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Seeking an Operational Definition of Dieting: A Daily Diary Study

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**SEEKING AN OPERATIONAL DEFINITION OF DIETING:
A DAILY DIARY STUDY**

by

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B.A., Psychology, McGill University, 2008
M.S., Clinical Psychology, University of New Mexico, 2014

DISSERTATION

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ABSTRACT

Dieting is commonly considered a weight loss technique, but research consistently shows that it does not result in weight loss. Thirty to fifty percent of women report that they are dieting at any given time, typically by responding to a single “yes/no” item asking whether they are dieting. To explain why dieting may not result in weight loss, a detailed picture was needed as to people’s behavior when they report that they are dieting, including weight loss strategies and dietary intake. Other constructs previously studied as similar to dieting were “watching what I eat” and “eating healthy.” More information was needed on the behaviors comprising these types of eating. Finally, research had examined predictors of dieting and weight loss behavior, but work was needed to unify results from across this area. This study used a daily diary methodology with a sample of college women to investigate the behaviors involved in dieting, the way dieting differs from “watching” and “eating healthy,” and which predictors of dieting behavior are the most salient. Dieters reported more behavior changes than non-dieters and individuals who reported “watching” or “eating healthy,” in terms of both dietary intake and weight loss strategies. “Watching” and “eating healthy” were behaviorally similar. In terms of predicting weight loss strategies and caloric intake, a factor

comprised of weight loss goal and appearance motivation was significant among dieters.

Among non-dieters, a different pattern of significant predictors suggested some unhealthy beliefs and strategies.

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At any given time, about 30-50% of adult women in the U.S. respond “yes” when asked if they are dieting (Neumark-Sztainer, Wall, Larson, Eisenberg, & Loth, 2011; Savage, Hoffman, & Birch, 2009). Yet researchers have noted for at least 20 years that dieting, while frequently discussed in the psychological study of eating and in the popular press, is impossible to measure accurately because it lacks a clear definition (Brownell & Rodin, 1994; French & Jeffery, 1994; Lowe, Doshi, Katterman, & Feig, 2013; Savage et al., 2009). This problem has not been fully resolved today, although dieting is understood to involve changing dietary intake with a goal of weight loss or maintenance (Stice, Fisher, & Lowe, 2004). “Dieting” does not represent one unitary construct, because the behaviors and the outcomes of dieting differ significantly across individuals, for instance across weight statuses (Lowe & Timko, 2007; Stice, Sysko, Roberto, & Allison, 2010).

Dieting as a construct is important to investigate for both psychological and medical reasons. Through the years, researchers have debated whether dieting is a precursor to eating disorders (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004). Though evidence suggests that dieting does not appear to predict the development or maintenance of bulimia nervosa (Lowe, Gleaves, & Murphy-Eberenz, 1998; Lowe & Levine, 2005; Stice & Presnell, 2010; Wadden et al., 2004), much less is known about the relationship between dieting and anorexia nervosa. This is likely due to the fact that dieting has not been defined in a way that firmly distinguishes it from other restrictive eating. Certainly, research is needed in order to investigate the limits of dieting versus other restrictive eating.

Meanwhile, dieting is routinely recommended for overweight individuals with certain medical problems associated with obesity, such as high blood pressure and high

cholesterol (National Task Force on the Prevention and Treatment of Obesity, 2000).

Dieting is considered to be safe for overweight or obese individuals, in that it does not significantly predict disordered eating (Lowe & Levine, 2005; Wadden et al., 2004).

Importantly, however, dieting does not necessarily lead to sustained weight loss (Mann et al., 2007). More thorough research into the specific behaviors of dieters could address the fact that only some dieters appear to be successful at weight loss.

The present study sought to find an updated, precise operational definition of dieting, by investigating which specific weight loss and eating behaviors people actually use when they report that they are dieting, and by examining the similarities and differences between dieting and other “watchful” or “careful” eating. Furthermore, this study aimed to bring together and test a set of variables previously found across disparate studies to predict dieting behaviors. The intent was to use the findings from this study to clarify the functional meaning of dieting and its prediction, and in doing so generate new knowledge for researchers and clinicians alike.

Defining Dieting

A consensus definition of dieting was proposed by Stice, Fisher, and Lowe (2004): “intentional and sustained restriction of caloric intake for the purposes of weight loss or weight maintenance” (p. 51). However, people who endorse dieting are generally shown to *gain* weight from baseline across follow-up assessments from eight months to nine years (Lowe et al., 2013). Still, a subset of individuals *do* lose a significant amount of weight and maintain these losses: individuals who have been referred to as “successful dieters” (DelParigi et al., 2007; Green, Larkin, & Sullivan, 2009; Kiernan, King, Kraemer, Stefanick, & Killen, 1998; Meule, Papiés, & Kübler, 2012). Lowe and

colleagues (2013) hypothesized that dieting among normal weight individuals may be best described as an effort to simply *prevent* weight gain. Research is needed to clarify which *behaviors* are used by individuals who state that they are dieting, and which behaviors make up “successful” (long-term weight loss or maintenance) dieting (French & Jeffery, 1994; Martz, Sturgis, & Gustafson, 1996; Ogden, 1993; Timko, Perone, & Crossfield, 2006).

Assessing Dieting

In order to understand “dieting,” it is important first to review how it is frequently assessed. Some validated questionnaires for dieting exist, but there is no consensus in the literature as to a “gold standard” measure. Commonly, researchers in the fields of psychology and nutrition have used a single, clearly-worded item to assess dieting, such as “Are you currently dieting to lose weight?” (Heatherton, Nichols, Mahamedi, & Keel, 1995; Keel, Baxter, Heatherton, & Joiner, 2007; Neumark-Sztainer, Wall, et al., 2006; Neumark-Sztainer et al., 2011). Some evidence suggests that a response to a single, straightforward item that asks whether or not one is currently dieting *does* predict actual dietary intake, but only among overweight individuals (Neumark-Sztainer, Jeffery, & French, 1997). Other evidence suggests that a single item assessing dieting is insufficient to predict whether individuals are truly engaging in weight loss efforts, because many people who do not report that they were dieting nevertheless endorse a high number of weight loss behaviors (French, Jeffery, & Murray, 1999). These findings, coupled with the common practice of using single-item measures, suggest that it is important to further study what is assessed by single-item dieting measures. One novel way to do this is to

investigate which weight loss and eating behaviors people endorse when they respond affirmatively to such a question.

Another way to understand the meaning of “dieting” is to examine how others have studied it. A review of other measures used to assess dieting is instructive as to the definition of dieting, and the manner in which it changed over the years.

Restraint Scale

Restraint was an early construct that conceptualized dieting as a pattern involving distinct periods of *both* restrained eating and disinhibited (binge) eating (Herman & Polivy, 1980). It was first assessed with the Restraint Scale (RS; Herman & Mack, 1975) and the revised Restraint Scale (Herman & Polivy, 1980). Sample Restraint Scale items ask how often the participant diets, and whether the person eats “sensibly” in front of others and “splurges” alone (p. 212; Herman & Polivy, 1980). Later research found two subscales in the measure, Weight Fluctuation and Concern for Dieting (van Strien, Herman, Engels, Larsen, & van Leeuwe, 2007). The restraint scale has been studied extensively in samples of adolescents and adults and across weight statuses (reviewed by Lowe and Thomas [2009]). Importantly, the periods of disinhibition and weight fluctuation captured by this measure are no longer considered to be necessary components of dieting (Laessle, Tuschl, Kotthaus, & Pirke, 1989; Lowe, 2002; Lowe & Thomas, 2009).

Three-Factor Eating Questionnaire

The Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985) was developed to broadly assess eating behavior and to improve on the RS by better capturing the behaviors of obese individuals. The measure has two distinct factors assessing

restraint and disinhibition, and a third factor assesses susceptibility to hunger. Some research has suggested that the restraint scale of this measure may be better represented by two factors; rigid and flexible control of eating (Westenhoefer, 1999). A limitation is that this measure inquires about a specific set of possible weight loss behaviors, so individuals may inadvertently score low if they are attempting to lose weight but are using techniques other than the ones listed (Howard & Porzelius, 1999). Higher scores on the TFEQ restraint scale are not consistently correlated with lower dietary intake, although such correlations have been shown in some cases (Stice, Cooper, Schoeller, Tappe, & Lowe, 2007; Stice, Presnell, Lowe, & Burton, 2006; Stice et al., 2010; Stice, Fisher, & Lowe, 2004). This measure has been used and researched more frequently than other dieting assessments, and merits further study.

Dutch Eating Behavior Questionnaire

The Dutch Eating Behavior Questionnaire (DEBQ; van Strien, Frijters, Bergers, & Defares, 1986) was also intended to assess the eating behavior of obese individuals. The DEBQ contains a restraint scale that taps restrictive eating. In addition, scales were added to assess emotional eating (in response to internal strong emotional cues) and external eating (in response to external cues, such as appetizing food). Similar to the TFEQ, this measure is limited in that higher scores on its restraint scale are only inconsistently associated with intake (Stice et al., 2007, 2006, 2010; Stice, Fisher, & Lowe, 2004).

Cognitive-Behavioral Dieting Scale

The Cognitive-Behavioral Dieting Scale (CBDS; Martz et al., 1996) was explicitly developed to assess dieting cognitions and behavior in a way that distinguished

it from the early construct of restraint (again, involving periods of both restriction and disinhibition). Importantly, its authors conceptualized dieting as a continuous, rather than dichotomous, variable. Although the CBDS successfully assesses limited or restricted eating and not disinhibition, it has rarely been used. Furthermore, there have not been additional studies of its psychometrics, other than those of the original authors.

Eating Attitudes Test Dieting Scale

The Eating Attitudes Test (EAT; Garner & Garfinkel, 1979) and its shortened form (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) contain dieting scales. The initial EAT was developed to assess multiple dimensions of anorexia nervosa, and the dieting factor was found in an initial factor analysis. A second EAT factor reflects disinhibition or bulimic behaviors. This scale is limited in that it was not designed to assess dieting per se, but rather dieting as a component of disordered eating. Its psychometrics as a standalone assessment of dieting have not been studied.

Eating Disorder Examination-Questionnaire Restraint Scale

The Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) has a 5-item restraint scale that measures efforts to change one's body shape or body weight. Scores in the top tertile on the dieting scale are considered to denote dieting (Fairburn, Cooper, Doll, & Davies, 2005). This measure, like the EAT, was not originally developed as a standalone assessment of dieting and its psychometrics for assessing dieting have not been examined.

Summary of Common Dieting Questionnaires

While there has been extensive research on the psychometrics of the RS, TFEQ, and DEBQ (Laessle et al., 1989; Lowe et al., 2013; Lowe & Thomas, 2009; van Strien et

al., 2007), there has been minimal research on the psychometrics of the other measures mentioned above, particularly regarding their validity for assessing weight-loss dieting. This may partially explain why none of the measures has clearly been established as the optimal dieting measure (Lowe & Thomas, 2009). In turn, this may be due to the lack of consensus in psychology as to a definition of dieting.

Dieting as Compared to Other Types of Eating

One way to understand dieting *behavior* is to determine how it compares to other types of watchful or careful eating. First, “watching what you eat” has, like dieting, been hypothesized to be either a weight loss or a weight maintenance technique (Nichter, Ritenbaugh, Nichter, Vuckovic, & Aickin, 1995; Reid, Hammersley, & Rance, 2005; Williamson et al., 2007). Among adolescents, those who reported watching what they ate reported healthier eating, including more fruits and vegetables and fewer snacks, than those who reported dieting. Adolescents who watched what they ate reported that it involved flexibility in what they ate, and attention to their health (Nichter et al., 1995). However, among adults, “watching” did not appear to be a healthier way of eating than dieting (Reid et al., 2005). “Watching” among adults has been hypothesized to reflect, somewhat paradoxically, *either* a vigilance that leads to successful weight loss, or a barrier to successful weight loss. It may be a barrier inasmuch as people may believe they are making changes to their eating, when in reality they are simply observing the healthy and unhealthy aspects of their eating (Green et al., 2009).

Another type of eating that may resemble dieting is “eating healthy.” Young adolescent girls (ages 12 - 13) in one study thought that the predominant behaviors in both dieting and healthy eating were eating more fruits and vegetables, and using

restrictive eating, such as cutting out all fat (Roberts, Maxwell, Bagnall, & Bilton, 2001). In a qualitative study of adults, female participants generally said that “eating healthy” was a healthier behavioral repertoire than dieting, although women’s actual eating was not monitored. Whereas these women perceived dieting to involve excessive deprivation, they described eating healthy as a more moderate way of eating in a nutritionally sound way; some used the phrase “watching what you eat” interchangeably with “eating healthy” (Chapman, 1999).

In a similar study of other weight loss efforts, French and Jeffery (1994) posed two questions: “Are you currently trying to lose weight?”, to which 40% of women responded “yes,” and “Are you currently dieting to lose weight?”, to which 26% of women responded “yes.” Given this discrepancy, these authors proposed that “dieting” is a more specific term than “trying to lose weight,” though more information is needed in order to understand in what ways the behaviors differ. Among college students (in a study which did not use the term “dieting”), females who responded affirmatively to “trying to lose weight” were more likely than other female students to eat fewer than two servings of fat per day, but were *not* more likely to eat more than five servings of fruits and vegetables (Lowry et al., 2000).

Results from these studies suggest that individuals’ perceptions of the meaning of dieting (and sometimes the reported food intake) differ from that of other careful or watchful eating, but research is needed to determine which weight loss *behaviors or strategies* truly differ between individuals who endorse these types of eating.

Furthermore, additional research is needed with adults, as most research in this area has been with adolescents. An approach which involves detailed, daily monitoring of the

dietary intake and weight loss strategies of adults who report using these types of behaviors should further contribute to the definition of dieting, and of “watching,” “eating healthy,” and trying to lose weight.

Weight Control Strategies in Dieting

It is an accepted fact that dieting can involve a variety of weight loss techniques or strategies (Stice & Presnell, 2010). It is less clear *which* behaviors individuals use on actual dieting days, and how one can predict their use. Qualitative studies indicated that people who say they are dieting endorse reducing calories, eating different foods, increasing exercise, changing attitudes and making plans, changing eating habits, joining programs such as Jenny Craig or Weight Watchers, using medications or complementary/alternative/integrative therapies, drinking diet milkshakes, and starving/fasting (Knäuper, Cheema, Rabiau, & Borten, 2005; Thomas, Hyde, Karunaratne, Kausman, & Komesaroff, 2008; Timko et al., 2006). This research begins to answer the question of which weight loss strategies comprise dieting, but inconsistencies are numerous, in part because questions asked across studies have differed.

In the absence of a standardized measure to assess the range of possible weight loss strategies in dieting, some researchers produce their own lists of behaviors and ask participants to endorse the ones they use (French et al., 1999; French, Perry, Leon, & Fulkerson, 1995; Malinauskas, Raedeke, Aeby, Smith, & Dallas, 2006; Neumark-Sztainer, Wall, et al., 2006; Putterman & Linden, 2004; Shamaley-Kornatz, Smith, & Tomaka, 2007). Such lists range in level of detail (11 to 24 behaviors), and typically include items inquiring about eating fewer calories, adding more exercise, eating less fat,

skipping meals, and purging via vomiting and laxatives. Other items that are frequently but less consistently included across lists are: eating fewer carbohydrates, eating fewer sweets, and fasting. The methodology used in compiling such lists is inconsistent, and because the lists differ, comparison of findings across studies is problematic. At this time, research unifying these discrepant yet related lists of behaviors would be a significant contribution to an operational definition of dieting.

Individuals who report that they are dieting may not necessarily use more weight control strategies on a daily basis. Some researchers have questioned whether self-reported dieting reflects simply a desire or intention to change behavior, rather than actual change in behavior (French & Jeffery, 1994; Ogden, 1993; Timko et al., 2006), which is plausible given findings that self-reported dieting does not reliably lead to weight loss (see review, Lowe et al., 2013). Clarifying the meaning of “dieting” must involve a more complete analysis of which behaviors dieters endorse, an investigation into which behaviors dieters actually implement on days when they indicate that they are dieting, an exploration of what dieters eat when dieting, and an examination of whether dieters lose, maintain, or gain weight.

Exercise/Physical Activity and Dieting

One dieting strategy that should be further explored is exercise/physical activity. Physical activity is defined as bodily movement resulting in the expenditure of energy, while exercise is physical activity which is planned and performed with the intention of achieving health benefits (Caspersen, Powell, & Christenson, 1985; Strath et al., 2013). Physical activity and/or exercise have at times been queried in studies as possible dieting techniques (French, Jeffery, & Forster, 1994; French et al., 1999; Savage et al., 2009),

though they are frequently not included as relevant variables. Certainly, exercise and physical activity are common among those who report that they are dieting; 50-75% of women who said they were dieting reported increased exercise along with decreased caloric intake (French & Jeffery, 1994; Stice & Presnell, 2010), and 9% reported increased exercise only (French & Jeffery, 1994). Dieters who increased exercise in addition to reducing calories lost more weight than those who did not add exercise (Knäuper et al., 2005). And individuals who have lost significant amounts of weight and sustained the loss consistently report elevated physical activity (Wing & Phelan, 2005). It also has been found that among college women, Hispanic women report exercising for weight loss more than Caucasian women do (Shamaley-Kornatz et al., 2007). Interestingly, Hispanic girls report that exercise makes them feel good about their bodies significantly more often than Caucasian girls do (McLaughlin, Belon, Smith, & Erickson, 2015).

Taken together, these results show that exercise and physical activity have an important relationship with both self-reported dieting and successful weight loss. Exercise and physical activity should be assessed consistently in studies of individuals who report that they are dieting, since otherwise only an incomplete picture of an individual's overall weight loss efforts can be obtained.

Dietary Intake of Dieters

Given that dieting has been defined as a sustained reduction in caloric intake (Stice, Fisher, & Lowe, 2004), and dieters report decreased caloric intake as a weight loss technique they use when dieting (Knäuper et al., 2005; Timko et al., 2006), formal investigation of dieters' intake is an essential component of the assessment of dieting.

