

FOOD FOR THOUGHT: THE RELATIONSHIP BETWEEN THOUGHT  
SUPPRESSION AND WEIGHT CONTROL

by

RACHEL D. PETERSON, MS  
B.A. Gustavus Adolphus College, 2001  
M.S. University of Central Florida, 2005

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Major Professor: Stacey Tantleff Dunn

## ABSTRACT

The current study assessed the relationship between individuals' tendency to suppress thoughts, particularly related to food and body weight/shape, and outcomes such as weight loss maintenance and diet sabotaging experiences (e.g., binge eating). Community and university individuals ( $N = 347$ ) who are or previously were overweight completed self-report measures of thought suppression, weight history, and eating behaviors. Suppression of specific thoughts about food/weight/shape was related to weight cycling, binge eating, and food cravings. Participants who believed thoughts of food lead to eating were more likely to attempt suppression of food-related thoughts. Results have implications for improving weight loss maintenance and support further exploration of third wave interventions, such as Acceptance and Commitment Therapy and Mindfulness, in the treatment of obesity.

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## INTRODUCTION

The prevalence of people who are overweight or obese has risen dramatically throughout recent decades, with current estimates ranging as high as 65% in the United States (Baskin, Ard, Franklin, & Allison, 2005; Hendley et al., 2004). Unfortunately, the “epidemic” of obesity has become a global problem (International Obesity Task Force, 2006; Wadden, Brownell, & Foster, 2002, p. 510) with rates of overweight and obesity rising precipitously in Europe (International Association for the Study of Obesity, 2006) and parts of Asia (International Association for the Study of Obesity, 2006). Incredibly, annual mortality rates due to obesity-related illnesses are second only to smoking-related deaths (Allison, Fontaine, Manson, Stevens, & VanItallie, 1999). With such dire consequences, continued efforts to understand and treat obesity are imperative.

To date, no research has examined the potential consequences of thought suppression, attempting to control or suppress one’s thoughts, on weight loss maintenance. This project aims to address the gap by assessing the impact that an individual’s tendency to suppress thoughts, particularly related to food and appearance, may have on his or her ability to lose weight and successfully maintain the losses. The current proposal reviews the weight loss maintenance literature and demonstrates the need for continued research in the area of long-term weight loss and factors that contribute to weight cycling. The potential contributing role of relying on thought suppression will be explored first by examining the concept of suppression and Ironic Processes Theory. Empirical support for and outcomes of the Ironic Processes Theory will be examined in the context of mental health and resulting implications for weight

control and cycling. Lastly, the thought suppression and eating behavior literature will be reviewed, with emphasis on the need for further investigation into the relationship between thought suppression and weight maintenance.

### *Weight Loss and Maintenance*

One key to reducing many consequences of obesity is moderate weight loss (Wadden et al., 2002). Despite improvements in the efficacy of weight loss treatments, research continues to demonstrate that most people are unable to maintain weight loss over time (e.g., Ayyad & Anderson, 2000; Carlos Poston et al., 1999; Glenny, O'Meara, Melville, Sheldon, & Wilson, 1997; Jeffrey et al., 2000). It is estimated that approximately 75 to 80% of people treated for obesity are not able to maintain weight loss long-term (Ayyad & Anderson, 2000; Wing & Phelan, 2005). Losing significant amounts of weight and then regaining, often termed weight cycling, is particularly concerning because it has been implicated in consequences such as decreased eating self-efficacy, binge eating (Foster, Sarwer, & Wadden, 1997; Womble et al., 2001), increased incidence of kidney cancer for women (Luo et al., 2007), and increased mortality for men (Rzehak et al., 2007). The struggle to lose weight and keep it off is exemplified by the \$46 billion Americans spend every year on diet products and services, and the 70% and 63% of obese women and men nationally who report currently dieting (Bish et al., 2005; Marketdata Enterprises Inc., 2005). Despite the high percentage of people dieting and the money they spend to lose weight, obesity rates continue to rise. The high rates of both obesity and dieting are a paradox that partially may be attributed to unsuccessful

weight loss maintenance and has lead researchers to stress the importance of long-term maintenance (e.g., Jeffrey et al., 2000).

A myriad of studies have examined features of weight loss maintenance but few have resulted in definitive explanations of long-term success (e.g., Byrne, 2002; Byrne, Cooper, & Fairburn, 2003; Elfhag & Rossner, 2005; Kitsantas, 2000; Teixeira, Going, Sardinha, & Lohman, 2005; McGuire, Wing, Klem, Lang, & Hill, 1999). The literature suggests that coping directly with stressors and food cravings is related to successful weight control (e.g., Byrne et al., 2003; Carels, Douglass, Cacciapaglia, & O'Brien, 2004; Kitsantas, 2000). The individuals most likely to regain weight tend to eat in response to daily stressors (Byrne, 2002), are unable to generate general coping skills for dealing with stress (Byrne, 2002; Drapkin, Wing, & Shiffman, 1995), and utilize “escape-avoidance” (e.g., sleeping, eating) coping as a way to alter or avoid unpleasant emotions (Byrne, 2002; Dohm, Beattie, Aibel, & Striegel-Moore, 2001; Elfhag & Rossner, 2005; Westenhoefer, von Falck, Stellfeldt, & Fintelmann, 2004). Attempting to avoid inevitable experiences of stress and emotions may have a negative impact on individuals’ ability to control their weight in a healthy manner. While researchers have examined the consequences of behavioral methods of avoidant coping, little is known about the use and outcome of cognitive avoidance techniques in relation to weight control (Byrne, 2002).

### *Thought Suppression*

In their seminal study, Wegner and colleagues (1987) instructed participants to suppress thoughts about a white bear (Wegner, Schneider, Carter III, and White, 1987).

Not only were participants unsuccessful at completely suppressing the target-thought, they also reported a “rebound,” or increase, in white bear thoughts, also called intrusions, after the suppression period (Wegner et al., 1987, p. 7). Applied to dieting, it is conceivable that overweight and obese individuals who are trying to lose weight, and perhaps attempting to suppress food- and eating-related thoughts, may experience increases in the very thoughts they are trying to avoid. To date, researchers have not yet examined the outcome of utilizing thought suppression and weight loss success and failure.

Despite many methodological variants of the original white bear study, most experiments assess the consequences of thought suppression by utilizing a between-subjects design. Typically, all participants first are asked to monitor their thoughts for a period of time (e.g., five minutes), then half are asked to suppress a certain thought while the other half continues to monitor, and then both groups monitor their thoughts again. Intrusions of to-be-suppressed words usually are measured in one of two ways. Participants either are asked to write their thoughts continuously (stream-of-consciousness) and their writings later are coded or participants are instructed to click a hand counter with each intrusion. The use of thought suppression also is assessed through the self-report measure, The White Bear Suppression Inventory (WBSI), which appears to correspond closely with experimental assessments of suppression abilities and suggests that women are more likely to rely on thought suppression than men (e.g., Muris, Merckelbach, & Horselenberg, 1996; Wegner & Zanakos, 1994).

### *The Ironic Processes Theory*

Wegner and colleagues developed the Ironic Processes Theory (Wegner, 1994; Wegner & Erber, 1992) to explain the white bear study findings. The theory suggests that two cognitive tasks work simultaneously to suppress target thoughts. The first cognitive mechanism, the monitoring process, is activated by the conscious decision to suppress one's thoughts. The monitoring process searches for thoughts that are *inconsistent* with the desired state or indications that one may be thinking about that which they are trying to suppress. Interestingly, the function of the monitoring process is paradoxical in that it must search actively for the presence of the very thoughts one is trying to suppress. For example, during attempts to suppress *white bear* thoughts, the monitoring process is searching for evidence that one is not thinking about a *white bear*. The search for failures to suppress performed by the monitoring process must be unconscious. If the process were conscious, then even momentary thought suppression would be impossible. The monitoring process is not interrupted easily by cognitive load and activates the second cognitive mechanism, the operating process, when potential intrusions (thoughts of a white bear) are detected. The operating process searches for thoughts that are consistent with the goal, for example, thoughts that are *not* a white bear. This process is conscious, purposeful, and susceptible to interruption when cognitive resources are taxed (e.g., by cognitive tasks or emotional states) (Beavers & Wenzlaff, 1999; Wegner, 1994). The presence of ironic processes has since been supported via innovative experiments.

### *Ironic Processes Theory and Thought Suppression: Empirical Support*

Evidence of the monitoring and operating processes is provided from performance on verbal recognition and Stroop tasks (e.g., Page, Locke, & Trio, 2005; Wegner & Erber, 1992). The Stroop task requires individuals to identify the ink color in which a word is written. Longer response times to naming the ink color of words indicate that a person is primed to the meaning of the word (Wegner & Erber, 1992). Wegner and Erber (1992) asked participants to suppress a target word (e.g., mountain) and complete a Stroop task while under high (asked to remember a 9-digit number) or low (asked to remember a 1-digit number) cognitive load. Words presented in the Stroop task either were neutral, target (to-be suppressed), or similar to the to-be suppressed words (e.g., hill). Among participants asked to suppress, those subjected to high cognitive load demonstrated longer response times when naming the ink color of the target word when compared to individuals under low cognitive load. Results of the group suppressing under high cognitive load group suggest that the monitoring process detected the intrusion (target words presented in the Stroop task), but was unable to trigger the operating process. The operating process normally would have searched for thoughts other than the to-be-suppressed words but could not because it easily is impaired by cognitive load. When the monitoring system is unassisted by the operating system, to-be suppressed words become hyperaccessible, or primed, leading individuals to attend longer to the very word they were trying to suppress (Wegner & Erber, 1992).

A recent study also clearly supported the presence of operating and monitoring processes that underlie thought suppression. Page and colleagues (2005) instructed

participants to suppress a certain category of words (e.g., fruit) and then asked them to complete a word identification task. Unlike the Stroop task, short response times demonstrate hyperaccessibility for word identification tasks. The to-be-identified words, presented on a computer, either were neutral (i.e., words that did not fit in the categories to be suppressed) or within the to-be-suppressed category (e.g., cherry). Participants also were exposed to an unconscious “intrusion,” a word presented so briefly that participants would be unaware, prior to the to-be-identified word. The intrusion was a word within the to-be-suppressed category of fruit and was presented using either a short or long lag time between the intrusion and the word to-be-identified. The researchers hypothesized that the short lag time would access the *monitoring system* (which is searching for failures to suppress), leading to increased accessibility and quicker response times when the to-be-identified word was a fruit. With the longer lag time, the unconscious *monitoring system* would have identified the “intrusion” as a failure to suppress and activated the *operating system* that would then search for other thoughts, causing the identification of a fruit-related word to take longer. The findings supported the researchers’ hypotheses and, while less evident, participants were faster at naming words within a to-be-suppressed category even without the unconscious intrusions. The hyperaccessibility, or quick naming, of to-be suppressed words support the idea of an unconscious *monitoring process* searching the environment for thoughts *inconsistent* with the goal of suppression, in this case intrusions of thoughts of fruit. The fact that a longer lag between presentation of unconscious priming of the to-be suppressed word then delayed word identification is evidence that the unconscious *monitoring system* activated

the conscious *operating system*. The operating system then found distracter thoughts, decreasing individuals' priming of the to-be-suppressed word (Page et al., 2005).

