How many diets have you been on?________________________
    
    b. For how many months (total) have you dieted? ____________________
11. What has been the primary outcome of your diets?
   a. I never lost a notable amount of weight
   b. I lost weight and maintained the weight loss
   c. I lost weight and gained the weight back
   d. I gained weight in the long term

12. Overall, how would you describe your satisfaction with the diets you have been on?
   a. Very dissatisfied
   b. A little dissatisfied
   c. Neither satisfied or dissatisfied
   d. A little satisfied
   e. Very satisfied
APPENDIX B: REVISED RESTRAINT SCALE

SECTION B: DIET HABITS

1. How often are you dieting?

Never  Rarely  Sometimes  Often  Always

2. What is the maximum amount of weight (in pounds) that you have ever lost within one month?

0-4  5-9  10-14  15-19  20+

3. What is your maximum weight gain (in pounds) within a week?

0-1  2-3  4-5  5+

4. In a typical week, how much does your weight (in pounds) fluctuate?

0-1  2-3  4-5  5+

5. Would a weight fluctuation of 5 pounds affect the way you live your life?

Not at all  Slightly  Moderately  Extremely

6. Do you eat sensibly in front of others and splurge alone?

Never  Rarely  Sometimes  Often  Always

7. Do you give too much time and thought to food?

Never  Rarely  Sometimes  Often  Always

8. Do you have feelings of guilt after overeating?

Never  Rarely  Sometimes  Often  Always

9. How conscious are you of what you are eating?

Not at all  Slightly  Moderately  Extremely

10. How many pounds over your desired weight were you at your maximum weight?

0-1  1-5  6-10  11-20  21+
APPENDIX C

SECTION C: EAT-26

1. I am terrified about being overweight.
   always usually often sometimes rarely never

2. I avoid eating when I am hungry.
   always usually often sometimes rarely never

3. I find myself preoccupied with food.
   always usually often sometimes rarely never

4. I have gone on eating binges where I feel I may not be able to stop.
   always usually often sometimes rarely never

5. I cut my food into small pieces.
   always usually often sometimes rarely never

6. I am aware of the calorie content of foods I eat.
   always usually often sometimes rarely never

7. I particularly avoid foods with high carbohydrate content (bread, rice, potatoes, etc.)
   always usually often sometimes rarely never

8. I feel that others would prefer if I ate more.
   always usually often sometimes rarely never

9. I vomit after I have eaten.
   always usually often sometimes rarely never

10. I feel extremely guilty after eating.
    always usually often sometimes rarely never

11. I am preoccupied with a desire to be thinner.
    always usually often sometimes rarely never

12. I think about burning up calories when I exercise.
    always usually often sometimes rarely never

13. Other people think I'm too thin.
    always usually often sometimes rarely never

14. I am preoccupied with the thought of having fat on my body.
    always usually often sometimes rarely never

15. I take longer than others to eat my meals.
always usually often sometimes rarely never

16. I avoid foods with sugar in them.
   always usually often sometimes rarely never

17. I eat diet foods.
   always usually often sometimes rarely never

18. I feel that food controls my life.
   always usually often sometimes rarely never

19. I display self-control around food.
   always usually often sometimes rarely never

20. I feel that others pressure me to eat.
   always usually often sometimes rarely never

21. I give too much time and thought to food.
   always usually often sometimes rarely never

22. I feel uncomfortable after eating sweets.
   always usually often sometimes rarely never

23. I engage in dieting behavior.
   always usually often sometimes rarely never

24. I like my stomach to be empty.
   always usually often sometimes rarely never

25. I have the impulse to vomit after meals.
   always usually often sometimes rarely never

26. I enjoy trying new, rich foods.
   always usually often sometimes rarely never

27. Have you gone on eating binges where you feel that you may not be able to stop? (Eating much more than most people would eat under the circumstances).
   a. No b. Yes (if Yes, how many times in the past 6 months?________________)

28. Have you ever used diet pills, laxatives, or diuretics (water pills) to control your weight or shape?
   a. No b. Yes (if Yes, how many times in the past 6 months?________________)

29. Have you ever made yourself sick (vomited) to control your weight or shape?
   a. No b. Yes (if Yes, how many times in the past 6 months?________________)
APPENDIX D: DIET SCHEMATA QUESTIONNAIRE

SECTION D: DIET THOUGHTS

Please think for a few minutes about diets. Circle all words that describe your thoughts about diets. If you think of any words that are not on this list, please write them at the bottom of the page.

<table>
<thead>
<tr>
<th>1. accomplishment</th>
<th>2. missing out</th>
<th>3. hard</th>
<th>4. loss</th>
<th>5. increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. chore</td>
<td>7. subtract</td>
<td>8. decrease</td>
<td>9. give up</td>
<td>10. add</td>
</tr>
<tr>
<td>11. active</td>
<td>12. hopeful</td>
<td>13. better</td>
<td>14. good</td>
<td>15. sacrifice</td>
</tr>
<tr>
<td>17. hungry</td>
<td>18. opportunity</td>
<td>19. reduce</td>
<td>20. lifestyle</td>
<td>21. enhanced</td>
</tr>
<tr>
<td>22. energy</td>
<td>23. starve</td>
<td>24. inhibit</td>
<td>25. exercise</td>
<td>26. attractive</td>
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<tr>
<td>27. positive</td>
<td>28. restrict</td>
<td>29. prevent</td>
<td>30. nutritious</td>
<td>31. past</td>
</tr>
<tr>
<td>32. upgrade</td>
<td>33. quality</td>
<td>34. superior</td>
<td>35. remove</td>
<td>36. confine</td>
</tr>
<tr>
<td>37. get rid of</td>
<td>38. eliminate</td>
<td>39. disappoint</td>
<td>40. take away</td>
<td>41. malnourish</td>
</tr>
<tr>
<td>42. future</td>
<td>43. surrender</td>
<td>44. hopeless</td>
<td>45. gain</td>
<td>46. include</td>
</tr>
<tr>
<td>47. limit</td>
<td>48. fix</td>
<td>49. broaden</td>
<td>50. sad</td>
<td>51. constrain</td>
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<td>52. endure</td>
<td>53. eat</td>
<td>54. health</td>
<td>55. new</td>
<td>56. development</td>
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<td>57. weak</td>
<td>58. progress</td>
<td>59. deteriorate</td>
<td>60. monitor</td>
<td>61. cut-down</td>
</tr>
<tr>
<td>62. benefit</td>
<td>63. control</td>
<td>64. waste away</td>
<td>65. leave</td>
<td>66. learn</td>
</tr>
<tr>
<td>67. triumph</td>
<td>68. bring in</td>
<td>69. die</td>
<td>70. work</td>
<td>71. self-control</td>
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</table>