Interestingly, studies formally assessing dieters' food intake have obtained somewhat inconsistent results regarding dieters' overall intake, and the health of their eating, as compared to that of other individuals.

Overall Amount of Intake

Research has not confirmed that people who report dieting actually eat in a way that would predict weight loss; namely, consuming less overall energy (fewer calories) than one expends (Lowe, 2002). In some cases individuals who said they were dieting reported lower mean caloric intakes than non-dieters, such as on a retrospective diary assessing past-year intake (Neumark-Sztainer et al., 1997). However, scores on several common scales of restrictive eating or restraint were not typically correlated with individuals' dietary intake, whether intake was measured on single occasions or over periods of several months (Stice et al., 2007, 2006, 2010; Stice, Fisher, & Lowe, 2004). In a few instances, higher scores on the TFEQ and DEBQ *were* correlated with lower intake (Stice, Fisher, & Lowe, 2004; Stice et al., 2010), but these studies had some limitations. It also was proposed that assessment at a single eating occasion does not provide a complete picture, and that periods of disinhibited eating are not necessarily incompatible with eating patterns that are overall more restrained (Tatjana van Strien, Engels, van Staveren, & Herman, 2006). However, these findings suggest that individuals' self-reports of dieting do not indicate actual reduced intake that would likely lead to weight loss. Although future research is needed to validate available dieting measures, a reasonable starting point entails investigating whether responses on the widely-used single-item measures do, in fact, predict restricted eating that would be sufficient to lead to weight loss.

Healthiness of Intake

The relative healthiness of dieters' food intake is also of interest, given previous inconsistent findings. Responses on a national adult survey indicated that dieters ate more healthily than non-dieters, as demonstrated by the dieters having significantly increased fiber and calcium intake, and decreased saturated fat and cholesterol intake compared to non-dieters (Biener & Heaton, 1995). On a measure of past-year eating, dieters reported a healthier pattern than non-dieters, with fewer calories from fat and sweets, and more from protein and carbohydrates (French & Jeffery, 1997). However, a review of nutrition articles assessing the actual macronutrient intake of people following diet plans suggested that diets were generally nutritionally inadequate (Ruxton, 2011).

Research has more thoroughly investigated the intake of adolescent dieters. Adolescent dieters are more likely than non-dieters to reduce intake of sweets, salty foods, snacks, and fatty foods, but they do not consistently show differences in fruit/vegetable, or soft drink consumption (Lattimore & Halford, 2003; Ramos, Brooks, García-Moya, Rivera, & Moreno, 2013). However, adolescent dieters who use unhealthy methods of weight control (i.e., diet pills or vomiting) eat fewer fruits/vegetables and more high-fat foods than adolescent dieters who do not use unhealthy methods (Murray, Neumark-Sztainer, Sherwood, Stang, & Story, 1998). Adolescents who endorse both dieting and high levels of concern about weight report less healthy eating than others who are neither dieting nor highly concerned about their weight (Woodruff, Hanning, Lambraki, Storey, & McCargar, 2008). It is not known whether adolescent and adult dieting are comparable. Taken together, these findings suggest a need for further research assessing the actual food intake of dieters.

Predictors of Dieting Behaviors

In order to understand what dieting means, it is crucial to understand why dieting occurs in the first place (Lowe & Timko, 2007). A variety of predictors of dieting, reviewed below, have been researched across studies. One goal of the present study was to clarify the relationships between these variables. This would give providers better tools to predict which individuals might be at risk for using unsafe weight loss techniques, and which individuals are likely to be able to diet in safer, healthier, and more successful ways.

Historical Dieting

Some researchers posited that dieting history is an important dimension to examine, because individuals with a high number of past episodes of dieting (historical dieting) reported using more weight loss techniques in the year preceding assessment than individuals with a low number of past episodes of dieting (French & Jeffery, 1997; Lowe, 1993). In an fMRI study, historical dieters, current dieters, and non-dieters were shown food-related stimuli while hungry and after eating a high-calorie meal. Historical dieters showed increased activation in reward pathways after the meal, compared to the other two groups (Ely, Childress, Jagannathan, & Lowe, 2014). Historical dieting may indicate a susceptibility to tempting food cues and a propensity to use a variety of weight loss behaviors.

Weight Maintenance versus Weight Loss Goal

Another predictor of dieting behavior is the individual's weight goal, since dieting to maintain one's weight is distinct from dieting to lose weight (Stice, Fisher, & Lowe, 2004). In studies that ask individuals why they are dieting, approximately equal numbers

of individuals endorse each of the two weight goals (Timko et al., 2006). Evidence indicates that individuals who diet for weight loss reasons use both more healthy (e.g., exercise) and unhealthy techniques than those who diet for weight maintenance (French & Jeffery, 1997; Timko et al., 2006).

Motivation for Dieting

Interest in improving one's health and appearance are two major motivations for weight loss (Brink & Ferguson, 1998; Putterman & Linden, 2004). Individuals who endorse an appearance motivation report the use of more negative and unhealthy dieting behaviors than those who endorse a health motivation. The use of caloric restriction as a weight loss strategy does not differ according to weight loss motivation (Putterman & Linden, 2004).

Rigid versus Flexible Dieting

Another dichotomy that has been studied is whether dieting is rigid or flexible (Stewart, Williamson, & White, 2002; Westenhoefer, 1999). As noted earlier, the Three-Factor Eating Questionnaire's (Stunkard & Messick, 1985) restraint scale can be better represented by two scales, signifying rigid and flexible control of eating (with several items added to each scale; Westenhoefer, 1999). Rigid control is positively correlated with disinhibition, bingeing, body dissatisfaction, depression, anxiety, higher BMI, and dysfunctional eating attitudes (Stewart et al., 2002; Westenhoefer, 1999). Flexible control is positively correlated with lower energy intake and higher probability of weight loss (Westenhoefer, 1999). Thus, rigid and flexible control may represent dimensions of eating that are associated with more and less problematic correlates, respectively, but further research is needed.

Weight Status

Importantly, dieting likely does not have the same functional meaning across individuals of different weight statuses (Brownell & Rodin, 1994; Lowe & Levine, 2005; Lowe & Timko, 2007). Overweight and obese individuals report dieting more often than those in the normal weight range (de Ridder, Adriaanse, Evers, & Verhoeven, 2014; French & Jeffery, 1994; Pietiläinen, Saarni, Kaprio, & Rissanen, 2012; Savage et al., 2009), but in terms of actual weight loss outcomes of dieting for overweight individuals, real-world/self-directed dieting (as opposed to following a controlled plan or program) has not been shown to lead to significant, sustained weight loss (Butler, 2004; Mann et al., 2007; Schelling, Munsch, Meyer, & Margraf, 2011). Dieting may not be sufficient to produce weight loss, because while dietary change such as reducing daily calories is a necessary component of weight loss, it should be combined with physical activity and behavioral techniques, especially self-monitoring (Wadden, Webb, Moran, & Bailer, 2012).

Although dieting may at times predict binge eating and related disorders in some normal weight individuals, obese individuals on controlled weight loss plans do not develop binge eating at significant rates (Lowe & Levine, 2005; Lowe & Timko, 2007; Wadden et al., 2004). Furthermore, those obese individuals who report binge eating before adopting a diet plan actually decrease their binge eating afterward (Stice & Presnell, 2010). However, much of the research in this area has involved dieters participating in controlled weight loss plans as prescribed in treatment programs, and it is unclear whether this is the same behavior as dieting in real-world, naturalistic settings (Stice & Presnell, 2010). Existing research provides some information about naturalistic

dieting among overweight/obese individuals, but more is needed. For instance, obese college females reported the behavior of “eating less than they want” as a dieting technique more often than normal-weight women, and using artificial sweeteners as a dieting technique much less often than normal-weight women (Malinauskas et al., 2006). Additionally, overweight female dieters endorsed the same amount of exercise but less weight fluctuation than normal weight female dieters, although they also endorsed worse nutrition (Biener & Heaton, 1995). With this information as a foundation, more complete knowledge of the behaviors that overweight and obese individuals use while dieting should clarify the meaning of the dieting construct across weight statuses, and contribute to recommendations about which components of dieting can help overweight individuals successfully lose weight.

Depression

Mood symptoms may be an important predictor of dieting behavior, and yet the findings about the relationship between depression and dieting are inconclusive. Although it has been proposed that dieting causes depression, perhaps because of emotional reactions to repeated unsuccessful weight loss attempts or the physiological effects of caloric restriction (Markowitz, Friedman, & Arent, 2008), experimental evidence for this relationship has been weak (Stice, 2001). Some evidence suggests that there is a biological relationship between lower fatty acid intake (that is sometimes associated with dieting) and greater depression symptoms (Bruinsma & Taren, 2000). Depression and distress associated with dieting are worse in individuals with pre-existing psychological problems (French & Jeffery, 1994).

Dieting in youth with concurrent depression or negative affect is more problematic than dieting in youth without mood symptoms, in that the former involves more dangerous weight loss techniques, psychological correlates, and risk for eating disorders (Crow, Eisenberg, Story, & Neumark-Sztainer, 2006; Isomaa, Isomaa, Marttunen, Kaltiala-Heino, & Björkqvist, 2010). Examining depression as a cross-sectional correlate of dieting among adults thus appeared worthwhile.

Thin Ideal Internalization and Body Dissatisfaction

Another theoretically important construct predicting dieting behavior is thin ideal internalization, or the internalization of societal standards which value thinness (Thompson & Stice, 2001). It appears to be an indirect predictor of dieting, with the relationship mediated by body dissatisfaction (Stice, 2001). Body dissatisfaction is a salient predictor of self-reported dieting (Liechty & Lee, 2013; Stice, 2001), and evidence suggests that higher body dissatisfaction predicts the use of more unhealthy weight loss behaviors (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). Furthermore, body dissatisfaction tends to be associated with other predictors of dieting: appearance motivation (Putterman & Linden, 2004), rigid control (Westenhoefer, 1999), and higher BMI (Millstein et al., 2008; Schwartz & Brownell, 2004).

Eating Disorder Symptomatology

As noted, dieting does not appear to predict the development or maintenance of bulimia nervosa (Lowe, Gleaves, & Murphy-Eberenz, 1998; Lowe & Levine, 2005; Stice & Presnell, 2010; Wadden et al., 2004), but research has not systematically addressed the relationship between dieting and anorexia nervosa. Nevertheless, research clearly indicates that some individuals who report dieting rely on weight loss strategies also

found in eating disorders, such as vomiting, laxative misuse, and fasting (Hill, 2002).

More information is needed to understand the cases in which dieting is associated with a clinical or subclinical eating disorder.

Various predictors of dieting across studies have been summarized. However, these predictors need to be examined concurrently in a single study in order to improve parsimony in the assessment of dieting behavior. For instance, body dissatisfaction is a known mediator of the relationship between thin ideal internalization and dieting (Stice, 2001). Given this, it is possible that body dissatisfaction is a more prominent predictor of dieting behavior than other hypothesized predictors. It is also possible that predictors investigated separately across studies may tap similar constructs despite differing terminology.

The Present Study

The present study assessed daily eating and weight control strategies of people who did and did not report current dieting in order to test the assertion that dieting involves true behavior change that could result in weight loss. In addition, other types of watchful, careful, or restrictive eating were assessed, and formal and informal comparisons were conducted. Finally, various predictors of dieting behavior (e.g., historical dieting, weight goal, motivation for dieting) that have been found across studies were drawn together into a single model to predict the use of weight control strategies, and the amount of daily calories eaten.

This study used daily diary methodology to investigate dieting *behaviors* in a more precise way than had been done in previous research. People who report that they are dieting state that their diets last, on average, four to seven weeks (French & Jeffery,

1994). By conducting several assessments within a shorter time frame than four weeks, and by examining dieters' weight control behaviors or techniques (such as counting calories or skipping meals) with a more comprehensive checklist than had been used previously, this study captured a behavioral snapshot of dieting. Furthermore, this study used three daily 24-hour food logs to assess *dietary intake* of individuals. Dietary intake is not routinely assessed in weight loss research despite its important role in weight maintenance or change, likely because accurate assessment of dietary intake can be labor intensive for participants and researchers. Previous research has shown that three 24-hour recalls can accurately capture individuals' average dietary intake (Jonnalagada et al., 2000; Ma et al., 2009).

Hypothesis One: Comparing Dieters and Non-dieters

The first goal of the current study was to assess the weight control strategies and dietary intake of individuals who reported current dieting (responding “yes” to a single-item question asking whether they are dieting), and of those individuals who reported other types of eating hypothesized to be similar to dieting: “watching what I eat” and “eating healthy.” Although previous findings suggested that participants might believe these types of eating to be less extreme than dieting, research had not formally examined the daily behaviors involved in these types of eating among adults. Therefore, specific hypotheses about the behaviors involved in these types of eating were not made, and descriptive statistics were presented.

Formal statistical analyses compared dieters and non-dieters on several variables. The non-dieting group included *all* individuals who did not report dieting, even if they reported “watching” or “eating healthy.”

Hypothesis 1a. Dieters were expected to obtain higher scores on the TFEQ restraint scale than non-dieters.

Hypothesis 1b. Dieters were expected to endorse the use of more weight control strategies than non-dieters.

Hypothesis 1c. Dieters were expected to endorse the use of more exercise (average number of minutes per day) than non-dieters.

Hypothesis 1d. Dieters were expected to report eating less (in terms of average caloric intake) than non-dieters.

Hypothesis 1e-1i. Dieters were expected to report healthier eating than non-dieters as shown by the following (on average) across daily diaries:

- 1e. Lower percent energy from fat
- 1f. Lower percent energy from sweets
- 1g. Lower teaspoons of added sugars
- 1h. Higher number of servings of fruits per day
- 1i. Higher number of servings of vegetables per day

Hypothesis Two: Predictors of Weight Control Strategies and Caloric Intake

The second set of analyses tested the relative predictive ability of 12 variables found to be important across studies (listed below), to predict (1) overall frequency of weight control strategies, (2) frequency of healthy weight control strategies, (3) frequency of *un*healthy weight control strategies, and (4) average caloric intake.

The variables that were tested as predictors are: dieting history, weight loss goal, weight maintenance goal, health motivation for dieting, appearance motivation for dieting, weight status (BMI), depression symptoms, thin ideal internalization, body

dissatisfaction, and eating disorder symptomatology. These variables were tested as predictors in dieters and in non-dieters. These variables had not been tested simultaneously in previous research, and so it was not possible to make hypotheses about the predictive ability of *all* variables. The analyses predicting caloric intake, in particular, were exploratory. Nevertheless, the existing research evidence gave rise to a few specific hypotheses:

Hypothesis 2a. In terms of *overall* frequency of weight control strategies used: higher degree of endorsement of eating to lose weight, more historical dieting, and higher body dissatisfaction would be significant predictors among dieters (French & Jeffery, 1997; Lowe, 1993; Malinauskas et al., 2006; Stice, 2001; Timko et al., 2006).

Hypothesis 2b. In terms of frequency of *healthy* weight control strategies: higher degree of endorsement of eating for health reasons and higher degree of endorsement of eating to lose weight would both be significant predictors among dieters (Brink & Ferguson, 1998; French & Jeffery, 1997; Putterman & Linden, 2004; Timko et al., 2006)

Hypothesis 2c. In terms of frequency of *unhealthy* weight control strategies: higher degree of eating for appearance reasons, higher degree of endorsement of eating to lose weight, more depressive symptomatology, higher body dissatisfaction, and higher scores on rigid control of dieting would be significant predictors among dieters (Brink & Ferguson, 1998; French & Jeffery, 1997; Isomaa et al., 2010; Putterman & Linden, 2004; Stewart et al., 2002; Timko et al., 2006).

Method

Participants

Undergraduate women were recruited through the University of New Mexico online participant pool, SONA. Only women were recruited as there is minimal research regarding dieting in men, and a goal of this study was to synthesize past research findings. Participants were required to be age 18 years or older. Individuals were excluded from participation if they (1) were currently pregnant; (2) were currently in treatment for a serious medical disorder that affected their eating behavior (French et al., 1999; Presnell, Stice, & Tristan, 2008); (3) had ever had weight loss surgery, since changes in eating are required after such surgeries; or (4) did not have access to a computer with reliable internet access (needed to complete the daily diaries). These exclusionary criteria were listed on the SONA website and participants were asked not to sign up for participation if they met any of the criteria. These exclusionary criteria also were queried on the demographics form, so that any individuals who initiated participation but who met these exclusionary criteria could be removed from participation ($n = 0$).

It was planned that individuals who had eating disorders would not be excluded, in part because sufficient screening and diagnosis was not possible. Furthermore, learning more about the relationship between eating disorder symptomatology and dieting status was of interest in the study. Importantly, participants who completed the study were provided with information about community resources to support individuals with eating disorders or related concerns.

The proposed sample size for the study was 500, in order to obtain sufficient samples of both individuals who did and did not endorse current dieting. Across studies of adults, including college students, around 30% of individuals typically reported dieting at any given time (Lowry et al., 2000; Neumark-Sztainer et al., 1997; Savage et al., 2009; Timko et al., 2006). Planned comparisons testing differences between people who did and did not report dieting (discussed below) required 64 individuals per group in order to have 80% power to detect a medium effect size (Cohen, 1992). Planned regression analyses in the group of individuals who reported dieting (discussed below) required between 150 and 200 participants to detect a medium effect size (Field, 2009; Miles & Shevlin, 2001). Although some attrition of study participants was expected, the procedures were arranged to facilitate study completion.

Procedure

Participation took place both in person and online. In order to enroll in the study, participants signed up on the SONA participant pool website for a one-hour in-person meeting. At this meeting, they gave their informed consent, were weighed, had their heights taken, and completed baseline questionnaires. Subsequently, participants completed daily diaries on their own devices on three random days, one of which was a weekend. These three recalls fell within a four-week period after a participant's baseline visit. The diaries were requested by email. The diaries themselves were completed on two web-based platforms, Opinio/eSurvey for the weight control strategies questionnaire, and ASA24 for the food log. After the completion of the third daily diary, participants attended a final in-person meeting, at which time they completed a final questionnaire, were weighed once more, and were debriefed on the study.