Overall, the ironic processing theory suggests there are several outcomes of attempting to suppress one's thoughts: the immediate enhancement effect, which is an immediate increase in target thoughts following instructions or attempts to suppress thoughts; the rebound effect, which is an increase in target thoughts following suppression; hyperaccessibility, which is an increased priming of the to-be-suppressed thoughts as measured by automatic processing tasks (e.g., Stroop); and a decrease in ability to suppress thoughts when cognitive resources are taxed due to compromised functioning of the *operating* process and continued searching by the *monitoring* process (Wegner, 1994; Wegner & Erber, 1992; Wegner et al., 1987; Wenzlaff & Wegner, 2000). The consequences of thought suppression, such as hyperaccessibility and the rebound effect, suggest that purposeful suppression is an ineffective method of controlling unwanted thoughts (e.g., Lin & Wicker, 2007; Wegner, et al., 1987; Rassin, Muris, Jong, & de Bruin, 2005). Based on the evidence thus far, the consequences of relying on thought suppression to manage thoughts of food, weight, or shape could be counterproductive for someone trying to lose weight or maintain weight losses. An individual attempting to suppress thoughts about eating likely will be primed to any external cue that even approximates food or eating. For example, a person using thought suppression to avoid thoughts of food cravings may experience not only increases in thoughts about the specific food they are trying to suppress, but also increases in other food-related thoughts. The hyperaccessibility of the thoughts may be particularly evident when cognitive load (e.g., stress) impairs the operating process.



The aforementioned outcomes of attempting to suppress thoughts (e.g., the rebound and immediate enhancement effect) have been examined in a literature review (Wenzlaff & Wegner, 2000) and a meta-analysis (Abramowitz, Tolin, & Street, 2001). Empirical support is mixed, but the literature suggests that inconsistencies likely are due to numerous methodological variations. There appears to be definitive evidence of the rebound effect. The majority of studies included in the review and meta-analysis demonstrated that individuals experienced increases in to-be suppressed thoughts once instructed suppression periods ended. The immediate enhancement effect was evident when longer suppression periods were utilized (Abramowitz et al., 2001) and individuals were subjected to cognitive load while completing a suppression exercise (Wenzlaff & Wegner, 2000). In addition to cognitive load, the consequences of thought suppression may be altered by characteristics of the to-be suppressed thoughts (Abramowitz et al., 2001; Wenzlaff & Wegner, 2000). Wenzlaff and Wegner (2000) suggested that emotional material may be harder to suppress than neutral thoughts. Individuals attempting to suppress emotional thoughts may be more invested in suppressing and maintaining secrecy about the thoughts, both of which are features associated with increased attempts to suppress and frequency of subsequent intrusions (Wenzlaff & Wegner, 2000). Individuals attempting to suppress emotional thoughts also are more likely to experience a greater rebound once cognitive control is relinquished. The consequences of suppressing emotional thoughts may be explained by findings indicating that nondiscrete thoughts (e.g., memories) result in more pronounced rebound effects when compared to discrete thoughts (e.g., “white bear”) (Abramowitz et al., 2001). Many of the thought characteristics said to exacerbate the outcomes of thought

suppression may apply to the area of dieting. Dieters experience food and weight as emotional subjects, are likely invested in decreasing food-related thoughts, are often secretive about their eating habits, and may experience nondiscrete food- and weight-related thoughts (e.g., thinking about eating, distressful thoughts related to one's appearance). Given that suppressing emotionally laden thoughts may result in greater rebound effects, utilizing thought suppression as a means to control food- and eating-related thoughts may be particularly futile and could even lead to increased preoccupation with the very thoughts originally intended to be suppressed. Although studies examining thought suppression and eating behaviors are relatively scarce, much can be learned about the potential relationship from the mental health literature and thought suppression.

### *Thought Suppression and Mental Health*

With the role of cognition, including preoccupation with certain thoughts, being implicated in most psychological disorders and addictions, researchers have examined extensively the association between thought suppression and mental health (e.g., Beck, Gudmundsdottir, Palyo, Miller, & Grant, 2006; Lynch, Schneider, Rosenthal, & Cheavens, 2007; Peterson, Klein, Renk, & Tantleff-Dunn, 2008; Purdon, 1999; Riskind & Williams, 2005; Wenzlaff & Luxton, 2003). There is a relationship between the general use of thought suppression and depressed mood in clinical and nonclinical populations (e.g., Rosenthal, Cheavens, Compton, Thorp, & Lynch, 2005; Wenzlaff & Luxton, 2003), and studies of currently and previously depressed individuals show that they utilize thought suppression significantly more than individuals with no history of

depression (Rude & McCarthy, 2003; Van der Does, 2005). A study of older participants (mean age = 66) enrolled in treatment for depression revealed that, after accounting for pre-treatment depression scores, pre-treatment thought suppression scores predicted Beck Depression Inventory (BDI) scores at 6-month follow-up (Rosenthal et al., 2005). The BDI assesses both cognitive and behavioral symptoms of depression, suggesting that the act of suppressing thoughts in general may have led to the very behaviors that individuals receiving treatment for depression were trying to avoid.

Researchers have hypothesized that suppressing self-relevant distressing memories may result in “downstream toxic effects” in which other negative memories become hyperaccessible, particularly for depressed individuals (Dalgleish & Yiend, 2006, p. 468). Researchers asked “dysphoric” and “nondysphoric” individuals to suppress or monitor thoughts of one distressing autobiographical memory. Following the suppression or monitoring period, participants generated as quickly as possible a personal memory in response to several positive and negative single-word prompts. Among the dysphoric participants, those asked to suppress responded more quickly with negative memories to the negative cues than their monitoring counterparts. Therefore, suppressing one distressing memory led other negative memories to become readily available to external prompts. Similarly, and consistent with the Ironic Processes Theory, Watkins and Mould (2007) demonstrated that negative thoughts experienced by previously depressed people were more accessible when their cognitive resources were taxed.

Thought suppression may not only result in behavioral consequences such as depression but also self-injurious behaviors (Najmi, Wegner, & Nock, 2007).

Researchers’ results suggested that individuals’ self-reported tendency to rely on thought

suppression predicted non-suicidal self-injury. (Najmi et al., 2007). Together, the mood and thought suppression literature indicates that the general use of thought suppression may be related to very specific behavioral outcomes, such as depression, depression-relapse, dysphoria, or self-injury (e.g., Rosenthal et al., 2005; Wenzlaff & Luxton, 2003), potentially as a result of the “downstream toxic effects” of suppression (Dalgleish & Yiend, 2006). Extending these findings to the areas of dieting and weight loss maintenance, it is possible that individuals attempting to suppress specific thoughts related to food, weight, and shape also may experience unwanted priming of other related thoughts and undesired behavioral outcomes. For example, suppressing distressing thoughts about one’s abdomen may increase the likelihood of having other upsetting body-related thoughts. Further, dieting individuals are trying to make cognitive and behavioral changes, perhaps in a similar manner as the individual receiving treatment for depression, and the act of suppressing may result in the very behaviors they are trying to avoid such as binge eating.

In addition to mood, how individuals appraise their thoughts, such as acceptable or unacceptable, may greatly impact the desire to suppress and consequences of suppression (Smári, 2001). Such appraisals are called metacognitions, or our thoughts about our thoughts, and have been gaining attention within the thought suppression literature (e.g., Abramowitz et al., 2001; Purdon, 2004; Rassin, Muris, Schmidt, & Merckelbach, 2000). Thought-action fusion (TAF), or believing that having thoughts increases the chances of the thought actually occurring, may play a role in perpetuating the desire to suppress thoughts, particularly for those with obsessive-compulsive disorder (Rassin et al., 2000; Smári & Hólmsteinsson, 2001). Marcks and Woods (2007) recently

demonstrated that thought suppression mediated the relationship between TAF and obsessive-compulsive symptomatology. Even within nonclinical samples, negative appraisals of one's thoughts are related to higher levels of distress, anxiety, depression following suppression (Borton, Markowitz, & Dieterich, 2005; Magee & Teachman, 2007). Similarly, frequency of to-be-suppressed thoughts has been found to correlate negatively with rates of acceptance and positively with reported effort to suppress (Marcks & Woods, 2005; Magee & Teachman, 2007). Appraising thought suppression as helpful and achievable will lead to increased efforts to suppress, and the increased efforts likely will lead to failed suppression attempts, and potentially to increasingly punitive suppression strategies such as punishment (e.g., self-effacing thoughts, pinching, hitting) and distress, anxiety, or depression (Purdon, 1999). The resulting distress likely serves to maintain this cycle by taxing cognitive resources and further impairing efforts to suppress (Purdon & Clark, 2000). The potential for individuals' metacognitions to exacerbate the consequences of thought suppression may have specific implications for individuals who rely on thought suppression to control their weight. For example, if individuals find their food- or weight-related thoughts unacceptable or believe that thinking about food may increase their likelihood of eating, they are much more likely to attempt to suppress, experience more intrusions, and potentially use more severe forms of thought control. Not surprisingly, researchers have stressed the importance of examining the relationship between eating behaviors and thought suppression (Polivy, 1998; Ward, Bulik, & Johnston, 1996; Wenzlaff & Wegner, 2000).

### *Thought Suppression and Eating Behavior*

Individuals attempting to lose weight may be particularly sensitive to the undesired consequences of thought suppression. The ability to suppress or control one's thoughts can be decreased when one's working memory is compromised (Brewin & Beaton, 2002; Brewin & Smart, 2005) and research suggests that dieters have impaired working memory capacity (e.g., Kemps & Tiggemann, 2005; Kemps, Tiggemann, & Marshall, 2005). The experience of preoccupying cognitions related to weight and food is the most substantiated reason for working memory impairments among dieters (e.g., Green et al., 2003; Green & Rogers, 1998; Kemps et al., 2005; Shaw & Tiggeman, 2004; Vreugdenburg, Bryan, & Kemps, 2003). Perhaps the preoccupying thoughts of food and weight experienced by dieters are an outcome of attempts to suppress. The thoughts then continue to drain working memory resources, further impairing individuals' ability to suppress. This explanation is supported by studies examining individuals high in restraint, which is the tendency to restrict one's food intake as a means of weight control (i.e., dieting).