Baseline Measures

Demographic questionnaire (Appendix A). A brief form requested participants' age, racial/ethnic identification, level of education, and marital status.

Baseline dieting questionnaire (Appendix B). Given that a measure synthesizing all variables of interest did not exist, a dieting questionnaire was compiled for this study using variables previously assessed across dieting studies. This questionnaire assessed dieting history, current dieting status, dieting goal, and motivation for dieting.

Dieting history was assessed with a single item assessing frequency, based on items used by other researchers (French & Jeffery, 1997; Lowe et al., 2006): "How many times in your life have you been on a diet to lose weight, excluding any time you were ill?" Current dieting was assessed with a single item with a "yes" or "no" response: "Are you currently dieting?" Using the same format, participants responded to: "Are you currently watching what you eat?" and "Are you currently eating healthy?" Thus, this measure allowed for the creation of groups based on dieting status and/or other types of eating. These groups were not mutually exclusive; participants could be assigned to more than one (e.g., dieting + "watching").

Participants also used 0 ("Not at all") to 8 ("Very much") rating scales to respond to the question: "To what degree are you currently dieting?", and to parallel items to rate their degree of "watching" and "eating healthy." Participants were also asked to use 0-to-8 rating scales to report the degree to which they were eating the way they were in order to lose weight and to maintain weight (referring to their goals), and for health reasons and for appearance reasons (referring to their motivations). Rating scales were deemed to be appropriate to allow for variability and non-exclusivity in responding. For instance,

dieters previously were shown to endorse both health and appearance motivation, so it was undesirable to artificially force a choice of just one option (Meyer, Weissen-Schelling, Munsch, & Margraf, 2010; Schelling, Munsch, Meyer, & Margraf, 2011).

Three-Factor Eating Questionnaire - Restraint Scale (TFEQ Restraint; Stunkard & Messick, 1985; Appendix C). The TFEQ is a commonly used 51-item measure assessing disinhibition, susceptibility to hunger, and restraint. The factors were developed theoretically and refined empirically through factor analysis. The initial measure was validated in a group of dieters and a group of non-dieters. The restraint scale alone (21 items) was selected as an additional measure of dieting in this study, as in previous work (Laessle et al., 1989; Stice, 2001; Stice et al., 2007). The restraint scale contains 12 true-or-false items and 8 items with several response options, such as “Not at all,” “Slightly,” “Moderately,” or “Extremely.” Although scores on this scale have been associated with dietary intake inconsistently, this measure was also shown to predict dietary intake with more success than other measures (Stice et al., 2010).

In this study, Cronbach’s α for this measure was .21. In contrast, when the scale was developed, Cronbach’s α was .79 in “dieters” and .92 in “free eaters” (Stunkard & Messick, 1985). Further examination in the present study showed that removing items did not yield improved internal reliability. Since the value obtained in this study fell well below the often recommended cutoff of .70 for Cronbach’s α (Tavakol & Dennick, 2011), it was decided that this measure could not be analyzed in the study.

Patient Health Questionnaire (PHQ-9; Kroenke & Spitzer, 2002; Appendix D). The PHQ-9 is a 9-item screening measure for depression, which assesses each of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American

Psychiatric Association, 1994) criteria for major depressive disorder. As these criteria do not differ for the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013), the PHQ-9 remains acceptable. Respondents indicated the number of times in the prior two weeks they encountered each symptom, from “not at all” (0 points) to nearly every day (3 points). Possible scores range from 0 to 27, and cut-points of 5, 10, 15, and 20 points indicate mild, moderate, moderately severe, and severe depression (Kroenke & Spitzer, 2002). Across studies, a cutoff score of 10 has been used to indicate the presence of clinically significant depression (Gilbody, Richards, Brealey, & Hewitt, 2007). The PHQ-9 has high sensitivity and specificity in diagnosing clinical depression when compared to structured interviews (Gilbody et al., 2007). Its accuracy in diagnosing major depression is significantly better than that of comparable screening measures (Löwe et al., 2004). In this study, Cronbach’s α for this measure was .85.

Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000; Appendix E). This 22-item measure assesses *DSM-IV* anorexia nervosa, bulimia nervosa, and binge eating disorder. It also provides an overall symptom composite capturing eating disorder symptomatology more broadly. As a version updated for *DSM-5* is not available, the measure was modified to assess *DSM-5* criteria. This measure has good convergent validity with structured diagnostic interviews, and has good sensitivity and specificity for diagnosing each *DSM-IV* eating disorder. Scores on the overall symptom composite are significantly positively correlated with other measures of eating pathology and weight and shape concerns (Stice et al., 2000). The symptom composite had good

internal consistency in a sample of young women (Cronbach's $\alpha = .89$; Stice, Fisher, & Martinez, 2004). In this study, Cronbach's α for this measure was .85.

Rigid vs. Flexible Dieting Scale (Stewart et al., 2002; Westenhoefer, 1999; Appendix F). This measure, adapted from the TFEQ restraint scale, assesses rigid and flexible control over eating using a set of "true" or false" items. In total it contains 14 items from the TFEQ restraint scale (7 on the Rigid Control scale; 7 on the Flexible Control subscale), and 14 additional items. Rigid control is associated with more eating pathology, psychiatric symptomatology, and disinhibited eating, and with higher BMIs than is flexible control (Stewart et al., 2002; Westenhoefer, 1999). The Rigid Control subscale (16 items) was previously shown to have a reliability of .77 and the Flexible Control subscale (12 items) had a reliability of .79 (Westenhoefer, 1999). In this study, Cronbach's α was .37 for the Flexible Control subscale and .29 for the Rigid Control subscale. Neither Cronbach's α was improved with the removal of any scale items. Thus, these measures were not analyzed in the present study.

Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4; Schaefer et al., 2015; Appendix G). This measure assesses individuals' internalization of societal ideals of attractiveness, and perceptions of pressure about appearance. The SATAQ-4 is a revised version of the original SATAQ (Heinberg, Thompson, & Stormer, 1995), which was designed to assess women's awareness and acceptance of societal standards of appearance. The measure has 22 items, with answer choices on a Likert scale from 1 ("Definitely disagree") to 5 ("Definitely agree"). The SATAQ-4 has shown good internal consistency (Cronbach's $\alpha = .82$ or above) in U.S. college samples. It has good convergent validity, with high correlations with scores on measures of eating

pathology and body dissatisfaction. Scores on the SATAQ-4 differ significantly between groups of women with and without eating disorder symptomatology, supporting construct validity (Schaefer et al., 2015). For this study, only the first 10 items, which comprise the two internalization scales, were used. In this study, Cronbach's α for this measure was .86.

Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987; Appendix H). This 34-item measure assesses body dissatisfaction over the four weeks prior to the assessment (Evans & Dolan, 1993). Participants respond to items on a Likert scale with responses ranging from 1 ("never") to 6 ("always"). The BSQ has acceptable test-retest reliability and criterion validity in women with body image distress, obese dieters, and undergraduate women (Rosen, Jones, Ramirez, & Waxman, 1996). In this study, Cronbach's α for this measure was .97.

Daily Diary Measures

Daily characterization of eating behavior (Appendix I). For each day of the daily diary recording, participants responded to items querying how they characterized their eating for the prior day. These items were similar to baseline items. All participants were asked to indicate with a "yes" or "no" whether they were dieting, "watching what they ate," or "eating healthy." They also were asked to rate the degree to which they were engaging in any of those types of eating on a 0-8 rating scale. For each type of eating, participants were asked a question to ascertain representativeness of their behavior, such as, "To what degree was your dieting yesterday representative of your usual dieting?" This was based on a question used by Presnell, Stice, and Tristan (2008) to investigate self-reported representativeness of daily dieting behavior. This item employed a 0-8

rating scale. Finally, all participants were asked to rate on a 0-8 point scale the extent to which their eating on the day of the assessment was for weight loss, weight maintenance, health, and appearance.

Weight control strategies checklist (Appendix J). A checklist of weight control strategies also was administered on each of the daily diary recording days on Opinio/eSurvey. It was compiled from checklists written for previous studies (French et al., 1999, 1995; Malinauskas et al., 2006; Neumark-Sztainer, Wall, et al., 2006; Presnell et al., 2008; Shamaley-Kornatz et al., 2007; Timko et al., 2006) in order to produce the most comprehensive checklist possible. It included 38 items. On each day of reporting, participants indicated whether they used each of the behaviors. In addition, individuals who endorsed having exercised were asked to report the number of minutes they exercised, and whether it was vigorous or moderate according to the CDC guidelines for physical activity (i.e., that one can talk, but not sing, during moderate activity, and can only say a few words without pausing during vigorous physical activity; Centers for Disease Control and Prevention, 2015). Behaviors were categorized as healthy or unhealthy according to how they have been categorized in previous studies. Several weight control strategies not previously categorized comprised an “other category” which counted only towards the total index of weight control strategies (see Appendix J for items in categories). Participants were not shown whether a behavior was considered healthy, unhealthy, or “other.”

Automated Self-Administered 24-hour recall (ASA24; Subar et al., 2012).

The ASA24 is a web-based measure that was used to collect participants’ 24-hour dietary recall data. Developed by researchers at the National Cancer Institute, this free measure is

designed to allow researchers to collect comprehensive reporting of participants' dietary intake. Participants enter their dietary data into a dynamic website which contains nutrition data for common foods. The website queries amounts consumed, uses images of foods, and prompts participants to consider entering foods that are commonly consumed with foods they have entered. In addition to having good face validity (Subar et al., 2012), the ASA24 appears to obtain results comparable in accuracy to those obtained through a more traditional interview for 24-hour dietary recall (Subar et al., 2014). In this study, several specific variables assessing individuals' average energy intake and relative health of intake were assessed or calculated from ASA24 variables: energy intake (in calories; KCAL), grams of fat (TFAT), grams of sugar (SUGR), teaspoons of added sugar (ADD_SUG), cups of vegetables (V_TOTAL), and cups of fruits (F_TOTAL).

Follow-up Measure

At their final visit, participants answered several questions (Appendix K). They were asked on how many days in the four weeks preceding the visit they had been dieting or using another type of eating. Body weights were obtained once more, on the same scale as was used at the baseline visit.

Analyses

The first goal of the current study was to assess the weight control strategies and dietary intake of individuals who reported current dieting, “watching” their eating, eating healthy, or none of these types of eating. There were seven possible groups created from all possible combinations of these types of eating. Examples of these groups include: individuals who reported dieting only, individuals who reported both dieting and “watching” their eating, and so on. The final group was comprised of the individuals who endorsed none of the types of eating (see Table 2). Small sample sizes for some of the seven groups prevented formal comparisons across all groups. Descriptive data is presented.

For each type of eating (dieting, “watching,” “eating healthy”), participants reported on a daily basis whether they were engaging in that type of eating, and to what degree. This made it possible to check whether individuals endorsing any type of eating at baseline were more likely to endorse the same type of eating on diaries, using chi-square tests. ANOVA was also used in order to compare the frequency of days endorsing each type of eating, by type of eating at baseline. Planned comparisons between dieters ($n = 65$) and non-dieters ($n = 201$) were carried out. MANCOVAs were planned (controlling for BMI) if the mean BMI of the two groups differed, since people of higher BMIs typically report more dieting.

Hypothesis One

Hypothesis 1a, 1b, and 1c. One-way MANCOVAs controlling for BMI (discussed below) were used to test the hypotheses that dieters would endorse the use of

more weight control strategies and more exercise (average number of minutes per day) than non-dieters.

Hypotheses 1d-1i. One-way MANCOVAs controlling for BMI (discussed below) were used to test group differences in each of the following components of dietary intake, for dieters versus non-dieters:

- Total average caloric intake, with dieters expected to be lower than non-dieters.
- Healthy eating, with dieters expected to be more healthy than non-dieters, based on the following specific variables:
 - Percent energy from fat, with dieters expected to be lower than non-dieters
 - Percent energy from sweets, with dieters expected to be lower than non-dieters.
 - Teaspoons of added sugars, with dieters expected to be lower than non-dieters.
 - Number of servings of fruit per day, with dieters expected to be higher than non-dieters.
 - Number of servings of vegetables per day, with dieters expected to be higher than non-dieters.

Other exploratory statistical comparisons by group were carried out. These analyses (one-way MANOVAs) compared the same variables listed for Hypotheses 1a-1i above, but this time for “watchers” (those who responded “Yes” to “Are you currently watching what you eat?”; $n = 205$) versus “non-watchers” ($n = 61$) and for “healthy

eaters” (those who responded “Yes” to “Are you currently eating healthy?”; $n = 204$) versus “non-healthy eaters” ($n = 62$). Additional exploratory MANCOVAs compared the independent, non-overlapping groups which resulted from participants’ baseline reporting of their types of eating. As discussed in detail below, group comparisons were conducted between five groups: individuals who endorsed “watching” and “eating healthy” ($n = 122$); individuals who endorsed dieting, “watching,” and “eating healthy” ($n = 55$); individuals who endorsed none of the types of eating ($n = 31$); individuals who endorsed only “eating healthy” ($n = 27$); and individuals who endorsed only “watching” ($n = 21$).

Hypothesis Two

The second goal of the current study was to test and extend previous findings concerning variables that predict dieters’ use of weight control strategies and caloric intake. Stepwise multiple regression was used to investigate the relative ability of the variables gathered from past studies (listed below) to predict (1) overall frequency of weight control strategies, (2) frequency of healthy weight control strategies, (3) frequency of unhealthy weight control strategies, and (4) average caloric intake. The regression analyses were run separately in dieters and in non-dieters. Stepwise multiple regression was deemed an appropriate method because there was insufficient evidence to fully predict the amount of variance which would be accounted for by each of these variables, given that all variables had not been tested together in one study. Nevertheless, based on past research it was possible to make some hypotheses (listed above, in “The Present Study”) about variables expected to be significant predictors of weight loss strategies. Hypothesis 2a concerned the *overall* frequency of weight control strategies

used, Hypothesis 2b concerned the frequency of *healthy* weight control strategies, and Hypothesis 2c concerned the frequency of *unhealthy* weight control strategies.

The complete list of possible predictor variables, collected across previous studies, that was tested using stepwise multiple regression is:

- Degree of endorsement of eating for weight loss (Baseline dieting questionnaire).
- Degree of endorsement of eating for weight maintenance (Baseline dieting questionnaire).
- Degree of endorsement of eating for health reasons (Baseline dieting questionnaire).
- Degree of endorsement of eating for appearance reasons (Baseline dieting questionnaire).
- Frequency of past dieting attempts (Baseline dieting questionnaire).
- BMI (Baseline demographics questionnaire).
- Depressive symptomatology (PHQ-9).
- Body dissatisfaction (BSQ).
- Thin ideal internalization (SATAQ-4).
- Eating disorder symptomatology (EDDS).

Results

Participant Flow through Study

In total, 348 women participated in the baseline study visit. Subsequently, 82 participants (23.6%) discontinued participation before completing all parts of the study, leaving 266 individuals (76.4%) who completed the entire study: baseline assessment, three diaries, and final/follow-up assessment. Most of the participants who left the study were deemed “lost to follow-up” because they ceased to respond to contact attempts from the researchers ($n = 78$; 95.1% of the individuals who discontinued participation). A small proportion ($n = 4$; 4.9% of the individuals who discontinued participation) informed the researchers that they were leaving the study. Two of these individuals provided reasons, with one reporting disliking the ASA food log and another stating that she did not have time in her schedule to complete the study. Table 1 depicts the stage at which participants discontinued participation in the study, regardless of whether they were lost to follow-up or informed the researchers they were ending their participation.

Table 1

<i>Participant Attrition</i>		
Stage of study	Number of individuals	Percentage of baseline participants
After baseline only	20	5.7%
After completing one diary	14	4.0%
After completing two diaries	17	4.9%
After completing three diaries	19	5.5%
After one or more partially complete diaries	12	3.4%

Note. This table includes all individuals who left the study without completing it, whether they were lost to follow-up or dropped out by notifying a researcher.

Participants received multiple reminders to complete diaries, until they had completed three diaries. Participants who completed no diaries at all received a maximum of six requests for diaries. Participants who completed diaries intermittently, or had unusual circumstances such as contacting the researcher to re-initiate participation after missed diaries, could have received more than six total requests. Across all 348 individuals who participated in the baseline study visit, participants received a mean of 4.46 email requests for diaries ($SD = 1.98$). The 266 individuals who completed the study received a mean of 3.97 ($SD = 1.68$) email reminders, while those who were lost to follow-up or who dropped out received a mean of 6.05 ($SD = 2.04$) email reminders.

Individuals who completed the study did not differ significantly from non-completers on BMI, number of lifetime diets, current degree of dieting (assessed with a 0-to-8 scale), current degree of watching their eating (0-to-8 scale), current degree of eating healthy (0-to-8 scale), or likelihood of endorsing current dieting, current watching their eating, or current eating healthy.

Demographics of Study Completers

Demographic characteristics of the 266 individuals who completed the study were assessed. These participants had a mean age of 19.9 years (range: 18-53; $SD = 4.04$). In terms of level of education, most participants ($n = 174$; 65.4%) reported that they were in their first year of college. Additionally, 33 participants (12.4%) were in their second year of college, 20 (7.5%) in their third year, and 19 (7.1%) in their fourth year of college. A small proportion, 20 participants (7.5%), reported other levels of educational attainment, such as having completed four years of college or having completed some graduate school. The majority of participants (254; 95.5%) reported never having been

married, while five (1.9%) were married, six (2.3%) were divorced or separated, and one (0.4%) did not provide a response regarding marital status.

The majority of study completers identified their ethnicity as Hispanic ($n = 141$; 53.0%), while 122 (45.9%) identified their ethnicity as non-Hispanic and three (1.1%) selected “Unavailable/unknown” for ethnicity. Hispanic individuals did not differ from non-Hispanic individuals in BMI or in likelihood of reporting dieting at baseline. Most study completers identified their race as White ($n = 168$; 63.2%), while 36 (13.5%) selected “Some other race,” 16 (6.0%) selected “Unavailable/unknown,” 15 (5.6%) reported that they were Asian, 13 (4.9%) reported that they were American Indian/Alaska Native, 11 (4.1%) reported that they were Black or African American, 6 (2.3%) left the race item blank, and one (0.4%) reported that she was Native Hawaiian/Pacific Islander. White individuals did not differ from non-White individuals in BMI or in likelihood of reporting dieting at baseline.

Participants’ BMIs were calculated from their heights and weights as measured during the baseline study visit. Participants were told that they could leave shoes on if they preferred, and heights and weights were adjusted for individuals who did so. Measured heights of individuals wearing sneakers/tennis shoes, fashion boots, or most other styles of shoes were adjusted by subtracting one inch. The exception was for shoes with pronounced heels, platforms, or other elevated height. Researchers more carefully assessed the added height from these shoes and subtracted accordingly. Measured weights of individuals who wore shoes during weighing were adjusted as well. In tests by the researcher using the study scale, fashion sneakers (such as Converse) weighed 1.8 pounds, running shoes or athletic shoes weighed 1 pound, short fashion boots weighed 1

pound, and tall fashion boots weighed 1.8 pounds. The mean BMI among study completers was 23.88 ($SD = 5.49$), which is in the normal range.

Types of Eating at Baseline

The types of eating assessed at the baseline study visit were dieting, watching what I eat, and eating healthy. These types of eating were not mutually exclusive, such that individuals were able to endorse multiple types of eating, or none. Of the 266 participants who completed the entire study, 65 (24.4%) reported dieting at baseline, 205 (77.1%) reported watching their eating at baseline, and 204 (76.7%) reported eating healthy at baseline.

Seven mutually exclusive groups were created based upon the types of eating, or combinations of types of eating, individuals endorsed at baseline. Table 2 depicts the number of participants who endorsed each combination both in the baseline sample, and among just study completers. The most common pattern was endorsement of “watching” plus “eating healthy,” and the next most common pattern was endorsement of all three types of eating.

In keeping with other studies, “dieters” were the individuals who endorsed *current dieting at baseline*, whether alone or in combination with other eating patterns. As shown in Table 2, it was unusual for individuals to identify as dieters and endorse no other type of eating. It was most common for dieters to also endorse both “watching” and “eating healthy.” No dieters also endorsed just “eating healthy.”

Table 2

Independent, Mutually Exclusive Groups for Types of Eating Endorsed at Baseline

Type of Eating	Overall Sample (N = 348)		Study Completers (N = 266)	
	Frequency	Percentage	Frequency	Percentage
“Watching” + “eating healthy”	152	43.7	122	45.9
Dieting + “watching” + “eating healthy”	79	22.7	55	20.7
None	40	11.5	31	11.7
“Eating healthy”	32	9.2	27	10.2
“Watching”	30	8.6	21	7.9
Dieting + “watching”	10	2.9	7	2.6
Dieting	5	1.4	3	1.5
Dieting + “eating healthy”	0	0.0	0	0.0

Note. This table contains all possible types of eating and combinations of types of eating that participants could endorse on the baseline study assessment. “None” represents the group of people who responded that they were not dieting, “watching,” or “eating healthy.”

Matching of Eating Patterns at Baseline and Daily Reporting

As part of each of the three daily diaries, participants reported whether they had been dieting, “watching,” and/or “eating healthy” the day before. Variability was noted in terms of the consistency with which individuals’ daily reporting of type of eating matched their baseline reporting of type of eating. For instance, dieters (as determined by baseline reporting) commonly reported dieting on one daily diary, or no daily diaries. Table 3 shows the number of participants, by type of eating, whose daily reporting matched their baseline reporting on three days, two days, one day, or no days.

Table 3

Frequencies of Participants Matching Daily Diary Types of Eating with Baseline Types of Eating

Type of Eating	No Diaries	One Diary	Two Diaries	Three Diaries
Dieting				
Dieters	29 (44.6)	14 (21.5)	6 (9.2)	16 (24.6)
Non-dieters	177 (88.1)	18 (9.0)	6 (3.0)	0
“Watching”				
“Watchers”	81 (39.5)	50 (24.4)	35 (17.1)	39 (19.0)
“Non-watchers”	46 (75.4)	9 (14.8)	5 (8.2)	1 (1.6)
“Eating healthy”				
“Healthy eaters”	55 (27.0)	57 (27.9)	45 (22.1)	47 (23.0)
“Non-healthy eaters”	39 (62.9)	11 (17.7)	10 (16.1)	2 (3.2)

Note. Data is presented as frequency (percentage). These data reflect consistency of reporting of type of eating on diaries with type of eating at baseline.

Dieters were significantly more likely than non-dieters to endorse dieting on at least one diary, $\chi^2(1, N = 266) = 53.1, p < .001$ and to endorse “watching” on at least one diary, $\chi^2(1, N = 266) = 9.9, p = .002$, though they were not significantly more likely than non-dieters to endorse “eating healthy” on at least one diary. “Watchers” were significantly more likely than “non-watchers” to endorse dieting on at least one diary $\chi^2(1, N = 266) = 7.33, p = .007$, to endorse “watching” on at least one diary $\chi^2(1, N = 266) = 24.28, p < .001$, and to endorse “eating healthy” on at least one diary $\chi^2(1, N = 266) = 6.64, p = .010$. “Healthy eaters” were significantly more likely than “non-healthy eaters” to endorse dieting on at least one diary $\chi^2(1, N = 266) = 4.31, p = .038$, to endorse “watching” on at least one diary $\chi^2(1, N = 266) = 17.48, p < .001$, and to endorse “eating healthy” on at least one diary $\chi^2(1, N = 266) = 26.86, p < .001$. In other words, reporting on the diaries was likely to match baseline reporting in terms of type of eating, but

reporting on the diaries also tended to indicate engagement with the other types of eating in addition.

In addition to stating whether or not they were engaging in each type of eating, participants also reported the *degrees* to which they were engaging in the types of eating, on a scale from 0 (“Not at all”) to 8 (“Very much”). The degree scales, created for this study (see Method section), also had anchors of “A little” at 2, “Moderately” at 4, and “Quite a bit” at 6. Participants responded to these at baseline and on diaries. The average of the three diaries was computed for each participant. Table 4 groups participants by baseline type of eating and lists baseline degree endorsed and average daily degree endorsed for each type of eating. For every type of eating, in every group, within-samples *t*-tests showed that participants reported a significantly higher degree at baseline than on average on daily diaries.

Finally, on each diary, participants reported the degree to which their types of eating on the reporting day were representative of their usual types of eating (e.g., “To what degree was your dieting yesterday representative of your usual dieting?”) These items used the same 0-to-8 scale described above. Dieters’ mean response regarding the representativeness of their daily dieting was 2.91 ($SD = 2.76$). “Watchers” mean response regarding the representativeness of their daily “watching” was 2.70 ($SD = 2.68$). “Healthy eaters” mean response regarding the representativeness of their daily “eating healthy” was 3.06 ($SD = 2.41$).

Table 4

Baseline Versus Daily Degree of Reporting Each Type of Eating, Within Groups of Dieters, “Watchers,” and “Healthy Eaters”

	Dieters (N = 65)			“Watchers” (N = 205)			“Healthy eaters” (N = 204)		
	Baseline	Daily	<i>t</i>	Baseline	Daily	<i>t</i>	Baseline	Daily	<i>t</i>
Dieting	3.72 (1.75)	2.40 (2.25)	4.97	1.50 (1.97)	1.10 (1.70)	3.59	1.38 (1.97)	1.02 (1.64)	3.28
“Watching”	4.69 (1.91)	2.94 (2.43)	6.05	4.07 (1.68)	1.99 (1.97)	16.47	3.82 (2.00)	1.91 (1.97)	14.83
“Eating healthy”	4.94 (1.91)	2.77 (2.05)	7.82	4.60 (1.72)	2.64 (1.74)	16.42	4.78 (1.57)	2.74 (1.71)	17.66

Note. Data are presented as means (standard deviations). For each comparison of baseline and daily degree of each type of eating, the *t* statistics is presented. Each test was significant at $p \leq .001$. The groups of individuals are not mutually exclusive as they include anyone who endorsed a particular type of eating at baseline, regardless of whether she endorsed *another* type of eating at baseline in addition.

Given that individuals who reported dieting at baseline only reported dieting inconsistently on daily diaries, all planned analyses comparing dieters to non-dieters were run a second time with an “expanded dieting group” including any participant who endorsed dieting on *any* of the diaries, despite not endorsing it at baseline. There were 24 participants who endorsed dieting on at least one diary, who were combined with the 65 individuals who endorsed dieting at baseline to produce the “expanded dieting group” of 89 participants.

Matching with Final Visit Reporting

Participants were involved in the study for a mean of 29.1 days (range = 14-86; $SD = 7.5$). At follow-up, participants reported on how many of the previous 28 days they had been dieting, watching what they were eating, or “eating healthy.” Table 5 shows the mean days of each type of eating reported by group. The data for days of each type of eating were non-normal due to a high frequency of individuals responding “0 days” for each eating pattern. Thus, these data were log-transformed to reduce skewness so group comparisons could be conducted. One-way ANOVAs comparing dieters ($n = 65$) and non-dieters ($n = 197$) showed that dieters had reported significantly more days of dieting, $F(1, 260) = 133.2, p < .001$; of “watching,” $F(1, 260) = 19.64, p < .001$; and of “eating healthy,” $F(1, 260) = 11.22, p = .001$.

In the expanded dieting group, the same pattern of significant findings was found, in that dieters ($n = 89$) had reported significantly more days of dieting, $F(1, 260) = 215.28, p < .001$; of “watching,” $F(1, 260) = 38.93, p < .001$; and of “eating healthy,” $F(1, 260) = 17.65, p < .001$ than non-dieters ($n = 173$). One-way ANOVAs comparing “watchers” ($n = 203$) to “non-watchers” ($n = 59$) showed that “watchers” had reported

significantly more days of dieting, $F(1, 260) = 15.63, p < .001$; of “watching,” $F(1, 260) = 47.28, p < .001$; and of eating healthy, $F(1, 260) = 41.32, p < .001$. One-way ANOVAs comparing “healthy eaters” ($n = 201$) to “non-healthy eaters” ($n = 61$) showed that “healthy eaters” had reported significantly more days of dieting, $F(1, 260) = 7.29, p = .007$; of “watching,” $F(1, 260) = 19.22, p < .001$; and of eating healthy, $F(1, 260) = 63.40, p < .001$. In other words, those who reported *any* type of eating at baseline were likely to report that they had spent more days engaged in *every* type of eating at the final assessment.

Table 5

Final Visit Reporting of Days in Last Month Engaging in Each Type of Eating

Type of Eating	Days in Last Month Dieting	Days in Last Month “Watching”	Days in Last Month “Eating Healthy”
Dieting			
Dieters ($n = 65$)	10.91 (9.6)	15.63 (10.25)	16.49 (7.66)
Non-dieters ($n = 201$)	1.31 (3.87)	9.05 (9.94)	12.47 (8.87)
Expanded group dieters ($n = 89$)	9.87 (9.14)	15.63 (9.69)	16.25 (1.43)
Expanded group non-dieters ($n = 177$)	0.51 (2.24)	8.14 (9.84)	12.04 (9.04)
“Watching”			
“Watchers” ($n = 205$)	4.56 (7.74)	12.84 (10.50)	15.13 (8.27)
“Non-watchers” ($n = 61$)	0.71 (3.12)	3.25 (5.45)	7.75 (7.94)
“Eating Healthy”			
“Healthy eaters” ($n = 204$)	4.28 (0.68)	12.31 (10.58)	15.76 (8.20)
“Non-healthy eaters” ($n = 62$)	1.70 (5.34)	5.31 (7.65)	5.92 (5.77)

Note. Data are presented as means (standard deviations).

Weight Change during the Study

It was also of interest to assess weight change that occurred while participants were involved in the study ($M = 29.1$ days). Table 6 lists weight change by group. In addition, at baseline and on each diary, participants reported the degree to which they were eating the way they were in order to *lose weight* and in order to *maintain weight*, both assessed on a 0-to-8 scale. Table 6 also contains group means for these items.

Table 6

Degree of Eating to Lose or Maintain Weight, and Actual Weight Change during the Study

Groups Based on Type of Eating	Baseline Eating to Lose	Baseline Eating to Maintain	Daily Avg. Eating to Lose	Daily Avg. Eating to Maintain	Weight Change (Pounds)
Overall sample ($n = 266$)	2.19 (2.12)	3.50 (2.20)	0.97 (1.96)	1.92 (2.22)	0.39 (2.48)
Independent Groups	Baseline Eating to Lose	Baseline Eating to Maintain	Daily Avg. Eating to Lose	Daily Avg. Eating to Maintain	Weight Change (Pounds)
Watcher + "healthy eater" ($n = 122$)	1.85 (1.79)	3.96 (2.16)	0.61 (1.26)	2.26 (2.13)	0.22 (2.11)
Dieter + watcher + healthy eater ($n = 55$)	4.29 (2.03)	4.11 (2.08)	2.56 (2.96)	2.78 (2.61)	0.64 (2.63)
None endorsed ($n = 31$)	0.71 (0.97)	1.84 (1.68)	0.42 (1.32)	0.73 (1.47)	1.03 (2.92)
"Healthy eater" ($n = 27$)	0.67 (1.18)	2.67 (2.02)	0.11 (0.41)	0.89 (1.75)	0.50 (1.63)
Watcher ($n = 21$)	2.05 (1.83)	3.05 (1.96)	0.41 (0.89)	1.13 (1.66)	-0.33 (2.52)
Dieter + watcher ($n = 7$)	4.43 (1.72)	2.71 (2.43)	2.14 (3.33)	1.00 (1.87)	-0.26 (6.03)
Dieter ($n = 3$)	2.00 (1.00)	3.33 (3.06)	1.11 (1.92)	1.44 (2.50)	1.37 (2.45)
Dieter + "healthy eater" ($n = 0$)	n/a	n/a	n/a	n/a	n/a
Dieting	Baseline Eating to Lose	Baseline Eating to Maintain	Daily Avg. Eating to Lose	Daily Avg. Eating to Maintain	Weight Change (Pounds)
Any dieting ($n = 65$)	4.20 (2.01)	3.92 (2.17)	2.45 (2.95)	2.53 (2.59)	0.58 (3.90)
Non-dieters ($n = 201$)	1.54 (1.70)	3.36 (2.19)	0.50 (1.17)	1.72 (2.06)	0.32 (2.26)

Table 6, cont.					
Expanded dieting group (<i>n</i> = 89)	3.29 (2.15)	3.87 (2.05)	2.30 (2.78)	2.56 (2.46)	0.57 (2.73)
Non-dieters (expanded; <i>n</i> = 177)	1.44 (1.65)	3.32 (2.25)	0.31 (0.78)	1.60 (2.02)	0.29 (2.35)
“Watching”	Baseline Eating to Lose	Baseline Eating to Maintain	Daily Avg. Eating to Lose	Daily Avg. Eating to Maintain	Weight Change (Pounds)
Any “watching” (<i>n</i> = 204)	2.61 (2.16)	3.86 (2.14)	1.17 (2.12)	2.24 (2.27)	0.26 (2.50)
“Non-watchers”	0.75 (1.09)	2.28 (1.93)	0.32 (1.08)	0.84 (1.66)	0.81 (2.39)
“Eating Healthy”	Baseline Eating to Lose	Baseline Eating to Maintain	Daily Avg. Eating to Lose	Daily Avg. Eating to Maintain	Weight Change (Pounds)
Any “eating healthy” (<i>n</i> = 205)	2.35 (2.18)	3.83 (2.16)	1.07 (2.04)	2.22 (2.30)	0.37 (2.21)
“Non-healthy eaters”	1.65 (1.81)	2.42 (1.97)	0.65 (1.64)	0.93 (1.62)	0.44 (3.24)

Note. “Independent Groups” refers to the mutually exclusive groups based on participants’ baseline reporting of their type(s) of eating (see Table 2). The groups under “Dieting” are: “Any dieting” is the group of individuals who endorsed dieting at baseline; “Non-dieters” are the individuals who did not endorse dieting at baseline; “Expanded dieting group” is the group of individuals who endorsed dieting at baseline *or* on one or more diaries; and “Non-dieters (expanded)” are the individuals who did not endorse dieting at baseline or on any diaries. “Any ‘watching’” is the group of individuals who endorsed “watching” at baseline, and “non-watchers” are the individuals who did not endorse “watching” at baseline. “Any ‘eating healthy’” is the group of individuals who endorsed “eating healthy” at baseline, and “non-healthy eaters” are the individuals who did not endorse “eating healthy” at baseline. Degree of eating to lose and degree of eating to maintain were rated on a scale from 0 (“Not at all”) to 8 (“Very much”). Other anchors were “A little” at 2, “Moderately” at 4, and “Quite a bit” at 6.

Comparison of independent groups. Group comparisons investigated potential group differences in weight change. First, group differences in weight change were tested for the independent, mutually exclusive groups based on types of eating assessed at baseline. In other words, an ANOVA compared five groups: individuals who endorsed “watching” and “eating healthy” ($n = 122$); individuals who endorsed dieting, “watching,” and “eating healthy” ($n = 55$); individuals who endorsed none of the types of eating ($n = 31$); individuals who endorsed only “eating healthy” ($n = 27$); and individuals who endorsed only “watching” ($n = 21$). (Individuals who endorsed just dieting, or dieting and “watching,” were excluded, due to low sample sizes of 3 and 7 individuals respectively.) Among these independent groups, “watchers” were unique in having lost a small amount of weight on average (0.33 pounds), while the other groups gained a small amount of weight. (The small group of seven individuals who endorsed both “watching” and dieting also lost a small amount of weight, 0.26 pounds, but they were not included in this group comparison due to their small sample size.) However, the overall group comparison was not statistically significant.