Several studies have supported the idea that dieting individuals (high in restraint) are less able to suppress food- and weight-related thoughts when compared to individuals low in restraint (O'Connell, Larkin, Mizes, & Fremouw, 2005; Giannopoulos, 2001; Harnden, McNally, & Jimerson, 1997). In a study that examined the relationship between restrained eating and cognitive distraction, researchers hypothesized that a cognitive load would impair restrained eaters' cognitive controls and lead to overeating (Boon, Stroebe, Shut, & Ijntema, 2002). Restrained and nonrestrained eaters were asked

to judge the taste of ice cream described as either high or low in calories. When cognitively distracted, and in the high calorie condition only, restrained eaters ate significantly more ice cream than unrestrained eaters. The findings suggested that restrained eaters require full cognitive capacity to control their food intake, and when resources are impaired they are likely to overeat (Boon et al., 2002).

Soetens and Braet (2006) were the first to examine restraint and thought suppression within an obese population. They examined a clinical sample of obese versus nonobese adolescents who either were high or low restrained eaters. The high restrained obese group (unsuccessful dieters) was the only group who had difficulty suppressing food-related thoughts and experienced the rebound effect following the suppression exercise. Although their study examined a very specific group, findings support further exploration of the use and consequences of thought suppression among overweight or obese individuals.

More recently, Kemps, Tiggeman, and Christianson (2008) demonstrated that thought suppression was effective in briefly decreasing food craving intensity/vividness for normal weight nondieters. For the comparison group of overweight dieters (high restrainers), however, using a dynamic visual noise ("black and white squares...random squares changed from black to white or white to black") was more effective than was thought suppression (Kemps et al., 2008, p. 180). Conclusions must be drawn with caution as the study was limited by a small sample size and the groups' BMI differences were not addressed statistically. The impact of instructed suppression may differ based on weight, but the impact of utilizing thought suppression on weight control has never been examined.

In addition to restraint, another characteristic related to weight control is disinhibition or the tendency to eat for reasons other than hunger such as external cues or emotions. Contrary to their hypotheses, Oliver and Huon (2001) found that individuals high in disinhibition were *more* successful at suppressing briefly food-related thoughts than individuals low in disinhibition. They attributed the findings to a practice effect, since high disinhibitors likely have spent more time trying to suppress food-related thoughts. The researchers also found that disinhibited individuals relied more on punishment and worry thought control strategies than individuals low in disinhibition. Such control strategies tend to be related to outcomes such as distress and eventual increases in unwanted thoughts (Wells & Davies, 1994). Although high disinhibitors' thought control tactics may have helped them to suppress briefly, the eventual outcomes of such methods appear to be detrimental.

Recently, researchers extended the restraint and disinhibition literature by comparing disinhibited restrainers (high in both restraint and disinhibition), inhibited restrainers (high in restraint and low in disinhibition), and low restrainers (level of disinhibition not mentioned for this group) on self-report and experimental assessments of thought suppression (Soetens, Braet, Dejonckheere, & Roets, 2006). When compared to the other groups, disinhibited restrainers had the highest WBSI scores and were the only group to demonstrate a rebound effect following a 5-minute period of suppressing thoughts about food and eating (Soetens et al., 2006). Soeten and colleagues' (2006) findings regarding disinhibited restrainers recently were confirmed within healthy *and* overweight adolescent populations (Soeten, Braet, & Moens, 2008). However, the healthy and overweight adolescents were compared within, and not between, groups.



Therefore, we do not know if the overweight adolescents rely on thought suppression more or less frequently than do healthy weight adolescents. Collapsing of the groups into high and low suppressors based on WBSI scores (regardless of disinhibition, restraint, or weight) demonstrated that high suppressors were more likely to use worry, punishment, and distraction as a means of controlling their thoughts (Soetens et al., 2008). Taken together, the disinhibition/restraint literature supports the utility of the WBSI and suggests that individuals who restrain their intake, yet tend to eat for reasons other than hunger, appear to struggle with more unwanted thoughts related to food.

The outcomes of suppressing food-related thoughts have been examined further via Stroop tasks. Results support the idea that suppressing thoughts about sweets leads individuals to become primed and therefore pay more attention to the very food-related words they are trying to suppress (Dejonckheere, Braet, & Soetens, 2003). Findings also suggest that suppression of eating-related thoughts leads related words to become hyperaccessible, even when individuals are not specifically instructed to suppress (Smart & Wegner, 1999). Similarly, Berry, Andrade, and May (2007) asked university students to complete a lexical decision task in which they had to decide quickly if words presented were real words (“brake”) or nonwords (“breal”). The real words were either neutral or food-related. Hungry individuals identified real food-related words faster than real neutral words, and their apparent priming was positively correlated with their self-reported food-related intrusions. Another example of the consequences of thought suppression is from Soetens & Braet (2007) who asked healthy and overweight adolescents either to suppress or monitor food-related words. Following the suppress/monitor exercise, adolescents completed an imbedded word task (IWT), a grid

of letters with neutral and food-related words. Contrary to hypothesis, individuals who were overweight and/or in the suppression condition did not identify more food-related words during IWT. However, regardless of suppression condition, overweight adolescents remembered more food-related words following the IWT than did their healthy weight counterparts (Soetens & Braet, 2007). Researchers suggested age may have been a reason that their findings were not consistent with previous studies examining adults. Suppressing food-related thoughts may not only lead to increases in the thoughts but also may alter individuals' behavior.

Researchers theoretically have linked thought suppression to the experience of bingeing in individuals with bulimia nervosa (Ward et al., 1996) but only three studies have examined empirically the behavioral consequences of suppression. Johnston, Bulik, and Anstiss (1999) examined how thought suppression may relate to overeating by asking cravers and noncravers of chocolate to suppress thoughts about chocolate. Following the suppression period, and regardless of craving status, participants worked harder at a computer game to earn chocolates when compared to a nonsuppression control group (Johnston et al., 1999). Therefore, thought suppression may not only result in increased food and weight-related thoughts, but also increased food-seeking behaviors. If women of a healthy weight respond to thought suppression by seeking more food, perhaps the unique response to thought suppression experienced by obese individuals may lead to more dramatic behavioral consequences such as binge eating.

Based on the ironic processing theory, Mann and Ward (2000) investigated the consequences of making certain foods forbidden. In separate naturalistic and laboratory studies, researchers found that instructing participants not to eat a certain food led to a

consistent and maintained level of thoughts of and desire for the food. Participants did not, however, demonstrate increased food intake. Although Mann and Ward's (2000) study did not support the idea that restricting foods leads to increased consumption, they noted that their study did not take into account participants' level of hunger which may have affected experimental outcomes. Further, participants were forbidden to eat certain foods but they were not instructed to suppress food-related thoughts. The study, therefore, may have failed to replicate the experience of individuals who utilize thought suppression to cope with food avoidance. An additional limitation was that men and women were not examined separately and participants' BMIs were not reported. The sample consisted of undergraduate students and similar studies utilizing undergraduate populations reported participant BMIs within the healthy range (e.g., Harnden et al., 1997). The participants may have been able to manage their weight effectively, therefore limiting the generalizability to overweight and obese individuals.

Most recently, Pop and colleagues (2004) conducted an exploratory investigation to determine if purposely attempting to suppress food-related thoughts results in increased food consumption (Pop, Miclea, & Hancu, 2004). Thirty participants were assigned to a thought suppression or control condition and further categorized by weight (normal weight, overweight, obese) and high or low restraint. Two weeks of suppression resulted in increased food-related thoughts, regardless of weight, and increased food intake in restrained overweight/obese participants. Unfortunately, the published abstract of this experiment did not include the mean age or sex of the participants. Regardless of the participant demographics, results certainly support further exploration of food-related thought suppression.

Taken together, the thought suppression and eating behavior literature suggests that attempting to suppress food and weight related thoughts may lead to increases and hyperaccessibility of the thoughts (Dejonckheere et al. 2003; Oliver & Huon, 2001; Soetens & Braet, 2006) and individuals may even binge-eat (Ward et al., 1996), seek out food (e.g., Johnston et al., 1999), or increase food intake as a result of thought suppression (Pop et al., 2004). Further, the characteristics of dieters' thoughts (e.g., distressing, nondiscrete, unacceptable) may lead to increased efforts to suppress, greater rebound effects, increased preoccupation, and even priming of other related thoughts (Dalglish & Yiend, 2006). Preoccupation with food and appearance related thoughts may further impair individuals' working memory, increasing the futility of suppression attempts. Most studies, however, have not utilized a population representative of the average overweight or obese dieter. Of the scant literature examining thought suppression within overweight or obese individuals, all but one (i.e., Pop et al., 2004) have utilized an adolescent population and collapsed male and female participants rather than examine potential sex differences. Recent findings by Soetens and Braet (2007) suggest adolescents may respond differently to suppression than adults. In conclusion, it is essential to expand the current thought suppression literature to a population representative of the average adult person who likely is overweight or obese and dieting.

### *Current Investigation*

The problem of obesity is worsening and innovative methods of addressing the problem are needed greatly. The current study has the potential not only to further basic

cognitive understanding of obesity but also to shape future interventions. Rather than trying to suppress “bad” thoughts about food, treatment may need to help individuals acknowledge and accept food- and weight-related thoughts. There have been promising advances with recent treatments that incorporate meditation and mindfulness techniques into treating obesity (Lundgren, 2005) and binge eating disorder (Kristeller & Hallett, 1999; Telch, 1997; Wiser & Telch, 1999). Most recently, application of Acceptance and Commitment Therapy techniques was found to reduce food cravings in individuals who are psychologically influenced by food in the environment (Forman et al., 2007) and lead to significant weight losses and health benefits in overweight/obese individuals (Lillis, 2007). Such research is nascent and in need of continued exploration. The current study aimed to increase our understanding of how cognition relates to weight loss maintenance so that we may work toward improving empirically derived intervention approaches.

This study will address limitations of the current literature in a number of ways, including an extension of the population and outcomes assessed. The theory of thought suppression is applied to weight control within a population representative of the average American who likely is overweight or obese and dieting (e.g., Bish et al., 2005). The sample also adds to the literature by including adult male participants. Despite research suggesting that women rely on thought suppression more than men (Wegner & Zanakos, 1994; Wenzlaff & Luxton, 2003), no thought suppression and eating behavior studies have examined sex differences.