Comparison by type of eating. Second, analyses proceeded in the way that had been planned to compare dieters (all individuals who respond “yes” when asked if they are dieting) to non-dieters (all other individuals, regardless of other types of eating they may have endorsed). Similar analyses compared all “watchers” ($n = 204$) to all “non-watchers” (including individuals who endorsed any other type of eating; $n = 62$), and all “healthy eaters” ($n = 205$) to all “non-healthy eaters” (including individuals who

endorsed any other type of eating; $n = 61$). None of these group comparisons was statistically significant.

Types of eating among individuals who lost weight. Knowing participants' actual weight change made it possible to speak to the types of eating associated with weight loss or weight maintenance. Among the individuals who lost weight ($n = 107$), the mean weight loss was 1.72 pounds (range = 0.10 – 9.00). Nearly half of these participants (48.6%) reported that they were “watching” and “eating healthy,” and 18.7% reported that they were dieting, “watching,” and “eating healthy.” A group of 39 individuals lost more than the mean weight loss (i.e., more than 1.72 pounds) and their types of eating were examined. Again, over 40% of this group (43.6%) reported “watching” and “eating healthy,” while 20.5% reported dieting, “watching,” and “eating healthy.” Finally, similar proportions were endorsed by the individuals who maintained their weight ($n = 32$), with 46.9% reporting “watching” and “eating healthy” and 28.1% reported dieting, “watching,” and “eating healthy.” In summary, individuals who lost weight or maintained their weight consistently endorsed “watching and “eating healthy,” with a subset of these individuals endorsing dieting in addition.

Correlates of weight change during the study. Pearson's correlations were tested to explore whether participants' stated goals for their weight, assessed by their degree of endorsement of eating for weight loss and for weight maintenance, were associated with losing or gaining weight. In the overall sample, neither baseline degree of eating for weight *loss* nor baseline degree of eating for weight *maintenance* was significantly correlated with weight change. In other words, having a stated goal of losing weight was not associated significantly with actually losing weight.

To explore whether weight change during the study was associated with the frequency of weight control strategies used, Pearson's correlations were tested between weight change and daily average frequency of healthy weight control strategies, unhealthy weight control strategies, and overall weight control strategies. Weight change was significantly correlated in the overall sample with daily average frequency of unhealthy weight control strategies used ($r = -0.16, p < .01$), such that the individuals who lost more weight also used more unhealthy weight control behaviors. Among individuals who lost weight, skipping breakfast, skipping lunch, and skipping dinner were the unhealthy weight loss strategies endorsed most commonly, while the other unhealthy weight loss strategies were more rare (e.g., using diuretics was endorsed by no participants, using laxatives was endorsed by one, and using diet pills was endorsed by two participants). Weight change was not significantly correlated with daily average frequency of healthy weight control strategies or overall weight control strategies. When the same correlations were checked for the independent groups based upon type of eating, these associations were not significant in any group.

Table 7 contains the mean daily frequency, by group, for overall number of weight control strategies used, and number of healthy and unhealthy weight control strategies used.

Table 7

Weight Control Strategies

Groups Based on Type of Eating	Healthy	Unhealthy	Overall
Overall sample ($n = 266$)	1.27 (1.18)	0.47 (0.56)	2.75 (2.15)
Independent Groups	Healthy	Unhealthy	Overall
Watcher + "healthy eater" ($n = 122$)	1.10 (0.90)	0.35 (0.45)	2.39 (1.57)
Dieter + watcher + healthy eater ($n = 55$)	2.05 (1.57)	0.53 (0.60)	4.34 (2.89)
None endorsed ($n = 31$)	1.23 (1.03)	0.70 (0.66)	2.52 (1.70)
"Healthy eater" ($n = 27$)	0.86 (0.98)	0.38 (0.40)	1.75 (1.54)
Watcher ($n = 21$)	0.71 (0.80)	0.60 (0.62)	1.83 (1.33)
Dieter + watcher ($n = 7$)	2.00 (1.70)	0.90 (0.99)	4.62 (3.31)
Dieter ($n = 3$)	0.56 (0.51)	0.78 (1.07)	2.00 (1.15)
Dieter + "healthy eater" ($n = 0$)	n/a	n/a	n/a
Dieting	Healthy	Unhealthy	Overall
Any dieting ($n = 65$)	1.97 (1.57)	0.58 (0.67)	4.26 (2.89)
Non-dieters ($n = 201$)	1.04 (0.93)	0.43 (0.52)	2.26 (1.58)
Expanded dieting group ($n = 89$)	1.91 (1.44)	0.54 (0.63)	3.96 (2.66)
Non-dieters (expanded; $n = 177$)	0.95 (0.87)	0.43 (0.52)	2.14 (1.53)
"Watching"	Healthy	Unhealthy	Overall
Any "watching" ($n = 205$)	1.34 (1.23)	0.44 (0.55)	2.93 (2.26)
"Non-watchers" ($n = 61$)	1.03 (1.00)	0.56 (0.59)	2.15 (1.63)
"Healthy eaters"	Healthy	Unhealthy	Overall
Any "healthy eating" ($n = 204$)	1.32 (1.21)	0.40 (0.49)	2.83 (2.21)
"Non-healthy eaters" ($n = 62$)	1.11 (1.09)	0.69 (0.70)	2.49 (1.95)

Note. Data represent average daily number of strategies used, and are presented as means (standard deviations). "Independent Groups" refers to the mutually exclusive groups based on participants' baseline reporting of their type(s) of eating (see Table 2). The groups under "Dieting" are: "Any dieting" is the group of individuals who endorsed dieting at baseline; "Non-dieters" are the individuals who did not endorse dieting at baseline; "Expanded dieting group" is the group of individuals who endorsed dieting at baseline *or* on one or more diaries; and "Non-dieters (expanded)" are the individuals who did not endorse dieting at baseline or on any diaries. "Any 'watching'" is the group of individuals who endorsed "watching" at baseline, and "non-watchers" are the individuals who did not endorse "watching" at baseline. "Any 'eating healthy'" is the group of individuals who endorsed "eating healthy" at baseline, and "non-healthy eaters" are the individuals who did not endorse "eating healthy" at baseline. Each participant's average frequency across her three diaries was taken, for healthy strategies, unhealthy strategies, and overall strategies. The "overall" category included all the healthy and unhealthy strategies *and* a set of "other" strategies not subsumed under the "healthy" or "unhealthy" categories (see Appendix J).

Comparing Dieters and Non-Dieters

To clarify the meaning of dieting, analyses were planned to compare dieters to non-dieters on several outcomes. Table 8 includes descriptive data for BMIs and dietary intake data for these planned analyses, for individuals who endorsed all possible types of eating in the study, alone or in combination. As noted, Table 7 contains data on weight control strategies used, also of interest in the planned analyses comparing dieters to non-dieters. First, planned analyses (below) proceeded as intended, with one-way MANOVAs comparing all dieters to all non-dieters. Similar exploratory one-way MANOVAs compared all “watchers” to all “non-watchers”, and all “healthy eaters” to all “non-healthy eaters.

Table 8

BMI, Exercise, and Daily Dietary Intake for Dieting and Other Types of Eating

Groups Based on Type of Eating	BMI	Average Min. of Exercise	Average Calories	Average Total Fats	Average Total Sugars	Average Total Fruits	Average Total Veg.	Average Added Sugars
Overall sample (n = 266)	23.88 (5.49)	13.70 (24.31)	1646.64 (558.56)	66.71 (27.57)	82.35 (42.27)	0.83 (0.97)	1.23 (0.80)	12.54 (8.70)
Independent Groups	BMI	Average Min. of Exercise	Average Calories	Average Total Fats	Average Total Sugars	Average Total Fruits	Average Total Veg.	Average Added Sugars
Watcher + "healthy eater" (n = 122)	22.47 (3.73)	14.73 (22.35)	1733.61 (504.64)	69.47 (25.98)	86.58 (39.59)	1.00 (1.14)	1.35 (0.94)	12.48 (22.35)
Dieter + watcher + "healthy eater" (n = 55)	26.44 (6.56)	19.50 (25.24)	1492.56 (580.25)	61.11 (28.48)	70.60 (40.69)	0.92 (0.98)	1.23 (0.69)	9.79 (7.55)
None endorsed (n = 31)	23.94 (6.64)	2.90 (11.31)	1766.72 (688.27)	71.52 (28.40)	88.71 (57.35)	0.59 (0.47)	1.16 (0.73)	15.32 (12.56)
"Healthy eater" (n = 27)	22.85 (5.22)	16.98 (41.77)	1664.38 (600.14)	67.99 (36.49)	90.71 (43.05)	0.73 (0.65)	1.13 (0.58)	14.80 (8.19)
Watcher (n = 21)	23.14 (4.07)	7.30 (14.71)	1453.16 (404.94)	62.40 (19.05)	68.35 (28.38)	0.34 (0.35)	0.91 (0.52)	11.80 (5.70)
Dieter + watcher (n = 7)	32.79 (6.73)	6.19 (8.26)	1477.09 (645.55)	56.99 (25.03)	91.12 (42.04)	0.41 (0.71)	0.87 (0.66)	17.51 (9.39)
Dieter (n = 3)	27.35 (7.10)	10.00 (17.32)	1283.73 (360.39)	48.51 (19.38)	61.85 (31.75)	0.31 (0.46)	0.99 (0.21)	9.91 (4.47)
Dieter + "healthy eater" (n = 0)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 8, cont.

Dieting	BMI	Average Min. of Exercise	Average Calories	Average Total Fats	Average Total Sugars	Average Total Fruits	Average Total Veg.	Average Added Sugars
Any dieting (<i>n</i> = 65)	27.16 (6.78)	17.63 (23.95)	1481.26 (573.72)	60.09 (27.62)	72.41 (40.50)	0.84 (0.95)	1.18 (0.68)	10.63 (7.92)
Non-dieters (<i>n</i> = 201)	22.83 (4.53)	12.43 (24.34)	1700.12 (544.33)	68.85 (27.28)	85.56 (42.43)	0.83 (0.97)	1.24 (0.84)	13.16 (8.86)
Expanded dieting group (<i>n</i> = 89)	26.00 (6.23)	16.85 (22.42)	1536.97 (583.28)	63.06 (29.61)	74.41 (39.70)	0.92 (0.90)	1.24 (0.83)	10.60 (7.86)
Non-dieters (expanded; <i>n</i> = 177)	22.81 (4.74)	12.12 (25.11)	1701.78 (538.99)	68.54 (26.39)	86.34 (43.06)	0.79 (1.00)	1.22 (0.79)	13.52 (8.95)
“Watching”	BMI	Average Min. of Exercise	Average Calories	Average Total Fats	Average Total Sugars	Average Total Fruits	Average Total Veg.	Average Added Sugars
Any “watching” (<i>n</i> = 205)	23.98 (5.32)	14.96 (22.41)	1631.45 (532.95)	66.07 (26.20)	80.58 (39.58)	0.89 (1.05)	1.26 (0.85)	11.86 (7.99)
“Non-watchers” (<i>n</i> = 61)	23.62 (6.05)	9.48 (29.63)	1697.67 (639.36)	68.83 (31.90)	88.27 (50.19)	0.64 (0.56)	1.14 (0.64)	14.82 (10.49)
“Healthy Eaters”	BMI	Average Min. of Exercise	Average Calories	Average Total Fats	Average Total Sugars	Average Total Fruits	Average Total Veg.	Average Added Sugars
Any “eating healthy” (<i>n</i> = 204)	23.59 (5.12)	16.31 (26.36)	1659.46 (546.21)	67.02 (28.31)	82.82 (40.86)	0.94 (1.05)	1.29 (0.84)	12.06 (8.18)
“Non-healthy eaters” (<i>n</i> = 62)	24.95 (6.49)	5.11 (12.48)	1604.44 (600.14)	65.68 (25.18)	80.79 (46.94)	0.47 (0.47)	1.04 (0.64)	14.12 (10.12)

Note. Data are presented as means (standard deviations). “Independent Groups” refers to the mutually exclusive groups based on participants’ baseline reporting of their type(s) of eating (see Table 2). The groups under “Dieting” are: “Any dieting” is the group of individuals who endorsed dieting at baseline; “Non-dieters” are the individuals who did not endorse dieting at baseline; “Expanded dieting group” is the group of individuals who endorsed dieting at baseline *or* on one or more diaries; and “Non-dieters (expanded)” are the individuals who did not endorse dieting at baseline or on any diaries. “Any ‘watching’” is the group of individuals who endorsed “watching” at baseline, and “non-watchers” are the individuals who did not endorse “watching” at baseline. “Any ‘eating healthy’” is the group of individuals who endorsed “eating healthy” at baseline, and “non-healthy eaters” are the individuals who did not endorse “eating healthy” at baseline.

The group of baseline dieters had a significantly higher mean BMI than the group of non-dieters, $F(1, 265) = 34.3, p = .000$. The mean BMI in the baseline dieting group was 27.16 ($SD = 6.78$), which is in the overweight range. The mean BMI in the non-dieting group was 22.8 ($SD = 4.50$), which is in the “normal” range. The same pattern of findings was true for the expanded dieting group. This group of dieters had a significantly higher mean BMI than their non-dieting counterparts, $F(1, 265) = 24.63, p < .001$. The mean BMI in the expanded dieting group was 26.00 ($SD = 5.49$), which is in the overweight range. The mean BMI in the non-dieting counterpart to this expanded dieting group was 22.81 ($SD = 4.74$), which is in the “normal” range. Therefore, BMI was controlled for in analyses comparing dieters and non-dieters.

For all analyses below, outcome variables were non-normal (positively skewed) due to a high frequency of individuals providing responses of 0, low frequencies, or low means on each variable. Thus, these data were log-transformed to reduce skewness so group comparisons could be conducted.

Hypothesis 1a. It was expected that dieters would obtain higher scores on the TFEQ-Restraint scale than non-dieters. However, due to low reliability of the TFEQ-Restraint scale, this hypothesis was not tested.

Hypothesis 1b. It was expected that dieters would endorse the use of more weight control strategies than would non-dieters. This hypothesis was confirmed, both for the group of baseline dieters ($F[1, 262] = 10.32, p < .001$) and for the expanded dieting group ($F[1, 262] = 37.27, p < .001$). Given that the descriptive data for weight control strategies (presented above) suggested the possibility of group differences in healthy and unhealthy strategies, in addition to group differences in *overall* number of strategies, exploratory

analyses were undertaken. These showed that dieters used significantly more *healthy* weight control strategies (most commonly, snacking less, consuming more fruits and vegetables than usual, and consuming fewer calories than usual) than non-dieters, both for the group of baseline dieters ($F[1, 263] = 27.66, p < .001$) and for the expanded dieting group ($F[1, 263] = 42.93, p < .001$).

Hypothesis 1c. It was expected that dieters would endorse more exercise (average number of minutes per day) than would non-dieters. This hypothesis was confirmed, both for the group of baseline dieters ($F[1, 262] = 8.75, p = .003$) and for the expanded dieting group ($F[1, 262] = 12.88, p < .001$). As noted in Table 8, the average amount of exercise that dieters reported across the three diaries was 17.63 minutes per day (range = 0-130) in the dieting group or 16.85 minutes per day (range = 0-130) in the expanded dieting group. Of note, exactly 60.0% of dieters ($n = 39$) endorsed some exercise while 40.0% ($n = 26$) endorsed no exercise on any diary. Among just the individuals who reported at least some exercise, the average amount of exercise across the three diaries was 29.38 minutes per day.

Hypothesis 1d. It was expected that dieters would report a lower total average daily caloric intake than would non-dieters. This hypothesis was confirmed, both for the group of baseline dieters ($M = 1481.26$; range = 147.09-3161.67; $F[1, 262] = 10.32, p = .001$) as compared to their non-dieting counterparts ($M = 1700.12$; range = 608.22-3645.50) and for the expanded dieting group ($M = 1536.97$; range = 147.09-3161.67; $F[1, 262] = 7.26, p = .007$) as compared to their non-dieting counterparts ($M = 1701.78$; range = 608.22-3645.50).

Hypothesis 1e. It was expected that dieters would report a lower average energy from fat than would non-dieters. This hypothesis was confirmed, both for the group of baseline dieters ($F[1, 262] = 8.18, p = .005$) and for the expanded dieting group ($F[1, 262] = 4.66, p = .032$).

Hypothesis 1f. It was expected that dieters would report a lower average energy from sugars than would non-dieters. This hypothesis was confirmed, both for the group of baseline dieters ($F[1, 262] = 10.70, p = .001$) and for the expanded dieting group ($F[1, 262] = 8.42, p = .004$).

Hypothesis 1g. It was expected that dieters would report a lower average daily number of teaspoons of added sugars than would non-dieters. This hypothesis was confirmed, both for the group of baseline dieters ($F[2, 262] = 12.07, p = .001$), and for the expanded dieting group ($F[1, 262] = 14.21, p < .001$).

Hypothesis 1h. It was expected that dieters would report a higher average number of servings of fruit than would non-dieters. Although the findings were in the predicted direction, this hypothesis was not confirmed for the comparison of baseline dieters and non-dieters. However, it was confirmed for the expanded dieting group ($F[1, 262] = 3.97, p = .047$).

Hypothesis 1i. It was expected that dieters would report a higher average number of servings of vegetables than would non-dieters. This hypothesis was not confirmed. The baseline dieters consumed slightly fewer servings of vegetables than their non-dieting counterparts, while the expanded dieting group consumed slightly more.

Comparing “Watchers” and “Non-Watchers”

“Watchers” were compared to “non-watchers” using one-way MANOVA on the

same set of variables examined for dieters for Hypotheses 1a-1i and depicted in Table 8. The group of individuals who reported “watching” ($n = 205$) did not differ in BMI from the group of individuals who did not report “watching” ($n = 61$). Fewer significant group differences were found than were found in the comparison of dieters versus non-dieters. Significant group differences were: the individuals who reported “watching” their eating had significantly higher scores on average frequency of weight control strategies used ($F[1, 264] = 6.21, p = .013$), higher average number of minutes of exercise per day ($F[1, 264] = 12.63, p < .001$), and lower average added sugars ($F[1, 264] = 4.97, p = .027$) than the individuals who did not report “watching” their eating. In terms of exercise, 47.3% ($n = 97$) reported no exercise across the three diaries, while 52.7% of “watchers” ($n = 108$) reported some amount of exercise. Among the “watchers” who reported some exercise, the average amount was 28.39 minutes per day.

Comparing “Healthy Eaters” and “Non-Healthy Eaters”

“Healthy eaters” were compared to “non-healthy eaters” using one-way MANOVA on the same set of variables examined for dieters for Hypotheses 1a-1i and depicted in Table 8. The group of individuals who reported eating healthy ($n = 204$) did not differ in BMI from the group of individuals who did not report eating healthy ($n = 62$). Again, fewer significant group differences were found than were detected in the comparison of dieters versus non-dieters. The individuals who reported “eating healthy” had a significantly lower frequency of *unhealthy* weight control strategies used ($F[1, 264] = 13.44, p < .001$), a higher average number of minutes of exercise per day ($F[1, 264] = 20.48, p < .001$), a higher average servings of fruits ($F[1, 262] = 11.28, p = .001$), and higher average servings of vegetables ($F[1, 262] = 5.58, p = .019$) than the individuals

who did not report “eating healthy.” In terms of exercise, 46.1% ($n = 94$) reported no exercise across the three diaries, while 53.9% ($n = 110$) reported some amount of exercise. Among the “healthy eaters” who reported some exercise, the average amount was 30.25 minutes per day.

Comparing Mutually Exclusive Groups

Finally, the same outcome variables used in the above analyses were also compared for the independent, mutually exclusive groups based on baseline type of eating (see Table 2). At baseline, the most common response patterns regarding types of eating included responses of “yes” to more than one of the types of eating: “watching” and “eating healthy” ($n = 122$) and dieting, “watching,” and “eating healthy” ($n = 55$). Smaller groups of individuals endorsed each type of eating on its own. Specifically, only 3 individuals endorsed dieting on its own, while 21 and 27 endorsed “watching” and “eating healthy” on their own, respectively. First, MANOVA was used to compare these groups on BMI, as it had been used as a covariate in comparisons regarding dieters (described above). The overall MANOVA was significant ($F(1, 260) = 6.44, p < .001$) and post hoc tests showed two significant group differences: individuals who endorsed dieting, “watching,” and “eating healthy” had a higher BMI than (1) individuals who endorsed “watching” and “eating healthy” ($p < .001$) and (2) individuals who endorsed “eating healthy” alone ($p = .042$).

A two-way MANCOVA was used to compare each of the groups listed in Table 2; groups who reported only dieting ($n = 3$) and those who reported dieting and “watching” ($n = 7$) were excluded due to their small sample sizes. Table 9 shows the results of this MANCOVA. Post hoc tests were conducted to examine pairwise

comparisons when significant between-subjects effects were found (least significant difference test with Bonferroni correction for multiple comparisons). To summarize the results presented in Table 9, there were significant and meaningful group differences between individuals who reported “watching” and “eating healthy” versus those who reported “watching,” “eating healthy,” *and* dieting. The latter group had a higher mean BMI but endorsed doing more towards weight loss both in terms of dietary intake and weight control strategies.

Table 9

Comparison of Independent, Mutually Exclusive Groups Based on Type of Eating

	Overall MANCOVA <i>F</i>	Overall MANCOVA <i>p</i> -value	Significant pairwise finding(s)	Pairwise <i>p</i> -value
Average Number of Weight Control Strategies	9.16	< .001	Dieter+“watcher”+“healthy eater” > “None endorsed”	.002
			Dieter+“watcher”+“healthy eater” > “Watcher”+“healthy eater”	< .001
			Dieter+“watcher”+“healthy eater” > “Watcher”	< .001
			Dieter+“watcher”+“healthy eater” > “Healthy eater”	< .001
Average Number of Healthy Weight Control Strategies	8.40	< .001	Dieter+“watcher”+“healthy eater” > “Watcher”+“healthy eater”	< .001
			Dieter+“watcher”+“healthy eater” > Watcher	< .001
			Dieter+“watcher”+“healthy eater” > “Healthy eater”	< .001
Average Number of Unhealthy Weight Control Strategies	3.58	0.007	“None endorsed” > “Watcher”+“healthy eater”	.001

Table 9, cont.				
Average Minutes of Exercise	7.12	< .001	Dieter+“watcher”+“healthy eater” > “None endorsed”	< .001
			“Watcher”+“healthy eater” > “None endorsed”	< .001
Average Calories	3.63	0.007	“Watcher”+“healthy eater” > Dieter+“watcher”+“healthy eater”	.001
Average Total Fats	1.98	0.099	n/a	n/a
Average Total Sugars	4.16	0.003	“Watcher”+“healthy eater” > Dieter+“watcher”+“healthy eater”	< .001
Average Total Fruits	2.70	0.031	n/a	n/a
Average Total Vegetables	1.62	0.168	n/a	n/a
Average Added Sugars	4.55	0.001	“Healthy eater” > Dieter+“watcher”+“healthy eater”	< .001
			“Watcher” > Dieter+“watcher”+“healthy eater”	.001
			“None endorsed” > Dieter+“watcher”+“healthy eater”	.002

Note. This table depicts results from comparisons of five groups based on type of eating. Significant pairwise findings are listed, with “>” and “<” indicating the directionality of group differences. The five groups that were compared were: “watchers”+“healthy eaters” ($n = 122$); dieters+“watchers”+“healthy eaters” ($n = 55$); “none endorsed” ($n = 31$); “healthy eaters” ($n = 27$); and “watchers” ($n = 21$).

Regression Analyses for Predictors of Dieting Behavior

Stepwise multiple regression was planned to examine prediction of daily weight loss behavior. Dependent variables were:

- Overall frequency of weight control strategies,
- Frequency of healthy weight control strategies,
- Frequency of unhealthy weight control strategies, and
- Average caloric intake.

Independent variables were:

- Degree of endorsement of eating to lose weight (Baseline dieting questionnaire).
- Degree of endorsement of eating to maintain weight (Baseline dieting questionnaire).
- Degree of endorsement of health motivation (Baseline dieting questionnaire).
- Degree of endorsement of appearance motivation (Baseline dieting questionnaire).
- Frequency of past dieting attempts (Baseline dieting questionnaire).
- BMI (Baseline demographics questionnaire).
- Depressive symptomatology (PHQ-9).
- Body dissatisfaction (BSQ).
- Thin ideal internalization (SATAQ-4).
- Eating disorder symptomatology (EDDS Symptom Composite).

Regressions were run separately in dieters and non-dieters. In order to maximize power, the expanded dieting group ($N = 89$) was used. Thus, the non-dieting counterpart was a group of 177 participants. In an additional effort to maximize power by reducing the number of predictors, an exploratory factor analysis (EFA) was conducted in the dieting group on the set of predictor variables.

The best-fitting, most parsimonious factor structure found in this EFA had three factors. Among the 10 predictor variables, BMI was removed because it did not load significantly on any factor. Promax rotation was used as an oblique rotation method (allowing for correlated factors). Fit statistics were: RMSEA (root mean square error of approximation = .001, root mean square residual = .038. The three factors identified were labelled (1) short-term reasons (degree of endorsement of eating to lose weight and degree of endorsement of eating for appearance reasons), (2) long-term patterns (frequency of past dieting attempts, degree of endorsement of eating for weight maintenance, and degree of endorsement of eating for health reasons), and (3) cognitive aspects (depressive symptomatology, body dissatisfaction, thin ideal internalization, and eating disorder symptomatology). These three factors were used as predictors in the planned regression analyses, in the group of dieters.

Hypothesis 2a. It was hypothesized that, among dieters, higher degree of endorsement of eating for weight loss, more historical dieting, and higher body dissatisfaction would be significant predictors of *overall* frequency of weight control strategies used. In the non-dieting group these predictors were tested on any exploratory basis. Higher degree of endorsement of eating for weight loss (i.e., “To what degree are you eating the way you are in order to lose weight?”) was the sole significant predictor

variable in the model. It accounted for 4.6% of the variance in frequency of weight control strategies among non-dieters ($p = .004$).

In the dieting group, the three new factors were tested as predictors. Short-term reasons was the sole significant predictor of the three. It accounted for 20.6% of the variance in frequency of weight control strategies among dieters ($p < .001$).

Hypothesis 2b. It was hypothesized that, among dieters, higher degree of endorsement of a health motivation and higher degree of endorsement of eating to lose weight would be significant predictors of frequency of *healthy* weight control strategies used (e.g., “Ate more fruits and vegetables,” “Snacked less than usual”). In the non-dieting group these predictors were tested on an exploratory basis. No predictor variable was significant.

In the dieting group, the three new factors were tested as predictors. Short-term reasons was the sole significant predictor of the three. It accounted for 10.6% of the variance in frequency of healthy weight control strategies among dieters ($p = .008$).

Hypothesis 2c. It was hypothesized that, among dieters, higher appearance motivation, higher degree of endorsement of a eating to lose weight, more depressive symptomatology, and higher body dissatisfaction would be significant predictors of *unhealthy* weight control strategies (e.g., “Fasted,” “Used laxatives”) used. (Higher scores on rigid control of dieting also were originally hypothesized as predictors, but due to low reliability of the measure found in this study, this measure was not used). In the non-dieting group these predictors were tested on an exploratory basis. A model including BMI and degree of endorsement of eating for health reasons was significant ($p = .001$), such that as BMI increased, frequency of unhealthy weight control strategies

increased, and as degree of endorsement of eating for health reasons increased, frequency of unhealthy weight control strategies decreased. The model accounted for 8.3% of the variance in frequency of unhealthy weight control strategies.

In the dieting group, the three new factors were tested as predictors. None of the factors was a significant predictor.

In addition, regression models predicting caloric intake were tested on an exploratory basis. No formal hypotheses had been made for this dependent variable. In the non-dieting group, all 10 hypothesized predictor variables were tested. Only the Eating Disorder Diagnostic Scale (EDDS) Symptom Composite score was significant ($p = .047$), such that as it increased, caloric intake decreased. This accounted for 1.7% of the variance in average daily calories. In the dieting group, the three new factors were tested as predictors. Short-term reasons was the sole significant predictor of the three. It accounted for 6.2% of the variance in frequency of weight control strategies among dieters ($p = .045$).

Discussion

This study sought to clarify the operational definition of dieting through the use of a daily diary format. This format has not been used in other research on dieting, despite significant discussion in the literature around the need for a clearer definition of the dieting construct. Other research on dieting and weight loss has asked participants about “typical” behavior, things they have “ever” done, or things they have done over a period of time such as the past year (Ackard, Croll, & Kearney-Cooke, 2002; French & Jeffery, 1997; French et al., 1999; Lowe et al., 2013; Shamaley-Kornatz et al., 2007; Stice, 2001). Specific goals in this study were to: (1) collect daily data regarding the eating and weight control strategies of dieters and non-dieters, and test how these two groups compare to each other, (2) further develop the constructs of “watching what I eat” and “eating healthy,” which have been proposed to be similar to dieting, (3) explore similarities and differences between dieting, “watching,” and “eating healthy” in terms of naturalistic daily behavior, (4) test a set of predictors of weight loss behavior found to be significant across prior studies.

The study began with a sample of 348 undergraduate women. The initial recruitment goal had been 500 participants, but variable rates of participant enrollment over the 15-month recruitment period, along with a smaller-than-expected participant pool, led to a lower enrollment than anticipated. In all, 266 women completed the entire study. This 24% dropout rate was roughly comparable to the 20% dropout in a Canadian study that involved four administrations of the same online food log used in the present study (Kirkpatrick et al., 2017) and lower than a one-month diary study of physical activity which had a dropout rate of 41% (Irwin, 2007). The dropout rate in the present

study was higher during the first several months of recruitment than for the remainder of the recruitment period. This was likely due to technical problems which caused the food log measure to malfunction in certain web browsers. This issue was outside the control of the researcher and has been documented elsewhere (Kirkpatrick et al., 2017).

Sample Descriptives

The 266 participants who completed the study had a mean age of 20 years and typically were in their first year of college. About half of the participants reported being of Hispanic ethnicity, and around 60% reported being of White race. The sample's mean BMI was in the normal weight range (23.88). Just under half of participants reported exercising on at least one of their daily diaries, which is consistent with previous research showing that 40-50% of college students are sedentary (Keating, 2005).

Dietary intake in the overall sample. The *2015-2020 Dietary Guidelines for Americans* contain the latest U.S. government dietary recommendations (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015). Participants reported eating fewer calories than recommended (i.e., 1800-2000), with a daily average of 1647. However, studies have shown that adult participants underreport their dietary intake by 20-30% (Rennie, Siervo, & Jebb, 2006; Wing & Phelan, 2005), with evidence suggesting that this may be true for the specific food log used in this study (Kirkpatrick et al., 2014). Participants therefore may have consumed 2059 to 2353 calories per day. Participants also reported consuming below the recommended daily allowance of added sugars.

Participants reported eating fewer fruits and vegetables than recommended, in accordance with previous research showing that college students frequently do not meet

U.S. government guidelines for fruit and vegetable consumption (Adams & Colner, 2010; Greene et al., 2011). Participants also reported consuming more fat than recommended. Higher fat intake is associated with underreporting of dietary intake (Tooze et al., 2004), which further suggests that participants may have underreported their intake.

Dieters in the Study Sample

The group of dieters in the present study included individuals who responded “yes” to the item asking, “Are you currently dieting?”, because previous research frequently used a single item like this in order to create a dieting group (Delinsky & Wilson, 2008). Dieting was endorsed by about 25% of participants in the study; a percentage that is higher than the 10% rate reported by female college students in Delinsky and Wilson (2008) and Lowe et al. (2006), and lower than the 50% rate reported by female college students in Timko et al. (2006) and Lowry et al. (2000). Still, the 25% dieting rate in this study was lower than the 30 to 50% of participants expected based on previous research findings among adults (Neumark-Sztainer et al., 1997; Savage et al., 2009). The present study’s relatively small group size for “dieting” underscores the importance of assessing whether participants in studies about weight loss are using other terminology and/or methods in terms of trying to lose weight, rather than only asking if they are “dieting.” In this sample, most dieters also endorsed “watching their eating” and “eating healthy.”

In keeping with this finding, among another sample of female college students, nearly half reported that they generally watched what they were eating and sometimes dieted, and an additional 26% reported that they generally watched what they were eating and never dieted. In the same study, only 17% of students reported that they generally

dieted, and all of the participants who dieted reported “watching” their eating as well (Reid et al., 2005). Research in female adolescents (10th and 11th grade) found that only 8% of participants reported dieting on its own, while 36% reported “watching” on its own, and an additional 42% reported dieting and “watching” (Nichter et al., 1995). In the assessment of undergraduates’ weight loss or weight control efforts, other terminology like “watching” should be used along with “dieting.”

Matching with daily reporting. After reporting dieting at baseline, dieters did not consistently report dieting on their three daily diaries. In all, one-quarter of dieters endorsed dieting on all three daily diaries, while nearly half did not endorse dieting on any diaries. Although their reporting was not consistent, dieters *were* significantly more likely than non-dieters to report dieting on at least one diary. In addition, when asked to state on how many of the previous 28 days they had been dieting at the time of final study assessment, dieters reported significantly more days than non-dieters did (11 days versus 1 day). Previous research has shown this same pattern, with dieting assessed through daily reporting being much less common than dieting assessed through more global reporting, and with individuals who report more global dieting being more likely to report dieting in daily assessments (Nichter et al., 1995). These findings show that even among individuals who report themselves to be dieters in a broad sense, variability can be expected in whether dieting is reported on a daily basis.

Intensity of dieting. To provide preliminary information on the degree to which individuals saw themselves as dieting, a rating scale was created (0 = “Not at all”; 8 = “Very much”). Dieters reported a higher degree to which they were dieting at *baseline* (“Are you currently dieting?”) than on average on their *daily diaries* (“Were you dieting

yesterday?"; 3.72 and 2.40, respectively). This suggests that dieters may on a day-to-day basis have perceived themselves to be carrying out dieting with less intensity than they intended in a broader sense.

Comparing Dieters and Non-Dieters: Hypothesis 1

It was of interest to compare dieters to non-dieters in an effort to best characterize "dieting" as conceptualized by college females. In both the baseline dieting group and the group of expanded dieters, dieters had a significantly higher BMI than non-dieters. In fact, dieters tended to be overweight while non-dieters tended to be of normal weight. The finding that dieters tended to be overweight is consistent with previous research (de Ridder et al., 2014; French & Jeffery, 1994; Pietiläinen et al., 2012; Savage et al., 2009). The following comparisons therefore controlled for BMI.

Weight control strategies. As hypothesized, dieters endorsed the use of more weight control strategies and more minutes of exercise than non-dieters. Dieters used about four weight control strategies per day, on average, while non-dieters used about two. Furthermore, dieters used a higher frequency of *healthy* weight control strategies (about two per day) than non-dieters (about one per day), and the groups did not differ on the use of *unhealthy* weight control strategies (all fewer than one per day, on average). Previous research on weight control strategies has asked college students which behaviors they have used over some period of time, such as 30 days or 1 year (e.g., (Harring, Montgomery, & Hardin, 2008; Wharton, Adams, & Hampl, 2008), making comparisons challenging. And it has been reported that any given weight control strategy can be expected to be used by a general study participant only 20% of the time (French, Jeffery, & Murray, 1999). Additionally, research has obtained inconsistent results when

examining the weight control behaviors people use when they report that they are dieting (Knäuper et al., 2005; Stice & Presnell, 2010; Thomas et al., 2008; Timko et al., 2006).

The finding of significant group differences in the use of behaviors to control or lose weight in the current study suggests that self-reported dieters engage in frank behavior changes which, if used consistently, could produce weight loss.