To date, no research has examined the effects of thought suppression on healthy weight control. Therefore, the focus of the current study was to bridge this gap by exploring the relationship between thought suppression and the ability to lose weight and

maintain losses. Since individuals may attempt thought suppression in many ways, ranging from seeking social support to physically punishing oneself (e.g., pinching), this study also investigated the relationship between method of controlling one's thoughts and outcomes such as diet-sabotaging experiences (e.g., binge eating) and weight cycling. Further, avoidant coping in response to stress and emotions has been related to weight cycling and thought suppression could be considered a cognitive avoidant coping skill (e.g., Beevers & Wenzlaff, 1999). Therefore, the current study examined the uninvestigated relationship between thought suppression, stress, and weight loss relapse.

With the exception of two investigations, studies thus far have not examined the natural tendency to suppress thoughts of food and appearance, rather suppression efforts have been the result of instructions within a laboratory setting (Pop et al., 2004; Soetens et al., 2006). Purdon (1999) stressed that instructions to suppress in laboratory settings may not fully recreate individuals' everyday suppression efforts. The current study extended the literature by examining the natural tendency to suppress not only thoughts in general, but also specific thoughts related to food and body shape/weight. The reasons for this increased level of specificity are two-fold. First, the study determined if individuals' general tendency to suppress thoughts is related to their tendency to suppress thoughts specific to an issue with which they are struggling (i.e., food- and body shape/weight-related thoughts for someone who is trying to lose weight). Second, analyses clarified whether or not the resulting outcomes of thought suppression differ based on the extent to which thought suppression is general vs. specific to food- and body shape/weight-related thoughts. Finally, researchers recently have stressed the important role that individuals' metacognitions may play in their tendency to rely on thought

suppression. For example, dieting individuals who believe that thinking about food is bad or increases the likelihood that they will eat may be more likely to rely on thought suppression. Therefore, current study was the first to examine how individuals' metacognitions about intrusive food- and body shape/weight-related thoughts may influence their reliance on and outcomes of thought suppression.

To work toward a better understanding of the cognitive mechanisms underlying long-term weight loss failure and success, the current study tested the following hypotheses:

1. Women will be more likely to utilize thought suppression (both general and specific) than men.
2. Individuals with a tendency to utilize general thought suppression will be more likely to attempt to suppress food- and body weight/shape-related thoughts.
3. Individuals who successfully have lost and maintained weight will rely less on thought suppression, both of general and food- and body weight/shape specific thoughts, and utilize less harmful means of attempted thought control.
4. A tendency to rely on general and specific thought suppression and punitive means of thought control will predict weight cycling and diet-sabotaging experiences, however, specific, when compared to general, thought suppression will be more predictive of these outcomes.
5. Thought suppression will moderate the relationship between stress and weight cycling, such that a tendency to rely on thought suppression will strengthen the relationship between stress and history of weight cycling.

6. Individuals' metacognitions will be related to their use of thought suppression such that individuals who believe that thought suppression is possible, beneficial, or necessary (i.e., thinking about food will increase my chances of eating so suppressing such thoughts is imperative) in dealing with food and weight/related thoughts will be more likely to attempt to suppress.



## MATERIALS AND METHODS

### *Participants*

An initial sample of 1,337 individuals from the University of Central Florida and the community was collected. The final sample size was 897 after eliminating participants who did not finish the survey completely ( $n = 9$ ), were never overweight as an adult ( $n = 375$ ), or did not provide complete data, thereby preventing calculation of an individual's highest lifetime Body Mass Index (BMI) or identification of their gender ( $n = 51$ ). Also removed were five people who took the survey on paper rather than online because the small number did not allow for statistical comparisons between those who chose paper versus the online version.

Meaningful comparison analyses between individuals who completed the survey and those who did not were not possible because the demographics form was at the end of the survey. Two-tailed t-test and chi-square comparisons between individuals who never had been overweight (NO) and those who were currently or previously are overweight (CPO) demonstrated that eliminated NO participants were significantly more likely to be female,  $\chi^2(1) = 11.54, p < .0005$ , younger,  $t(1,146) = 11.58, p < .0005$ , and had lower current BMIs,  $t(1,174) = 37.25, p < .0005$ , than CPO individuals. Findings are likely due to the fact that NO individuals were more likely to be UCF students ( $\chi^2(1) = 69.91, p < .0005$ ) than community members and potentially took the survey for extra credit despite not meeting selection criteria.

Further screening of the currently or previously overweight sample ( $N = 897$ ) included examining responses to validity questions. Five questions were inserted throughout the survey to assure that participants were maintaining attention to the questions (e.g., “For this question, please choose answer choice 3”). Excluded from analyses were participants who responded incorrectly to two or more validity questions ( $n = 25$ ; 2.8%). Last, since preoccupation with appearance and food are diagnostic criteria for anorexia and bulimia nervosa and inclusion of such individuals may skew results (American Psychological Association, 2000), screening for eating disorders resulted in elimination of 100 participants (11.5%) who reported purging or laxative use as a means of controlling body shape or weight within the last 28 days and 8 participants who did not provide adequate data to be screened for eating disorders. Individuals with binge-eating disorder were not screened out because a significant portion of individuals with the disorder are also overweight or obese (Psychological Association, 2000), and therefore may represent an important subpopulation of obese people.

Of the 772 remaining participants (287 males and 485 females), 485 (62.6%) were undergraduate students and 289 (37.4%) were community members. A 2 (male, female) by 2 (undergraduate, community) MANOVA was conducted to examine differences among the four groups (i.e., community men and women, undergraduate men and women). There were significant main effects for sex,  $F(31, 205) = 3.55, p < .0005$ , and source (undergraduate, community),  $F(31, 205) = 5.63, p < .0005$ , however, the sex by source interaction was not significant ( $p = .757$ ). Undergraduate and community participants differed significantly by age, current body mass index (BMI), and on a number of dependent variables.

When utilizing ANVOCAs with age and BMI as covariates, the majority of these group differences no longer were present (see Table 1). However, despite the inclusion of covariates, undergraduate men and community men continued to differ on food-related thought suppression and undergraduate women and community women continued to differ on general thought suppression and fast food and carbohydrate cravings. Given that the groups differed on variables central to the study, participants from the community and undergraduate were not combined. For the purposes of this study, the community sample was utilized because it likely is more representative of the general population (e.g., wider age and BMI ranges). However, the undergraduate group was investigated further to determine if certain participants could be combined with the community group. Considering the age differences between the groups, younger individuals were increasingly removed from the undergraduate sample and the community-undergraduate differences were reexamined after removal of each age group (one year of age at a time). When participants under the age of 28 years old were removed from the undergraduate sample, the differences between the community and undergraduate participants were no longer significant (without the inclusion of covariates). Therefore, to increase the sample size and maximize power, undergraduates 28 years and older (11 men and 47 women) were combined with the community sample. Based on power analyses, the hypothesis requiring the largest number of participants (hypothesis 3) indicated that to detect a medium effects size at the alpha level of less than .05, each cell needed to include 35 participants for a total number of 210 participants (105 of each sex) (Cohen, 1992).

The final sample of 347 participants (239 women, 108 men) had a mean age of 39.49 ( $SD = 12.03$ , range = 19-75). The majority of participants reported being

heterosexual (91.6%), and they were of the following ethnicities: 83.3% European American, 6.1% Hispanic, 6.3% African American, 2.3% Asian American, .9 Native-American, 2.6% Bi/Multi-Racial, and .3% identified themselves as “other.” Their current average BMI was 31.62 ( $SD = 6.83$ ), their highest lifetime average BMI was 35.14 ( $SD = 8.34$ ), and 48.7% reported currently dieting (see Table 2 for further demographic breakdown).

### *Measures*

*Consent Form.* The form outlines the general purpose of the study and informs the participants of their rights as research participants (Appendix A).

*Demographics and Weight History.* Participants were asked to provide demographic information (e.g., gender, age, height, weight, ethnicity) and detailed information regarding their weight history (Appendix B). Research suggests that individuals’ self-reported weight accuracy is sufficient for studies not examining weight loss interventions (e.g., Bowman & DeLucia, 1992). Additionally, individuals were asked about their metacognitions related to thought suppression with items such as, “Thinking about food increases the likelihood that I will eat” that participants responded to on a 5-point Likert scale from 1 (disagree) to 5 (agree).

*White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994).* The WBSI is a one-factor, 15-item measure of thought suppression (Appendix C) that was validated on a sample of over 3,000 participants. Participants were asked to answer questions such as “There are things I prefer not to think about” on a Likert scale ranging from 1

(strongly disagree) to 5 (strongly agree). Scores for the WBSI can range from 15 to 75, with higher scores indicating higher levels of thought suppression utilization. The measure correlates positively with measures of depression, anxiety, and obsessive-compulsive features (Wegner & Zanakos, 1994). Total score Cronbach's alphas have been reported to range from .87-.97 and have satisfactory test-retest reliability ( $\alpha = .92$  at 1 week and .69 at 3 months). Total score alphas with the current sample for women and men were .94 and .91, respectively.

Recently, researchers have revisited the WBSI factor structure and have recommended two- (Rassin, 2003; Höping & de Jong-Meyer, 2003) and three- (Blumberg, 2000) factors based on factor analyses and the theory that items of the WBSI assess more than just thought suppression. Blumberg's (2000) analyses appear the most rigorous, and a leading thought suppression researcher utilized the updated structure in a recent study (Wenzlaff & Luxton, 2003). The updated factor-structure supported the use of 3 factors that were named Unwanted Intrusive Thoughts ( $\alpha = .84$ ), Thought Suppression ( $\alpha = .74$ ), and Self-Distraction ( $\alpha = .75$ ) (Blumberg, 2000). The Blumberg (2000) factor structure was used for the current study and reliability estimates (Cronbach's alpha) for the sample were: Unwanted Intrusive Thoughts ( $\alpha = .91$ ), Thought Suppression ( $\alpha = .80$ ), and Self-Distraction ( $\alpha = .83$ ) for women and Unwanted Intrusive Thoughts ( $\alpha = .87$ ), Thought Suppression ( $\alpha = .79$ ), and Self-Distraction ( $\alpha = .81$ ), for men.

*Food and Body Shape/Weight Thought Suppression Inventories.* To investigate the relationship between generalized and specific thought suppression, two measures were created based on the WBSI. The assessments were named the Food Thought

Suppression Inventory (FTSI; Appendix D) and the Body Shape/Weight Thought Suppression Inventory (BSTSI; Appendix E). In most cases the word “thoughts” was replaced with “food” or “my body shape/weight.” For example, the WBSI item, “There are *things* I prefer not to think about” was changed to “There are *foods* I prefer not to think about” and “There are things *about my body weight/shape* I prefer not to think about.”

To explore the factor structure of the new measures, exploratory factor analyses were conducted using Principal Components Analysis with Varimax rotation for the FTSI and BSTSI. Consistent with the original WBSI factor analysis the FTSI and BSTSI were best explained by one factor and Cronbach’s alphas were high, ranging from .96 to .97.

*Thought Control Questionnaire (TCQ; Wells & Davies, 1994).* The TCQ is a 36-item scale assessing control strategies for unwanted and unpleasant thoughts (Appendix F). The self-report measure has 5 subscales named: distraction, social control (i.e., talking to a friend), worry (“I dwell on other worries”), punishment, and re-appraisal (“I analyze the thought rationally”). Participants answer on a Likert scale ranging from 1 (never) to 4 (almost always). Cronbach’s alphas for the subscales ranged from .64 to .79, with appropriate test-retest coefficients after 6 weeks (.67 to .83; Wells & Davies, 1994). Cronbach’s alphas for the current sample ranged from .70 to .86 for women and .74 to .83 for men.

*Food Craving Inventory (FCI; White & Grilo, 2005; White, Whisenhunt, Williamson, Greenway, & Netemeyer, 2002).* The FCI is based on research suggesting that cravings may be related to episodes of overeating and is designed to measure subjective cravings of 25 foods (Appendix G). Factor analyses resulted in 4 subscales:

high-fat foods (sausage), sweets (chocolate), carbohydrates (pasta), and fast-food (pizza). Individuals were asked to rate their cravings for each food over the past month on a Likert scale from 1 (never) to 5 (always/almost always). Cronbach's alpha for the total scale is .86 and ranges from .70 to .83 for the subscales (White & Grilo, 2005; White et al., 2002). For the current samples, Cronbach's alphas for the subscales ranged between .61 and .81 for women and .75 and .88 for men. Total score alphas were .87 and .91 for women and men, respectively.

*Eating Habits Questionnaire (EHQ; Wadden & Foster, 2001; Wadden & Phelan, 2002).* The EHQ is a 24-item scale from the Weight and Lifestyles Inventory (Wadden & Foster, 2001) that assesses individuals' eating triggers and habits (Appendix H). Individuals rate how much certain behaviors (e.g., overeating at dinner, eating when stressed) contribute to their weight gain on a 5-point Likert scale from 1 (does not contribute) to 5 (contributes the greatest amount). Reliability estimates have not been provided in prior research, however, in the current study total score Chronbach's alphas were .92 and .94 for women and men, respectively.

*Weight Cycling Questionnaire (WCQ).* Based on previous literature (Foreyt et al., 1995; Friedman, Schwartz, & Brownell, 1998; Gokee-Larose, 2006), a brief assessment of individuals' tendency to experience weight fluctuations will be included (Appendix I). Individuals respond to questions such as, "How often do you lose and regain weight?" on a 5-point Likert scale ranging from 1 (never) to 5 (always). Cronbach's alphas for the current sample were .81 and .83 for women and men, respectively.

*Eating Disorder Examination—Questionnaire (EDE-Q; Fairburn & Beglin, 1994).* The EDE-Q (Appendix J) is a 28-item self-report measure based on the Eating

Disorder Examination (EDE). The EDE-Q results in frequency data related to eating disordered behaviors (e.g., purging within the past 28 days) and was used to measure frequency of binge-eating. The measure also was used to screen out participants who reported symptoms consistent with anorexia or bulimia nervosa. The scale is recommended (Celio, Wilfley, Crow, Mitchell, & Walsh, 2004), utilized widely (Reas, Grilo, & Masheb, 2006), and a large-scale study was conducted to establish normative data for women (Mond, Hay, Rodgers, & Owen, 2006). Researchers recently noted that the inclusion of examples of what a binge entails (Appendix K) has increased agreement between the EDE-Q and EDE in the case of binge-eating disorder symptoms (Goldfein, Devlin, & Kamenetz, 2005).

*Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978).* Participants were asked to indicate whether or not 47 life-changing events (e.g., Serious illness or injury of a family member) have occurred in the past 0-6 or 7-12 months and rate the impact that said event has had on their life from -3 (extremely negatively) to +3 (extremely positively) (Appendix L). Cronbach's alpha has not been reported, but test-retest reliability for the positive and negative events were .53 and .88, respectively. Authors cautioned that the test-retest reliability estimates may underestimate the stability of the measure as individuals may have experienced different positive and negative events in the 5 to 6 week interim between completing the measure. The assessment of negative experiences is highly related to state anxiety and moderately to trait anxiety (Sarason et al., 1978). A total score was created from the events that individuals rated as negative. Cronbach's alphas for women and men were .80 and .89, respectively.



*Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983).* The PSS is 14-item measure of global appraised stress (Appendix M). Individuals were asked to respond to questions such as “In the last month, how often have you been upset because of something that happened unexpectedly?” on a Likert-scale from 0 (never) to 4 (very often). Higher scores indicate higher levels of perceived stress. Chronbach’s alphas range from .84 to .86, and the PSS is related to life events, depressive symptoms, anxiety, and life satisfaction (Cohen et al., 1983). A total score was created, and Cronbach’s alphas for the current study were .88 and .86 for women and men, respectively.

*Debriefing Form.* Participants were debriefed fully as to the purposes of the study and provided with contact numbers for the investigators (Appendix N).

### *Procedures*

The questionnaire was available at a secured website for confidential data collection (Zoomerang). Undergraduate students were recruited via the campus online data collection website, Experimentrak.com, that routed them to Zoomerang. At this website, participants were asked to provide informed consent, complete the surveys, and upon completion of the surveys, participants were debriefed fully as to the purpose of the study. Individuals were given the opportunity to complete the survey in a paper format if they preferred. Community members were recruited via the internet on websites related to weight loss (e.g., Weight-loss-forum.com) and general websites (e.g., Craigslist.com). A letter approved by the University’s Institutional Review Board letter was posted on these websites with a link to the survey. Participants were asked to provide consent and

debriefed in a similar manner to UCF students. Community members also were recruited at a YMCA and LA Fitness. Individuals were provided with information regarding the study and asked to provide their email address or to complete a paper version of the survey on site. Their email addresses were kept confidential and they received an email with the link to the online survey. University of Central Florida students were offered extra credit for their participation. Community members received no compensation for their participation.

#### *Definition of Terms*

*Successful weight loss and maintenance.* Researchers have utilized various methods to define successful weight loss and maintenance. Generally, requirements for weight loss have ranged between 5% and 10% (Elfhag & Rossner, 2005; Wing & Hill, 2001; Wing & Phelan, 2005). Elfhag and Rossner's (2005) extensive review of the weight loss literature included studies that utilized a minimum of six months as their weight loss maintenance criteria. Six months is more inclusive than the Institute of Medicine's one year time frame (Institute of Medicine, 1995). However, since the current study was not testing a weight loss intervention, the less stringent six month criterion was more applicable. Based on the criteria and participants' reported weight history, individuals were classified as Maintainers, Relapsers, or Unchanged. Participants were categorized based on their reported highest adult weight, weight six months prior to the study, and current weight. Ten percent of their highest adult weight was calculated and compared to their reported weight six months prior and current

weight. From this information, it was determined if participants had lost 10% of their highest adult weight six months before the study and whether they had maintained or regained the loss at the time of the study. Not included in the analyses were participants whose current reported weight was 10% higher or lower than their reported weight six months prior to participation ( $n = 64$ ) because they did not fall into one of the three following categories of interest for the current study: Mainainers, Relapers, and Unchanged participants. Maintainers were defined as individuals who intentionally had lost 10% or more of their highest adult body weight, unrelated to pregnancy, and maintained at least a 10% decrease in body weight for a minimum of six months preceding the current study. Relapers were defined as individuals who successfully lost 10% or more of their highest adult body weight and maintained it up to six months prior to the study, but their current weight was no longer 10% below their highest weight, indicating that they regained all or a portion of the lost weight within the past six months. Unchanged participants were defined as individuals whose weight at six months preceding the study and at the time of participation was not 10% below their reported highest adult weight.

*Diet-sabotaging experiences.* Diet-sabotaging experiences were defined as binge-eating in the past 28 days as measured by the EDE-Q, food cravings (FCQ), and behaviors that contribute to weight gain (e.g., eating because I can't stop once I've begun) (EHQ).

*Thought suppression.* General thought suppression was measured using the 3-factor structure of the WBSI recommended by Blumberg (2000) which includes three subscales: Unwanted Intrusive Thoughts, Thought Suppression, and Self-Distraction.

Specific thought suppression was measured by the total scores (see factor analysis in Measures) of the FTSI and BSTSI.

## RESULTS

### *Data Screening*

Men and women did not differ on age or current BMI, but a higher percentage of women reported currently dieting when compared to men. Screening of the variables suggested significant differences between men and women on many dependent variables (DVs) (see Table 3). Therefore, all DVs were assessed for normality (i.e., outliers, skewness, kurtosis) separately for each sex. Outliers (i.e., scores beyond three times the standard deviation) were noted for a number of DVs and were removed from analyses. There were no DVs for which more than four scores were removed; typically there was only one outlier. Following the removal of outliers, the DVs were screened for skewness and kurtosis. There was little consistency between the sexes as to which variables were skewed or kurtotic, therefore corrections would have precluded comparisons. Based on the recommendations of Tabachnick and Fidell (2001), the current sample size is large enough (error degrees of freedom > 20) to be considered “robust to violations of normality of variables (provided there are no outliers)” (p. 72). Hence, no transformations were conducted. To address multiple comparisons, a Bonferonni correction was applied and resulted in a  $p$ -value of .0008.

### *Group Comparisons and Potential Covariates*

Previous research suggests that dieters differ from nondieters in their ability to suppress thoughts (e.g., Giannopoulos, 2001). Therefore, for each sex, independent samples t-tests were used to examine differences between dieting and nondieting participants (see Table 4). Dieting and nondieting women differed on 5 of 17 DVs. Dieting women reported higher levels of body weight/shape-related thought suppression, general thought suppression (WBSI-Thought Suppression), general unwanted intrusive thoughts (WBSI-Unwanted Intrusive Thoughts), self-punishing thought control (TCQ-Punishment), and weight cycling. Dieting and nondieting men differed on 2 of the 17 DVs. Dieting men reported higher levels of food-related thought suppression and weight cycling than nondieting men.

Pearson product moment correlations were used to examine BMI as a potential covariate (see Tables 5-6). BMI was positively and significantly correlated with 6 of 17 DVs for women, including body weight/shape suppression, bingeing, eating habits, cravings of high fat and fast foods, and weight cycling. BMI was positively and significantly correlated with the same DVs for men and, in addition, the WBSI-Unwanted Intrusive Thoughts subscale and negatively correlated with TCQ-Reappraisal. Similar correlations were conducted between age and the 17 DVs. For women and men, age was significantly and negatively correlated with body weight/shape suppression, WBSI-Self Distraction, WBSI-Unwanted Intrusive Thoughts, TCQ-punishment. Age also was significantly and positively correlated with women's weight cycling and TCQ-Distraction, and positively with TCQ-Distraction. Therefore, when age, BMI, and dieting

status were significantly related with dependent variables, they were included as covariates in the analyses.