Notably, exercise and physical activity are not always assessed in research on dieting, despite extensive evidence that physical activity in combination with changes to eating is necessary for weight loss (Harring et al., 2008; Wing & Phelan, 2005), that self-reported dieters report more exercise than non-dieters (French, Jeffery, & Wing, 1994), and that some women consider exercise to be a part of dieting (Ogle & Damhorst, 2000). Dieters in the present study endorsed just under an average of 18 minutes of exercise per day. However, 40% of dieters did not exercise. For the 60% of dieters who did exercise, the average amount of exercise was 29 minutes per day. Current U.S. government guidelines specify that adults should obtain a total of 150 minutes of moderate-intensity exercise per week, which can be distributed across days in increments no smaller than 10 minutes. Based on an average of 29 daily minutes, dieters in the present study were likely meeting this recommendation. The finding that dieters reported more exercise than non-dieters on this daily assessment further suggests that dieters make multiple behavior changes, not only changes to their eating.

Dietary intake. Also as hypothesized, dieters endorsed eating fewer daily calories than did non-dieters on their daily diaries. Dieters in the baseline dieting group reported an average of 1284 daily calories, and those in the expanded dieting group reported an average of 1537 daily calories. Some previous research has found that dieters report

eating fewer calories than non-dieters (Neumark-Sztainer et al., 1997), but this has not been a consistent finding (Nichter et al., 1995). The *2015-2020 Dietary Guidelines for Americans* state that women ages 18-50 should consume 1800-2000 calories daily for weight maintenance if they are sedentary, and 2000 or more if they are physically active (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015). As noted above, adults have been shown to underreport intake by 20-30%. If this were true among dieters in this study, the adjusted average caloric intakes would be 1605 daily calories in the baseline dieting group and 1921 daily calories in the expanded dieting group. These daily values would place dieters' intake in the range recommended by the U.S. government for weight maintenance, and lend support to the notion of dieting as a weight maintenance technique (Stice, Fisher, & Lowe, 2004).

In terms of actual dietary intake, dieters endorsed a pattern of healthier eating than non-dieters endorsed. Specifically, dieters reported lower energy from fat, added sugar, and overall sugar than non-dieters did. There also was some evidence from the expanded dieting group that dieters ate more fruits than non-dieters. However, dieters ate well below the U.S. government recommendations of 2.5 cup-equivalents of vegetables per day and 2 cup-equivalents of fruit per day (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015). With regard to overall healthy intake among dieters, their reported total daily fat was lower than the limit recommended by the federal government (U.S. Department of Agriculture, 2000). Past research has obtained conflicting findings regarding the healthiness of dieters' intake, with some reporting that dieters do report eating more healthily than non-dieters (Biener & Heaton,

1995; French & Jeffery, 1997; Lattimore & Halford, 2003; Nichter et al., 1995) and some reporting that they do not (Ruxton, 2011).

Weight change. Despite their reported healthier intake and goal of losing weight, dieters on average gained a small amount of weight throughout the course of the study. This aligns with previous research which found that dieters do not actually lose weight despite their reported efforts (Delinsky & Wilson, 2008; Savage et al., 2009). Conceivably this is due to the dieters (and perhaps the sample as a whole) underreporting their dietary intake (Rennie et al., 2006). Many factors could contribute to underreporting, including identification with cultural norms which suggest that overweight people should try to lose weight, a lack of attention to the food questionnaire, or the decision that the food questionnaire was too burdensome (Rennie et al., 2006). Previous research has shown that a belief in the *need* to improve one's dietary intake can predict reporting one's intake to be healthier than it objectively is (Variyam, Shim, & Blaylock, 2001). Similarly, research on the Theory of Planned Behavior has shown that planning to diet predicts future reporting of intending to diet, though it does not predict actual engagement in weight loss efforts (Lash, Smith, & Rinehart, 2016). While underreporting is a possible explanation for dieters' lack of weight loss, it is also possible that dieters tended to have higher energy intake on days other than the ones for which they completed diaries. In other words, dieters may not have achieved overall negative energy balance during the month they were involved in the study (van Strien, Engels, van Staveren, & Herman, 2006).

Taken together, these findings show that the term "dieting" represents a pattern that is not undertaken every day, as evidenced by dieters' inconsistent reporting across

diaries of whether they were dieting. However, given dieters' tendency to report more days of dieting in the one-month study period than non-dieters did, "dieting" could be more stable or consistent on a weekly or monthly level. This is in line with previous research showing that diets last four to seven weeks (French & Jeffery, 1994). In the present study, dieters engaged in more weight control strategies, including exercise, and had healthier dietary intake, than non-dieters, which could suggest a healthier overall lifestyle as compared to non-dieters. Despite this, dieters in this study were overweight but did not lose weight. This appears to be because their overall caloric intake was not sufficiently low to produce weight loss, which highlights an area for intervention.

"Watchers" in the Study Sample

Previous research suggested that "watching what I eat" could be related to weight loss or weight maintenance and could be a healthier pattern than dieting (Nichter et al., 1995; Ogle & Damhorst, 2000; Reid et al., 2005). As noted, 77% of participants in the present study endorsed watching their eating at baseline; sometimes in combination with other eating patterns. In previous research, 85-100% of women in several samples (Nichter et al., 1995; Ogle & Damhorst, 2000) reported "watching" their eating (Nichter et al., 1995), and "watching" was significantly more common than dieting (Nichter et al., 1995).

Like dieters, "watchers" did not consistently report "watching" on each of the three days when they completed diaries. In fact, only 19% reported "watching" on all three diaries. Yet at the final assessment, "watchers" reported that they had been "watching" on significantly more days than "non-watchers" (13 days versus 3 days). Like

dieting, “watching” may refer to a strategy people use intermittently throughout a given week or month, rather than as a consistent daily strategy.

“Watchers” did not lose weight in the present study, nor did they gain significant amounts of weight. And their weight change was not significantly different from the weight change of “non-watchers”. Of note, “watchers” rated the goal of maintaining their weight more highly than they rated the goal of losing weight. This finding is consistent with previous research in which women reported that they consider “watching” to be a weight maintenance technique (Ogle & Damhorst, 2000).

Weight control strategies. “Watchers” reported using more weight control strategies and exercise than “non-watchers.” This suggests that “watching one’s eating” fits in with a pattern of lifestyle change involving more than just changes in dietary intake.

Dietary intake. Interestingly, “watchers” did not differ from “non-watchers” in caloric intake, or intake of fats, overall sugars, or fruits and vegetables. “Watchers” lower average intake of added sugars is noteworthy. Added sugars, often consumed in sodas and other sugar-sweetened beverages, contribute significantly to the development of obesity, metabolic disorders, and coronary heart disease (Johnson et al., 2009). The diets of modern Americans typically contain excessive added sugars (Johnson et al., 2009), so the fact that “watchers” in this sample had low added sugars suggests they were on a healthier path than those who did not report “watching” their eating. In all, “watching” appears to be a pattern oriented towards weight maintenance involving less behavior change than dieting.

“Healthy Eaters” in the Study Sample

A total of 77% of individuals who completed the study were designated as “healthy eaters” because they responded “yes” at baseline to, “Are you currently eating healthy?” More so than dieting or “watching,” rates of endorsement of “eating healthy” on daily diaries were generally evenly distributed, with about one-quarter of participants endorsing “eating healthy” on no diaries, one diary, two diaries, or three diaries.

“Healthy eaters” at baseline were significantly more likely to endorse “eating healthy” on at least one diary, and reported “eating healthy” on more days in the last month than did “non-healthy eaters.” “Healthy eaters” also reported significantly more exercise and significantly fewer *unhealthy* weight control strategies used than “non-healthy eaters.” In terms of their dietary intake, “healthy eaters” reported more fruits and vegetables than “non-healthy eaters,” but not fewer calories. This suggests that the term “eating healthy” truly is associated with healthier day-to-day dietary intake, not with simply eating less. This is in keeping with the finding that “healthy eaters” (similar to “watchers”) endorsed the goal of *maintaining* their weight more highly than they endorsed the goal of losing weight.

The association between reporting that one is eating in a healthy way, and actually reporting eating more healthy foods on a daily basis, suggests that “eating healthy” is a meaningful, externally valid construct. While young adolescents in one study reported believing that “eating healthy” was comparable to dieting (Roberts et al., 2001), adult women distinguished the two and defined “eating healthy” as more flexible (Chapman, 1999). Future research should investigate the specific dietary correlates of “eating healthy” in more detail, given that this type of eating was the only one associated with

increased fruit and vegetable intake in this study. It seems that “eating healthy” is another less extreme alternative to dieting, again allowing people to maintain their weight without needing to reduce caloric intake.

Comparison between the Three Types of Eating

The findings of this study point to considerable overlap among the constructs of dieting, “watching” one’s eating, and “eating healthy”. Some of the findings suggest that “watching” and “eating healthy,” in particular, may be the pair that is most difficult to distinguish. At baseline, these two types of eating were more commonly endorsed in combination than separately, suggesting that women considered these constructs to be similar. Previous descriptive qualitative research has suggested that women consider the two constructs to be equivalent (Chapman, 1999).

In order to conduct statistical comparisons to examine group differences within the study sample, each of the largest groups endorsed at baseline was used: “watchers”+“healthy eaters” ($n = 122$); dieters+“watchers”+“healthy eaters” ($n = 55$); “none endorsed” (no type of eating endorsed; $n = 31$); “healthy eaters” ($n = 27$); and “watchers” ($n = 21$). The 55 participants who endorsed dieting, “watching,” and “eating healthy” had the highest mean BMI and used the highest frequency of weight control strategies overall, along with the highest frequency of healthy weight control strategies. Tellingly, these individuals who endorsed dieting along with “watching” and “eating healthy” also endorsed consuming fewer daily calories and fewer total sugars than the individuals who endorsed only “watching” and “eating healthy.” This further highlights that endorsement of dieting is suggestive of more comprehensive behavior towards weight loss than “watching” and/or “eating healthy.” The findings from these

comparisons did not point to prominent differences between “watchers” and “healthy eaters,” solidifying the evidence that these groups are quite similar. Future research might investigate their relationship with intuitive eating, given past findings that it is a valid construct which can tap “psychologically healthy eating” in a college sample (Belon, 2016).

Prediction of Weight Control Strategies and Caloric Intake

It was of interest to investigate the relative ability of variables from previous research to predict weight loss behavior. Daily diaries asked participants to report on their behavior on the previous day. The days on which diaries were requested were randomly chosen, to minimize the demand characteristics which might influence participants to change their behavior related to being in the study.

Given the sample size of the expanded dieting group ($n = 89$), the results obtained should be viewed as preliminary. An exploratory factor analysis was used to reduce the list of predictor variables. It yielded three factors: short-term reasons (eating for weight loss and for appearance), long-term patterns (frequency of past dieting attempts, degree of endorsement of eating for weight maintenance, and degree of endorsement of eating for health reasons), and cognitive aspects (depressive symptomatology, body dissatisfaction, thin ideal internalization, and eating disorder symptomatology). The short-term reasons factor was the only factor found to be significant in the four planned regressions. It predicted the use of more weight control strategies overall, the use of more (higher frequency of) healthy weight control strategies, and lower daily caloric intake. These findings appear to be in support of earlier research showing that individuals who diet for weight loss use more weight control strategies than individuals who diet for

weight maintenance (French & Jeffery, 1997; Timko et al., 2006). In agreement with these findings, dieters in the present study tended to be overweight, and, on the diaries, they endorsed a variety of behavior changes, including eating fewer calories and using more weight control strategies than other participants. The pattern of findings across regressions for dieters shows the other hypothesized predictors (frequency of past diets, degree of appearance motivation, degree of health motivation, depressive symptomatology, body dissatisfaction, and rigid control of dieting) playing less of a role than had been expected.

Although formal hypotheses had not been made for non-dieters as far as predicting weight control strategies, regression analyses were conducted on an exploratory basis. Several predictor variables were found to be significant in this group, providing valuable insight into the prediction of weight loss efforts in a technically non-dieting population. Because the non-dieting group did not use as many weight control strategies as dieters or change their diet to the extent that dieters did, they appear to be a true non-dieting comparison group in which to investigate how weight control strategies can typically be predicted.

First, degree of endorsement of a weight loss goal predicted overall frequency of weight control strategies used, just as had been found in dieters. The desire to lose weight appears uniquely important in producing actual behavior that could result in weight loss, which reinforces similar findings from cross-sectional research with college students (Lowry et al., 2000). Second, the use of unhealthy weight control strategies was predicted by higher BMIs and lower degree of endorsement of a health motivation. As noted earlier, higher BMI was associated with endorsing *dieting* in the present study, but this

finding provides additional information: among people who do *not* endorse dieting, higher BMI suggests the engagement in unhealthy weight control strategies. Finally, higher eating disorder symptomatology (EDDS Symptom Composite score) predicted fewer daily calories, a pattern not found among dieters. It is possible that the larger sample size of the non-dieting group made it possible to find a wider range of scores on this measure. Still, these findings overall suggest that individuals may not endorse dieting per se, but may use unhealthy beliefs and strategies associated with eating disorders in order to eat less.

Strengths and Limitations

This study was designed to assess dieting and related behavior with more precision than had been possible in other research. As such, it had several strengths. The use of 24-hour recalls is unique and provides more information regarding participants' naturalistic eating and weight control behavior than other studies have. The study had other strengths, including in-person measurement of participants' weights at baseline and follow-up, and the inclusion of items assessing exercise/physical activity. As noted, the assessment of exercise/physical activity is not always a part of studies on dieting, despite the clear interrelationships between these variables.

The study also had several limitations. First, study measures were self-report, as in other research, and thus could have been subject to reporting biases. The 24-hour recall format also brought some limitations. In terms of dietary intake, it has been established that three is a sufficient number of 24-hour recalls to assess dietary intake accurately (Jonnalagada et al., 2000; Ma et al., 2009), but there also has been recognition that more than three days of records better capture individuals' intake due to normal fluctuations in

intake across days (Dodd et al., 2006; Tokudome et al., 2002). In terms of assessing weight control strategies, researchers who have used more global questions, such as asking participants how often they tend to use different weight control strategies, have obtained more variability in participants' range of weight control strategies than was obtained in the 24-hour recalls in this study, helpful in speaking to the breadth that is possible within dieting (e.g., Shamaley-Kornatz et al., 2007). Another possible limitation is that weight change may have been confounded by uncontrolled factors such as the time of year when each participant was involved, and how long each participant was enrolled in the study.

Final Conclusions

The present study was unique in using a daily diary format to assess participants' naturalistic dietary intake and weight loss efforts. Dieters, who were typically overweight, reported eating fewer daily calories, consuming less sugar and fat, and using more weight control strategies than non-dieters. However, the number of daily calories dieters consumed fell in the recommended range for weight maintenance, not weight loss. And dieters did not consistently report dieting on a daily basis, although they were more likely to report it on any given day than non-dieters. The results of the present study speak to the idea that dieting is not necessarily consistently done on a day-to-day basis, but may be more consistent on a monthly basis. In keeping with this idea, the latest US government guidelines refer to "eating patterns" which, as in the past, contain recommended amounts of macronutrients, but which loosen specific daily guidelines regarding specific foods somewhat in order to capture the variability between individuals

across days (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015).

Dieters in the study, despite their apparent behavior change, did not lose weight. The results of analyses of predictors of dieting in this study point to weight loss goal and appearance motivation as playing a prominent role in predicting higher levels of behavior change. In combination, these findings suggest that, for individuals who need to lose weight, dieting could be recommended *in combination* with setting a weight loss goal. The non-dieting group in the present study presented a true non-dieting comparison group in which to investigate the prediction of weight loss behavior. Results underscore previous findings regarding the importance of higher BMI and lower health motivation in predicting unhealthy weight loss efforts. While Stice, Fisher, and Lowe (2004) defined dieting as “intentional and sustained restriction of caloric intake for the purposes of weight loss or weight maintenance,” the results of this study suggest that this definition could be modified. A new definition might read “intentional restriction of caloric intake and use of weight control strategies, implemented periodically, towards a goal of weight loss or weight maintenance.”

Finally, the findings in the present study also suggest that “watching what I am eating” and “eating healthy” are similar to each other. These types of eating were reported to be oriented more towards weight maintenance than weight loss, and were shown to involve less behavior change than dieting. Therefore, while the present study underscores that dieting does not lead to weight loss, it adds valuable information about the extent of dieters’ behavior change, suggesting future avenues for research exploring enhancements to improve the effectiveness of dieting. Given dieters’ efforts, there is

reason to hope that small additional adjustments may help their outcomes align with their goals.

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Appendix A
Demographic Questionnaire

1. What is your study ID? 2. What is your age?

3. Ethnicity and race (in accordance with the categories used in the U.S. Census):
 - (A) Ethnicity: Are you Hispanic, Latino, or Spanish origin?
 1. No, not of Hispanic, Latino, or Spanish origin
 2. Yes, Mexican, Mexican American, or Chicano
 3. Yes, Puerto Rican
 4. Yes, Cuban
 5. Yes, another Hispanic, Latino, or Spanish origin
 6. Unavailable/Unknown

 - (B) Race: Which category best describes your race?
 1. American Indian/Alaska Native (Please indicate tribe: _____)
 2. Asian
 3. Black or African American
 4. Native Hawaiian/Other Pacific Islander
 5. White
 6. Some other race (Please indicate: _____)
 7. Unavailable/Unknown

 - (C) Using your *own* terms, how would you describe your ethnic/racial identity?

4. What is your marital status? (*Please circle one*)
 1. Married & living with husband
 2. Married but not living with husband
 3. Never married
 4. Divorced
 5. Separated
 6. Widowed

5. What is your highest level of education? (*Please circle one*)
 1. Completed junior year in high school (11th grade)
 2. Graduated from high school (12th grade) or GED
 3. Completed at least 1 year of college
 4. Completed 2 years of college
 5. Completed 3 years of college
 6. Completed 4 years of college
 7. Completed some graduate school
 8. Completed a masters degree
 9. Other (please specify) _____

6. Are you currently pregnant? YES NO
7. Are you currently in treatment for a serious medical disorder that has affected your eating? YES NO
8. Have you ever had weight loss surgery? YES NO
9. Do you have access to a computer with reliable internet access in order to complete several daily diaries as a required part of this study? YES NO

Appendix B
Baseline Dieting Questionnaire

For each question, please select the response that best describes you. There are no right or wrong answers. If you are not sure, please provide your best estimate for each question.