### *Thought Suppression Sex Comparisons*

The first hypothesis tested was that compared to men, women would be more likely to utilize general thought suppression, as well as specific food- and body weight/shape-related suppression. ANCOVAs were conducted with sex as the independent variable, age, BMI, and dieting status covariates, and general (WBSI- Self-Distraction, Thought Suppression, Unwanted Intrusive Thoughts) and specific (food, body weight/shape) thought suppression as the dependent variables (see Table 7). ANCOVAs indicated significant sex differences on the following measures: body weight/shape thought suppression ( $p < .0005$ ; partial eta squared = .039), food-related thought suppression ( $p < .0005$ ; partial eta squared = .054); and the WBSI-Self Distraction approached significance ( $p = .007$ ; partial eta squared = .021). A review of the means indicated that women scored higher on all three measures. Based on Cohen's descriptions of effect sizes (1988, p. 22), .01 is small, .06 is medium, and .138 is large. Based on these recommendations, the effect sizes for the body weight/shape suppression, food suppression, and self-distraction were small-to-medium, medium, and small, respectively. There were no sex differences on the WBSI-Thought Suppression ( $p = .16$ ; partial eta squared = .006) or WBSI-Unwanted Intrusive Thoughts ( $p = .54$ ; partial eta squared = .001) subscales. As expected, effect sizes for nonsignificant findings were small.

### *General and Specific Thought Suppression*

Pearson product moment correlations were computed to test the second hypothesis that individuals with a tendency to utilize general thought suppression would be more likely to attempt to suppress food- and body weight/shape-related thoughts (see Tables 5-6). For both women and men, there were significant positive correlations between the WBSI subscales and the food- and body weight/shape-related total scores, ranging from .296 ( $p < .01$ ) to .637 ( $p < .0005$ ). Further, food and body weight/shape suppression also were highly correlated with each other for both men ( $r = .750$ ) and women ( $r = .691$ ).

### *Thought Suppression, Thought Control, and Weight Loss Maintenance*

To test the third hypothesis that individuals who have lost and maintained weight losses will rely less on thought suppression and harmful thought control, a 2 (male, female) by 3 (maintainers, relapsers, no change) MANCOVA was performed to investigate the relationship between weight status and thought suppression and thought control techniques. Age, BMI, and dieting status were included as covariates. There were no main effects for sex,  $F(10, 175) = .48, p = .90$  (partial eta squared = .027), or weight status,  $F(20, 350) = .67, p = .86$  (partial eta squared = .037), nor was the sex by weight status interaction significant,  $F(20, 362) = .87, p = .63$  (partial eta squared = .047). Effect sizes were small, small-to-medium, and medium, respectively.



### *Thought Suppression, Weight Cycling, and Diet Sabotaging Experiences*

The fourth hypothesis examined was that a tendency to rely on specific thought suppression, more so than general thought suppression, would predict weight cycling and diet-sabotaging experiences. First, for each sex, correlations were examined between the independent variables (WBSI subscales, food- and body weight/shape-related suppression), potential covariates (age, BMI, dieting status), and dependent variables (binge eating, Eating Habits Questionnaire, Food Craving Inventory subscales, weight cycling). Next, simultaneous regressions were conducted for each sex. Independent variables were included in the regressions only when they were significantly correlated with the dependent variables. When covariates (age, BMI, dieting status) were significantly correlated with the DVs, hierarchical regressions were used, with the covariates forced into the regression's first step using the enter method, and IVs entered simultaneously into the second step using the forward method. Since dieting status was a dichotomous covariate it was "dummy coded" for inclusion in the regression analyses (Tabachnick & Fidell, 2001). See Tables 8-9 for regression equations and variables that were excluded for not contributing significant variance.

#### *Weight cycling.*

BMI and dieting status were significantly related to weight cycling for men and women and were entered into the first step of the regressions. Age also was related to weight cycling for women and was added as a third covariate. Overall models significantly predicted weight cycling for men,  $F(4, 83) = 21.12, p < .0005$ , and women,

$F(5, 186) = 16.72, p < .0005$ . After accounting for men's BMI and dieting status, body weight/shape-related thought suppression and WBSI-Unwanted Intrusive Thoughts significantly predicted weight cycling. After accounting for women's age, BMI, dieting status, food-related thought suppression, followed by body weight/shape-related thought suppression significantly predicted weight cycling.

*Diet sabotaging experiences.*

For both men and women, BMI was significantly correlated with binge-eating and therefore was entered into the first step of the regression. Overall models significantly predicted binge-eating for women,  $F(3, 131) = 10.65, p < .0005$ , and approached significance for men,  $F(1, 73) = 8.02, p = .001$ . For men, the model included BMI and body weight/shape-related thought suppression. For women, after accounting for BMI, body weight/shape-related thought suppression accounted for significant variance, followed by food-related suppression.

For both men and women, BMI was significantly correlated with eating behaviors that contribute to weight gain (EHQ) and therefore was entered into the first step of the regression. For women, dieting status also was related with the EHQ and was added as a second covariate. Overall models significantly predicted the EHQ for men,  $F(2, 75) = 10.43, p < .0005$ , and women,  $F(4, 165) = 13.87, p < .0005$ . For men, after accounting for BMI, food-related thought suppression was the only variable to account for significant variance. For women, after accounting for BMI and dieting status, food-

related thought suppression and WBSI-Self-Distraction were the only measures to account for significant variance.

Overall models significantly predicted carbohydrate cravings for men,  $F(1, 88) = 22.50, p < .0005$ , and women,  $F(2, 185) = 17.67, p < .0005$ . The only measure to account for significant variance when predicting men's carbohydrate cravings was food-related thought suppression. In the women's regression model, the WBSI-Unwanted Intrusive Thoughts accounted for the most significant variance, followed only by food-related thought suppression.

BMI was significantly related to fast food cravings for men and women and therefore was entered into the first step of the regressions. Overall models significantly predicted men,  $F(2, 93) = 14.54, p < .0005$ , and women's,  $F(2, 187) = 12.05, p < .0005$ , fast food cravings. For both sexes, after accounting for BMI, body weight/shape-related thought suppression was the only measure to significantly predict fast food cravings.

For both men and women, BMI was significantly related to high fat food cravings and was entered into the first step of the regression. Overall models significantly predicted women's,  $F(2, 185) = 18.61, p < .0005$ , high fat food cravings, and approached significance for men,  $F(2, 83) = 7.68, p = .001$ . Following BMI as the first step, men's food-related thought suppression and women's body weight/shape thought suppression accounted for variance when predicting high fat food cravings.

Overall models significantly predicted sweet food cravings for women,  $F(2, 180) = 17.01, p < .0005$ , and approached significance for men,  $F(1, 85) = 9.04, p = .003$ . Men and women's food-related thought suppression predicted sweet food cravings. For

women only, after accounting for food-related thought suppression, the WBSI-Unwanted Intrusive Thoughts subscale also significantly predicted sweet food cravings.

#### *Thought Control, Weight Cycling, and Diet Sabotaging Experiences*

As part of hypothesis four, punitive means of thought control also was hypothesized to predict weight cycling and diet-sabotaging experiences. A second set of similar regressions utilized the same covariates and dependent variables. However, rather than thought suppression measures, different means of thought control (TCQ subscales: distraction, social control, worry, punishment, and re-appraisal) were used as the independent variables. When covariates (age, BMI, dieting status) were significantly correlated with the dependent variables, hierarchical regressions were used, with the covariates forced into the regression's first step using the enter method, and independent variables entered simultaneously into the second step using the forward method. See Tables 10-11 for IV and DV correlations. See Tables 12-13 for regression equations and variables that were excluded for not contributing significant variance.

#### *Weight cycling.*

Age, BMI, and dieting status were significantly related to weight cycling for women and were entered into the first regression step. The overall model significantly predicted women's weight cycling,  $F(6, 185) = 13.88, p < .0005$ , and TCQ-Worry and TCQ-Punishment accounted for significant variance. Men's scores on the thought control

questionnaire (TCQ) did not correlate significantly with weight cycling so no regression was conducted.

*Diet sabotaging experiences.*

For women, BMI was significantly related to binge-eating and was entered into the first regression step. The overall model was significant,  $F(3, 141) = 6.92, p < .0005$ . After accounting for BMI, TCQ-Worry, followed by TCQ-Social, accounted for significant variance. Men's scores on the TCQ did not correlate significantly with binge eating, therefore no regression was conducted.

For both men and women, BMI was significantly related to eating behaviors that contribute to weight gain (EHQ) and was entered into the first step of the regression. Dieting status also was related to the EHQ for women and was added as a second covariate for their regression. Overall models significantly predicted the EHQ for men,  $F(4, 73) = 6.39, p < .0005$ , and women,  $F(6, 163) = 9.23, p < .0005$ . After accounting for covariates, TCQ-Worry was the only subscale that predicted unique variance in the EHQ for both men and women.

Overall models significantly predicted carbohydrate cravings for men,  $F(2, 87) = 11.13, p < .0005$ , and women,  $F(4, 183) = 9.05, p < .0005$ . For men, TCQ-Worry was the only subscale that predicted significant variance in carbohydrate cravings. For women, TCQ-Punishment and TCQ-Social accounted for significant variance.

For women, BMI was significantly related to fast food cravings and was entered into the first regression step. The overall model significantly predicted fast food cravings,

$F(5, 187) = 5.85, p < .0005$ . After accounting for BMI, TCQ-Worry accounted for significant variance. Men's scores on the TCQ did not correlate significantly with fast food cravings so no regression was conducted.

Women's BMI was significantly related the high fat food cravings and was entered into the first regression step. The overall model significantly predicted high fat food cravings,  $F(4, 186) = 9.14, p < .0005$ . TCQ-Worry was the only subscale that accounted for significant variance. Men's scores on the TCQ did not correlate significantly with high fat food cravings so no regression was conducted.

Overall models significantly predicted sweet food cravings for women,  $F(4, 178) = 8.43, p < .0005$ , and approached significance for men,  $F(3, 83) = 2.99, p = .036$ . For men, only TCQ-Worry accounted for significant variance. Women's TCQ-Punishment, followed by TCQ-Worry significantly predicted sweet food cravings.

### *Stress, Thought Suppression, and Weight Cycling*

A moderational model was used to examine the fifth hypothesis, that thought suppression would moderate the relationship between stress and weight cycling. The hypothesis was assessed by using hierarchical multiple regressions (Baron & Kenny, 1986; Holmbeck, 1997; Rose et al., 2004). The following procedure was conducted separately for each measure of stress, one of which assesses individuals' report of daily stress and the other measures reactions to significant negative stressful events. The continuous predictor variables, stress (i.e., Perceived Stress Scale or Life Experiences Scale-Negative) and thought suppression (2 WBSI subscales: Unwanted Intrusive

Thoughts and Thought Suppression), were centered to zero to avoid multicollinearity based on the recommendations of Holmbeck (1997) and Rose and colleagues (2004). To center the variables, the overall mean for each variable was subtracted from individual scores. Interaction terms were created for each potential relationship among the predictor and moderating variable (i.e., the product of the independent variable and moderating variable; Holmbeck, 1997). Hierarchical regressions were calculated with all predictor variables included in the first step to assess for main effects. The second step included all two-way interaction terms, and the final step included one three-way interaction term.

Entering the Perceived Stress Scale (PSS), WBSI-Unwanted Intrusive Thoughts (UIT), and WBSI-Thought Suppression (TS) subscales as a first step in the hierarchical regression accounted for significant variance in weight cycling for women and neared significance for men ( $p = .063$ ) (see Table 14). For both men and women, the addition of the two- and three-way interaction terms (i.e., the product of PSS x UIT and/or PSS x TS) did not account for unique variance, suggesting that general thought suppression or unwanted intrusive thoughts do not moderate the relationship between daily stress experiences and weight cycling as measured by the PSS and WCQ, respectively.

Similar analyses were conducted using the LES-Negative experiences (LES-N) in place of the PSS. The scale was not correlated with men's weight cycling thus the moderation analyses were not conducted. For women, however, entering the LES-N, UIT, and TS as the first step in the hierarchical regression significantly predicted weight cycling. The addition of the two- and three-way interaction terms did not account for significant variance of women's weight cycling, further suggesting that thought

suppression or unwanted intrusive thoughts do not moderate the relationship between stress and weight cycling.

### *Metacognitions and Thought Suppression*

To explore the hypothesis that individuals' metacognitions (MCs) regarding thought suppression (e.g., "An effective way to cope with food-related thoughts is to try to avoid or suppress them") will predict their use of suppression, correlations between the eight MC questions and the WBSI subscales (food suppression and body weight/shape suppression) were examined separately for each sex. Covariates (age, BMI, dieting status) were entered in the first step using the enter method when there was a significant relationship with the dependent variables (see Table 15-16 for correlations). When significant correlations were noted between the MC questions and dependent variables, the MC questions were entered simultaneously using the forward method. See Table 17 for MC means and standard deviations. See Tables 18-19 for regression equations and variables that were excluded for not contributing significant variance.

#### *General thought suppression.*

For both men and women, age was significantly correlated with WBSI-Self Distraction and therefore was entered into the first regression step. Overall models significantly predicted WBSI-Self Distraction for women,  $F(3, 218) = 14.91, p < .0005$ , and approached significance for men,  $F(1, 103) = 9.39, p = .003$ . Although for men the MC item "Thinking about food *increases* the likelihood that I will eat" correlated



significantly with WBSI-Self Distraction, it did not account for significant variance after accounting for age. For women, there were three MCs that accounted for significant variance when predicting Self Distraction: 1) “Thinking about my body weight/shape *increases* the likelihood that I will eat” 2) “I should be able to suppress weight/shape-related thoughts” and 3) “Thinking about food *increases* the likelihood that I will eat.”

For women only, dieting status was significantly related to WBSI-Thought Suppression and therefore was entered into the first step of the regression. Overall models significantly predicted WBSI-Thought Suppression for men,  $F(2, 103) = 10.73, p < .0005$ , and women,  $F(5, 221) = 11.78, p < .0005$ . For men, two MC items predicted significant variance: “I should be able to suppress weight/shape-related thoughts” and “Thinking about food *increases* the likelihood that I will eat.” For women, four MCs significantly predicted Thought Suppression: 1) “An effective way to cope with weight/shape-related thought is to try to avoid or suppress them” 2) “Thinking about my body weight/shape *increases* the likelihood that I will eat” 3) “I should be able to suppress weight/shape-related thoughts” and 4) “I should be able to suppress food-related thoughts.”

Men and women’s age was significantly related to WBSI-Unwanted Intrusive Thoughts and thus was entered into the first step of the regression. Further, men’s BMI and women’s dieting status were related to WBSI-Unwanted Intrusive Thoughts, and so it also was added into the first step. Overall models significantly predicted Thought Suppression for men,  $F(3, 100) = 6.63, p < .0005$ , and women,  $F(4, 217) = 14.47, p < .0005$ . For men, the MC, “Thinking about food *increases* the likelihood that I will eat” significantly predicted WBSI-Unwanted Intrusive Thoughts after accounting for age and

BMI. For women, the two MCs, “I should be able to suppress weight/shape-related thoughts” and “Thinking about my body weight/shape *increases* the likelihood that I will eat” accounted for significant variance.

*Body weight/shape and food thought suppression.*

For both men and women, age and BMI were significantly related to body weight/shape thought suppression and thus were entered into the first regression step. Overall models significantly predicted body weight/shape thought suppression for men,  $F(3, 93) = 8.66, p < .0005$ , and women,  $F(6, 200) = 14.94, p < .0005$ . For men, only one MC significantly accounted for significant variance in body weight/shape thought suppression: “An effective way to cope with weight/shape-related thoughts is to try to avoid or suppress them.” For women, three MCs accounted for significant variance when predicting body weight/shape thought suppression: 1) “I should be able to suppress food-related thoughts” 2) “Thinking about my body weight/shape *increases* the likelihood that I will eat” and 3) “Thinking about food *increases* the likelihood that I will eat.”

Dieting status was significantly related to food-related thought suppression for men and women and was entered into the first step of the regression. Overall models significantly predicted food-related thought suppression for men,  $F(2, 95) = 8.47, p < .0005$ , and women,  $F(4, 199) = 23.04, p < .0005$ . For men, the only MC that accounted for significant and unique variance in food-related thought suppression was “Thinking about food *increases* the likelihood that I will eat.” For women, three MCs explained significant unique variance when predicting food-related thought suppression: 1)

“Thinking about my body weight/shape *increases* the likelihood that I will eat” 2) “I should be able to suppress weight/shape-related thoughts” and 3) “Thinking about food *increases* the likelihood that I will eat.”

## DISCUSSION

Based on the results of the current study and previous literature, a model of how thought suppression impacts weight control is beginning to emerge. There are three groups of individuals who appear more prone to engaging in food and body weight/shape thought suppression. The first group contains individuals who believe their thoughts may lead to eating (e.g., “Thinking about food increases the likelihood that I will eat.”). This is consistent with previous findings in the metacognition literature when examining thoughts related to general unwanted thoughts (Marcks & Woods, 2005) and obsessive-compulsive disorder (e.g., Smári & Hólmsteinsson, 2001). The second group consists of individuals with a tendency to utilize general thought suppression. Although food and body weight/shape thought suppression was positively correlated with general thought suppression, the medium correlations suggest that specific food and body weight/shape thought suppression is not accounted for wholly by one’s tendency to suppress thoughts generally. While relying on general thought suppression may be a fairly stable means of coping (Wegner & Zanakos, 1994), utilizing thought suppression specific to food and body weight/shape appears to be a separate experience warranting further attention. Until now, research has been limited to the WBSI and therefore may not provide the most accurate picture of the relationship between thought suppression and eating behavior.

Women are the third and final group more likely to report specific thought suppression. To date, few studies have examined sex differences in thought suppression, none have offered theoretical reasoning for these differences, and this is the first investigation to examine sex differences in food and body weight/shape suppression. Insight from the anxiety literature may offer some explanation for the sex differences. Anxiety research generally suggests that women are more likely than men to worry (Robichaud, Dugas, Conway, 2003). Perhaps heightened worry increases women's tendency to attempt thought suppression, or vice versa, their reliance on thought suppression results in more worrisome thoughts.

In addition to metacognitions, use of general thought suppression, and being female, certain experiences, such as initiating a diet, may increase individuals' likelihood to use food thought suppression. Research suggests that dieting individuals experience compromised working memory due to preoccupying cognitions of weight and food, and they are less able to suppress thoughts when instructed to do so (Giannopoulos, 2001; Green et al., 2003; Kemps et al., 2005; Shaw & Tiggeman, 2004; Vreugdenburg et al., 2003). The current study found that dieting individuals report higher levels of food thought suppression than nondieters. This is potentially problematic since dieters' attempts to suppress thoughts are likely to lead to unwanted intrusive thoughts, distress, and potentially harmful means of thought control (Abramowitz et al., 2001; Wells & Davies, 1994).

Regardless of dieting status, the results suggest that individuals who use thought suppression are likely to experience more food cravings. As expected, men and women's food thought suppression predicted most food cravings. However, participants' body

weight/shape suppression predicted fast food cravings, and for women only, high fat food cravings. These findings highlight the important role that body weight/shape thought suppression plays in women *and* men's tendency to experience cravings unrelated to hunger. It is particularly important to understand more about food cravings, since cravings were correlated with binge eating, weight cycling, and eating behaviors that contribute to weight gain.

Body weight/shape thought suppression also predicted participants' binge eating episodes in the past month. Ward and colleagues (1996) theorized that suppressing physical appearance and food thoughts may lead to binges in individuals with bulimia nervosa. The current findings empirically support their idea that thought suppression may result in binge eating. The binge eating literature may offer reasons why body weight/shape thought suppression predicted binge eating. Reporting high levels of body weight/shape suppression may be an indicator of body image dissatisfaction, a variable found to predict binge eating (Womble et al., 2001). Current results also suggest that binge eating may function as a means for individuals to escape negative and unwanted thoughts related to their appearance. Bingeing as a diversion from unwanted thoughts was the basis for Heatherton and Baumeister's (1991) escape model that proposes binge eating "is motivated by a desire to escape from self-awareness...narrowing attention to the immediate stimulus environment and avoiding broadly meaningful thought" (p. 86). Perhaps binge eating provides momentary relief from the rumination that results from body weight/shape thought suppression.

As expected, food thought suppression predicted eating behaviors that contribute to weight gain (e.g., eating when tired). While preliminary work suggested that

instructed suppression may increase food-seeking behaviors (Johnston et al., 1999; Pope et al., 2004), Purdon (1999) stressed the importance of examining outcomes of the natural tendency to suppress thoughts as more likely to recreate individuals' true experiences. The current study provides the first evidence to suggest that a natural tendency to suppress food-related thoughts is related to eating behaviors resulting in weight gain.