1. How many times in your life have you been on a diet to lose weight, excluding any time you were ill? _____

2. Are you currently dieting? YES NO
3. To what degree are you currently dieting?
 0 (not at all)
 1
 2 (a little)
 3
 4 (moderately)
 5
 6 (quite a bit)
 7
 8 (very much)

4. Are you currently watching what you eat? YES NO
5. To what degree are you currently watching what you eat?
 0 (not at all)
 1
 2 (a little)
 3
 4 (moderately)
 5
 6 (quite a bit)
 7
 8 (very much)

6. Are you currently eating healthy? YES NO
7. To what degree are you currently eating healthy?
 0 (not at all)
 1
 2 (a little)
 3
 4 (moderately)
 5
 6 (quite a bit)
 7
 8 (very much)

8. To what degree are you eating the way you are in order to lose weight?
- 0 (not at all)
1
2 (a little)
3
4 (moderately)
5
6 (quite a bit)
7
8 (very much)
9. To what degree are you eating the way you are in order to maintain your weight?
- 0 (not at all)
1
2 (a little)
3
4 (moderately)
5
6 (quite a bit)
7
8 (very much)
10. To what degree are you eating the way you are for health reasons?
- 0 (not at all)
1
2 (a little)
3
4 (moderately)
5
6 (quite a bit)
7
8 (very much)
11. To what degree are you eating the way you are for appearance reasons?
- 0 (not at all)
1
2 (a little)
3
4 (moderately)
5
6 (quite a bit)
7
8 (very much)

Appendix C
Three-Factor Eating Questionnaire Restraint Scale

Please indicate whether each statement below is true or most true for you or false or mostly false for you. If you are not sure of what response to make, please make your best estimate of which of the two choices is most accurate in describing you, your beliefs, or your actions.

1. When I have eaten my quota of calories, I am usually good about not eating any more. T F
2. I deliberately take small helpings as a means of weight control. T F (R)
3. Life is too short to worry about dieting. T F
4. I have a pretty good idea of the number of calories in common food. T F
5. While on a diet, if I eat food that is not allowed, I consciously eat less for a period of time to make up for it. T F
6. I enjoy eating too much to spoil it by counting calories or watching my weight.
T F (R)
7. I often stop eating when I am not really full as a conscious means of limiting the amount that I eat. T F
8. I consciously hold back at meals in order not to gain weight. T F
9. I eat anything I want, any time I want. T F (R)
10. I count calories as a conscious means of controlling my weight. T F
11. I do not eat some foods because they make me fat. T F
12. I pay a great deal of attention to changes in my figure. T F
13. How often are you dieting in a conscious effort to control your weight?
rarely sometimes usually always
14. Would a weight fluctuation of 5 lb affect the way you live your life?
not at all slightly moderately very much
15. Do feelings of guilt about overeating help you to control your food intake?
never rarely often always
16. How conscious are you of what you are eating?
not at all slightly moderately extremely
17. How frequently do you avoid “stocking up” on tempting foods?

almost never seldom usually almost always

18. How likely are you to shop for low calorie foods?

unlikely slightly unlikely moderately likely very likely

19. How likely are you to consciously eat slowly in order to cut down on how much you eat?

unlikely slightly unlikely moderately likely very likely

20. How likely are you to consciously eat less than you want?

unlikely slightly unlikely moderately likely very likely

21. On a scale of 0 to 5, where

0 means no restraint in eating (eating whatever you want, whenever you want it) and 5 means total restraint (constantly limiting food intake and never “giving in”),

what number would you give yourself?

0 = eat whatever you want, whenever you want it

1 = usually eat whatever you want, whenever you want it

2 = often eat whatever you want, whenever you want it

3 = often limit food intake, but often “give in”

4 = usually limit food intake, rarely “give in”

5 = constantly limiting food intake, never “giving in”

Appendix D
Patient Health Questionnaire (PHQ-9)

**PATIENT HEALTH QUESTIONNAIRE-9
(PHQ-9)**

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(Use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____
=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix E

Eating Disorder Diagnostic Scale (EDDS)

EATING SCREEN

Please carefully complete all questions.

Over the past 3 months...	Not at all		Slightly		Moderately		Extremely
1. Have you felt fat?.....	0	1	2	3	4	5	6
2. Have you had a definite fear that you might gain weight or become fat?.....	0	1	2	3	4	5	6
3. Has your weight influenced how you think about (judge) yourself as a person?.....	0	1	2	3	4	5	6
4. Has your shape influenced how you think about (judge) yourself as a person?.....	0	1	2	3	4	5	6

5. During the past **6 months** have there been times when you felt you have eaten what other people would regard as an unusually large amount of food (e.g., a quart of ice cream) given the circumstances?..... YES NO

6. During the times when you ate an unusually large amount of food, did you experience a loss of control (feel you couldn't stop eating or control what or how much you were eating)?..... YES NO

7. How many **DAYS per week** on average over the **past 6 MONTHS** have you eaten an unusually large amount of food and experienced a loss of control? 0 1 2 3 4 5 6 7

8. How many **TIMES per week** on average over the **past 3 MONTHS** have you eaten an unusually large amount of food and experienced a loss of control? 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

During these episodes of overeating and loss of control did you...

9. Eat much more rapidly than normal?..... YES NO

10. Eat until you felt uncomfortably full?..... YES NO

11. Eat large amounts of food when you didn't feel physically hungry?..... YES NO

12. Eat alone because you were embarrassed by how much you were eating?..... YES NO

13. Feel disgusted with yourself, depressed, or very guilty after overeating?..... YES NO

14. Feel very upset about your uncontrollable overeating or resulting weight gain?... YES NO

15. How many **times per week** on average over the past **3 months** have you made yourself vomit to prevent weight gain or counteract the effects of eating? 0 1 2 3 4 5 6 7 8 9
10 11 12 13 14

16. How many **times per week** on average over the past **3 months** have you used laxatives or diuretics to prevent weight gain or counteract the effects of eating? 0 1 2 3 4 5 6 7 8 9
10 11 12 13 14

17. How many **times per week** on average over the past **3 months** have you fasted (skipped at least 2 meals in a row) to prevent weight gain or counteract the effects of eating? 0 1 2 3 4 5 6 7
8 9 10 11 12 13 14

18. How many **times per week** on average over the past **3 months** have you engaged in excessive exercise specifically to counteract the effects of overeating episodes? 0 1 2 3 4 5 6 7 8
9 10 11 12 13 14

Appendix F

Rigid versus Flexible Dieting Scale

1. When I have eaten my quota of calories, I am usually good about not eating any more.* T F
2. I deliberately take small helpings as a means of weight control.* T F
3. While on a diet, if I eat food that is not allowed, I consciously eat less for a period of time to make up for it.* T F
4. I consciously hold back at meals in order not to gain weight.* T F
5. I pay a great deal of attention to changes in my figure.* T F
6. How conscious are you of what you are eating?*
- not at all – slightly – moderately – extremely
7. How likely are you to consciously eat less than you want?*
- unlikely – slightly unlikely – moderately likely – very likely
8. If I eat a little bit more on one day, I make up for it the next day. T F
9. I pay attention to my figure, but I still enjoy a variety of foods. T F
10. I prefer light foods that are not fattening. T F
11. If I eat a little bit more during one meal, I make up for it at the next meal. T F
12. Do you deliberately restrict your intake during meals even though you would like to eat more?
- always – often – rarely – never
13. I have a pretty good idea of the number of calories in common food.* T F
14. I count calories as a conscious means of controlling my weight.* T F
15. How often are you dieting in a conscious effort to control your weight?*
- rarely – sometimes – usually – always
16. Would a weight fluctuation of 5 lb affect the way you live your life?*
- not at all – slightly – moderately – very much
17. Do feelings of guilt about overeating help you to control your food intake? *
- never – rarely – often – always
18. How frequently do you avoid “stocking up” on tempting foods?*
- almost never – seldom – usually – almost always

19. How likely are you to shop for low calorie foods?*
- unlikely – slightly unlikely – moderately likely – very likely
20. I eat diet foods, even if they do not taste very good. T F
21. A diet would be too boring a way for me to lose weight. T F
22. I would rather skip a meal than stop eating in the middle of one. T F
23. I alternate between times when I diet strictly and times when I don't pay much attention to what and how much I eat. T F
24. Sometimes I skip meals to avoid gaining weight. T F
25. I avoid some foods on principle even though I like them. T F
26. I try to stick to a plan when I lose weight. T F
27. Without a diet plan I wouldn't know how to control my weight. T F
28. Quick success is most important for me during a diet. T F

*Starred items are part of the TFEQ restraint scale. They were presented to participants on that measure and not repeated on this measure (but are presented here for reference).

Appendix G

Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4)

Sociocultural Attitudes Towards Appearance Questionnaire – 4

Directions: Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

Definitely Disagree = 1
 Mostly Disagree = 2
 Neither Agree Nor Disagree = 3
 Mostly Agree = 4
 Definitely Agree = 5

	Definitely Disagree				Definitely Agree
1. It is important for me to look athletic.	1	2	3	4	5
2. I think a lot about looking muscular.	1	2	3	4	5
3. I want my body to look very thin.	1	2	3	4	5
4. I want my body to look like it has little fat.	1	2	3	4	5
5. I think a lot about looking thin.	1	2	3	4	5
6. I spend a lot of time doing things to look more athletic.	1	2	3	4	5
7. I think a lot about looking athletic.	1	2	3	4	5
8. I want my body to look very lean.	1	2	3	4	5
9. I think a lot about having very little body fat.	1	2	3	4	5
10. I spend a lot of time doing things to look more muscular.	1	2	3	4	5

Appendix H

Body Shape Questionnaire

We would like to know how you have been feeling about your appearance over the PAST FOUR WEEKS. Please read each question and circle the appropriate number to the right. Please answer all the questions.

1= Never 2 = Rarely 3 = Sometimes 4= Often 5 = Very Often 6 = Always

OVER THE PAST *FOUR WEEKS*:

1. Has feeling bored made you brood about your shape? 1 2 3 4 5 6
2. Have you been so worried about your shape that you have been feeling that you ought to diet?
1 2 3 4 5 6
3. Have you thought that your thighs, hips or bottom are too large for the rest of you? 1 2 3 4 5 6
4. Have you been afraid that you might become fat (or fatter)? 1 2 3 4 5 6
5. Have you worried about your flesh not being firm enough? 1 2 3 4 5 6
6. Has feeling full (e.g., after eating a large meal) made you feel fat? 1 2 3 4 5 6
7. Have you felt so bad about your shape that you have cried? 1 2 3 4 5 6
8. Have you avoided running because your flesh might wobble? 1 2 3 4 5 6
9. Has being with thin women made you feel self-conscious about your shape? 1 2 3 4 5 6
10. Have you worried about your thighs spreading out when sitting down? 1 2 3 4 5 6
11. Has eating even a small amount of food made you feel fat? 1 2 3 4 5 6
12. Have you noticed the shape of other women and felt that your own shape compared unfavourably?
1 2 3 4 5 6
13. Has thinking about your shape interfered with your ability to concentrate (e.g., while watching television, reading, listening to conversations)? 1 2 3 4 5 6
14. Has being naked, such as when taking a bath, made you feel fat? 1 2 3 4 5 6
15. Have you avoided wearing clothes which make you particularly aware of the shape of your body?
1 2 3 4 5 6
16. Have you imagined cutting off fleshy areas of your body? 1 2 3 4 5 6
17. Has eating sweets, cakes, or other high calorie food made you feel fat? 1 2 3 4 5 6
18. Have you not gone out to social occasions (e.g., parties) because you have felt bad about your shape?
1 2 3 4 5 6
19. Have you felt excessively large and rounded? 1 2 3 4 5 6

20. Have you felt ashamed of your body? 1 2 3 4 5 6
21. Has worry about your shape made you diet? 1 2 3 4 5 6
22. Have you felt happiest about your shape when your stomach has been empty (e.g., in the morning)?
1 2 3 4 5 6
23. Have you thought that you are the shape you are because you lack self-control? 1 2 3 4 5 6
24. Have you worried about other people seeing rolls of flesh around your waist or stomach?
1 2 3 4 5 6
25. Have you felt that it is not fair that other women are thinner than you? 1 2 3 4 5 6
26. Have you vomited in order to feel thinner? 1 2 3 4 5 6
27. When in company have you worried about taking up too much room (e.g., sitting on a sofa or a bus seat)? 1 2 3 4 5 6
28. Have you worried about your flesh being dimply? 1 2 3 4 5 6
29. Has seeing your reflection (e.g., in a mirror or shop window) made you feel bad about your shape?
1 2 3 4 5 6

Appendix I
Daily Characterization of Eating Behavior

Were you diating yesterday? YES NO

To what degree were you diating yesterday?

0 (not at all)

1

2 (a little)

3

4 (moderately)

5

6 (quite a bit)

7

8 (very much)

To what degree was your diating yesterday representative of your usual diating?

0 (not at all)

1

2 (a little)

3

4 (moderately)

5

6 (quite a bit)

7

8 (very much)

Were you watching what you ate yesterday? YES NO

To what degree were you watching what you ate yesterday?

0 (not at all)

1

2 (a little)

3

4 (moderately)

5

6 (quite a bit)

7

8 (very much)

To what degree was your watching what you ate yesterday representative of your usual watching what you eat?

- 0 (not at all)
- 1
- 2 (a little)
- 3
- 4 (moderately)
- 5
- 6 (quite a bit)
- 7
- 8 (very much)

Were you eating healthy yesterday? YES NO

To what degree were you eating healthy yesterday?

- 0 (not at all)
- 1
- 2 (a little)
- 3
- 4 (moderately)
- 5
- 6 (quite a bit)
- 7
- 8 (very much)

To what degree was your eating healthy yesterday representative of your usual eating healthy?

- 0 (not at all)
- 1
- 2 (a little)
- 3
- 4 (moderately)
- 5
- 6 (quite a bit)
- 7
- 8 (very much)

To what degree were you eating the way you were yesterday in order to lose weight?

- 0 (not at all)
- 1
- 2 (a little)
- 3
- 4 (moderately)
- 5
- 6 (quite a bit)
- 7
- 8 (very much)

To what degree were you eating the way you were yesterday in order to maintain your weight?

- 0 (not at all)
- 1
- 2 (a little)
- 3
- 4 (moderately)
- 5
- 6 (quite a bit)
- 7
- 8 (very much)

To what degree were you eating the way you were yesterday for health reasons?

- 0 (not at all)
- 1
- 2 (a little)
- 3
- 4 (moderately)
- 5
- 6 (quite a bit)
- 7
- 8 (very much)

To what degree were you eating the way you were yesterday for appearance reasons?

- 0 (not at all)
- 1
- 2 (a little)
- 3
- 4 (moderately)
- 5
- 6 (quite a bit)
- 7
- 8 (very much)

Appendix J
Weight Control Strategies Checklist

Please check any behaviors you have used in the last 24 hours.

Healthy behaviors [this category label not shown to participants]
<input type="checkbox"/> Ate fewer calories than usual
<input type="checkbox"/> Performed moderate exercise (you could talk, but not sing) Number of minutes ____
<input type="checkbox"/> Performed vigorous exercise (you could not talk without pausing for a breath) Number of minutes ____
<input type="checkbox"/> Ate more fruits and vegetables
<input type="checkbox"/> Snacked less than usual
<input type="checkbox"/> Decreased fat intake in food (as compared to usual)
<input type="checkbox"/> Ate less sugar than usual
<input type="checkbox"/> Ate less than usual
<input type="checkbox"/> Ate less meat than usual
<input type="checkbox"/> Ate fewer carbohydrates than usual
<input type="checkbox"/> Ate low-calorie foods
Unhealthy behaviors [this category label not shown to participants]
<input type="checkbox"/> Fasted
<input type="checkbox"/> Skipped breakfast
<input type="checkbox"/> Skipped lunch
<input type="checkbox"/> Skipped dinner
<input type="checkbox"/> Smoked cigarettes
<input type="checkbox"/> Used laxatives
<input type="checkbox"/> Used diuretics
<input type="checkbox"/> Used appetite suppressants
<input type="checkbox"/> Used diet pills
<input type="checkbox"/> Made yourself vomit
Other behaviors [this category label not shown to participants]

<input type="checkbox"/> Followed the recommendations of a weight loss group such as Weight Watchers or Jenny Craig
<input type="checkbox"/> Decreased alcohol intake
<input type="checkbox"/> Used liquid diet supplements
<input type="checkbox"/> Drank more water
<input type="checkbox"/> Ate many small meals
<input type="checkbox"/> Ate a high protein diet
<input type="checkbox"/> Followed a diet found in a book or on the internet
<input type="checkbox"/> Followed a diet plan prescribed by a physician or RD
<input type="checkbox"/> Reduced portion size
<input type="checkbox"/> Used a meal replacement product
<input type="checkbox"/> Counted calories
<input type="checkbox"/> Used green tea or diet teas
<input type="checkbox"/>
<input type="checkbox"/> Followed the Paleo diet
<input type="checkbox"/> Recorded/monitored the food you ate (such as in an app, or a list)
<input type="checkbox"/> Weighed yourself to watch your weight
<input type="checkbox"/> Used a wearable fitness tracker (FitBit, Jawbone, Garmin, etc.)
<input type="checkbox"/> Ate according to a gluten free diet
<input type="checkbox"/> Other

Appendix K

Follow-up questionnaire

1. On how many days during the last four weeks were you...
 1. Dieting? _____
 2. Watching what you ate? _____
 3. Eating healthy? _____

2. What is your weight (lbs)? _____ (please fill this in *after* being weighed by a researcher)