Since specific thought suppression predicts food cravings, binge eating, and eating behaviors that contribute to weight gain, suppression may impair individuals' ability to lose weight and maintain losses. As predicted, specific thought suppression was more predictive of weight cycling than general thought suppression. Variables predicting weight cycling varied by sex. For men, body weight/shape thought suppression predicted the most unique variance. Findings for women were virtually opposite, with body weight/shape predicting minimal variance after accounting for food-related suppression. These results are somewhat perplexing, particularly because women are more likely than men to report body image disturbance (Frederick, Forbes, Grigorian, Jarcho, 2007; McCreary & Sadava, 2001), which is postulated to relate to body weight/shape thought suppression. Although there is no research on thought suppression and weight cycling, a recent study demonstrated that men with poor body image were more likely to lose weight while men with better body image or women in general were more likely to gain weight (Van Wye, 2005). Perhaps poor body image motivates men to lose weight, however, the weight eventually is regained.

Contrary to the third hypothesis, weight loss maintenance was not significantly related to thought suppression and harmful means of thought control. Although statistically nonsignificant based on probability tests, the effect size for the weight

category and sex interaction is considered medium. The effect size may indicate that there is a relationship between thought suppression and weight loss maintenance that was not detected by the MANCOVA due to unequal and small sample sizes (Cohen, 1988; Cohen 1990; Cohen, 1994). In support of the latter hypothesis, food and body weight/shape thought suppression were correlated positively with weight cycling, suggesting there may be a relationship between weight regain and thought suppression. However, these findings should be interpreted with caution as the sample sizes were unequal and lacked statistical power (further discussed in limitations section below).

### *Implications*

Food and body weight/shape thought suppression was related to a number of factors that may impair individuals' ability to lose weight and maintain losses. With obesity reaching epidemic proportions and the majority of individuals being unable to maintain weight losses long-term (Ayyad & Anderson, 2000; Wadden, et al. 2002; Wing & Phelan, 2005), gaining insight into weight maintenance is more important than ever before. The current results, combined with previous research, create a testable theory of the relationships among thought suppression, eating behaviors, and weight control. Certain individuals appear more prone to relying on food and body weight/shape thought suppression. Individuals who initiate diets report higher levels of food thought suppression which, when used as a weight loss strategy, has iatrogenic effects such as food cravings, eating behaviors related to weight gain, and binge eating. These effects may be exacerbated for overweight/obese dieting individuals. For example,

overweight/obese dieters, when compared to normal weight dieters, are more likely to experience an increase (i.e., the rebound effect) in food-related thoughts following suppression efforts (Soetens & Braet, 2006). Therefore, as demonstrated by its relationship with weight cycling, food and body weight/shape thought suppression may impair an individual's ability to lose weight and maintain the loss.

These results have important implications for the research and treatment of obesity. Previous findings suggest that mindfulness techniques and ACT may be beneficial in treating obesity (Lillis, 2007; Lundgren, 2005) and binge eating disorder (Kristeller & Hallett, 1999; Telch, 1997; Wiser & Telch, 1999), and for reducing food cravings (Forman et al., 2007). The current data provide empirical support for the theorized mechanism behind the success of these treatments which are theorized to work because they help individuals accept the thoughts they are experiencing rather than attempt to avoid or suppress them. The results demonstrated that the less individuals attempted to avoid their thoughts, the less likely they were to experience unwanted thoughts and experiences (e.g., binge eating).

The results also highlight ways in which existing treatments may be improved. First, it may be important to assess and directly address individuals' beliefs, or metacognitions, regarding thought suppression as part of treatment. If individuals maintain negative beliefs regarding the possible outcomes of their thoughts (e.g., if I think about my body weight/shape I will be more likely to eat), it may be more difficult for them to work towards acceptance. Interventions aimed at challenging individuals' metacognitions may reduce their reliance on thought suppression and mitigate potential negative outcomes such as binge eating. Second, it may be beneficial for weight loss



interventions utilizing ACT or mindfulness techniques to broaden the focus of food thought acceptance to body weight/shape thought acceptance. The current results emphasize the important role that body weight/shape thought suppression plays in eating-related outcomes. Third, the findings stress the importance of concentrating on long-term lifestyle improvements rather than temporary "diets" and decreasing dieting individuals' tendency to rely on thought suppression which acts as a temporary and ineffective coping method with potentially negative outcomes such as diet sabotaging behaviors. Fourth, considering the sex differences in the current study, weight loss interventions focused on thought acceptance may need to focus on different metacognitions and suppressed thoughts for men and women. It also will be important to include men in future studies, examine the sexes separately, and further investigate sex differences in areas such as metacognitions.

### *Limitations*

While the current study contributes to the literature in a number of ways, it is important to consider the limitations as well. Perhaps the primary limitation relates to weight categories. For a culture in which most people report currently dieting and have dieted intermittently throughout their lives, classifying individuals into weight categories is difficult (Bish et al., 2005). To address this complication, participants in the current study were categorized based on their most recent weight history to determine if individuals who have maintained weight losses are less likely to rely on thought suppression. Individuals who were not ten percent below their reported highest adult

weight currently and six months prior to participation were classified as “unchanged.” The unchanged group could be heterogeneous as it may include people who lost weight and relapsed to their highest adult body weight as well as individuals who never have successfully lost weight. In addition, the sample sizes across categories were unequal, with the fewest participants falling into the relapse category. The percentage of participants in the maintained category was surprisingly high given that most people are unable to maintain losses over time (Ayyad & Anderson, 2000; Wing & Phelan, 2005). There are two likely explanations for this inconsistency. First, the maintenance criterion of six months is relatively brief so participants have not yet experienced the likely weight regain when a year or more criteria is used. The current study did not utilize a one year criterion because utilizing a six month timeframe was thought to capture more people within each of the weight categories. Given that this is the first examination of the relationship between thought suppression and weight control, less stringent requirements were thought to be best for an initial investigation. The second explanation for the surprisingly low number of relapsers and high number of maintainers is that although participants were recruited from neutral places and websites such as the university campus and Craigslist.com, they also were recruited from weight loss related websites and gyms. Therefore, a disproportionate number of individuals who actively were working to lose weight may have been included in the sample. To address these weight category and sampling issues, it will be important for future investigations to include equal and larger numbers of participants across weight categories and to use longer maintenance criteria.

Another important consideration relates to the limitations inherent in online data collection that may skew the socioeconomic status of participants and therefore limit generalizability. Paper copies of the survey were offered, however, few individuals requested this option. Further, most study recruitment occurred online, limiting individuals' awareness of the study and paper copy availability to individuals without computers. Although many public libraries offer free internet access, it is important for future studies to include a more diverse sample whose recruitment and participation is not as reliant on computer usage.

In addition to potentially restricted socioeconomic status, another limitation is the primarily Caucasian sample. No thought suppression and eating behavior studies have examined the impact of race, and only one study examined racial differences in general thought suppression (Rutledge, Hancock, & Rutledge, 1996). Researchers determined that when instructed to suppress white bear thoughts, Caucasians were more likely to experience the rebound effect than were African Americans (Rutledge et al., 1996). However, authors offered no theoretical explanation for their findings, and future studies will need to investigate potential racial differences further.

The self-report nature of the study also may be considered a limitation. As stated previously, the methods of measuring thought suppression include self-report (via the White Bear Suppression Inventory), a hand counter, or stream of consciousness writing. Studies have demonstrated a strong relationship between the WBSI and the other assessments of thought suppression (Muris et al., 1996; Wegner & Zanakos, 1994). The food and body weight/shape thought suppression measures for this study were based on

the WBSI, however, further research is needed to determine if the self-report measures of specific thought suppression correspond with the other assessment methods.

A final but important limitation relates to the correlational design of the study that does not allow for causal assumptions to be made. Establishing relationships between specific thought suppression and weight-related outcomes is an important first step, but future investigations need to utilize structural equation modeling or longitudinal designs to further elucidate the role of thought suppression in weight loss and weight loss maintenance.

### *Future Directions*

The findings suggest that specific thought suppression is related to a number of critical weight-related outcomes and provide support for further investigations into the relationship between specific thought suppression and weight control. The newly created measures of food and body weight/shape suppression will be helpful in future research examining specific thought suppression. The measures demonstrated strong reliability estimates and warrant more in depth research of their factor structures. The food and body weight/shape inventories both accounted for significant variance in weight-related outcomes, and at times predicted unexpected variables. For example, body weight/shape suppression, rather than food-related thought suppression, predicted high fat cravings. Rather than relying on an inventory of general thought suppression, the new inventories will allow for more focused thought suppression and eating behavior research.

Of particular interest, the current study found that body weight/shape thought suppression was more predictive of outcomes such as binge-eating in both sexes and weight cycling in men, than was food thought suppression. The finding that body weight/shape thought suppression superseded the predictive power of food suppression certainly merits further examination. Given the potential clinical applications of thought suppression (e.g., mindfulness-based treatments), it will be helpful for future studies to determine if individuals who suppress thoughts related to body weight/shape are more likely to binge eat or weight cycle than those who do not.

While plausible, it is unknown if food thought suppression contributes to individuals becoming overweight. Thought suppression may not only impair an individuals' ability to lose weight and maintain losses, but it also could be implicated in weight gain. Future research is needed to determine if healthy weight individuals who initiate diets and utilize specific thought suppression eventually gain more weight as a result. Studying individuals at risk for becoming overweight/obese will be helpful in clarifying the directionality of these variables. Should relying on food thought suppression be related to becoming overweight, prevention programs based on Acceptance and Commitment Therapy (ACT) and mindfulness could be created, or such techniques could be incorporated into existing obesity prevention programs.

Another important factor related to weight loss outcomes is stress. Although the proposed moderational model was not significant, stress was significantly correlated with thought suppression and weight cycling. In light of research suggesting cognitive load (e.g., stress) impairs one's ability to suppress (e.g., Watkins & Mould, 2007), future studies examining how body weight/shape and food thought suppression interacts with

stress is important to further our understanding of weight loss relapse. Rather than general thought suppression, it may be more advantageous for researchers to examine a model including specific thought suppression. Weight loss studies incorporating ACT or mindfulness principles also ought to monitor stress levels to determine if thought suppression and stress interact to predict weight loss outcomes.

## CONCLUSION

In conclusion, the current study adds to the literature by expanding the population examined, the types of thought suppression assessed, and the predictive and outcome variables. The more individuals rely on general thought suppression, the more likely they are to attempt suppression of food and body weight/shape-related thoughts. The use of such specific suppression now has been empirically linked to important outcomes such as weight cycling, binge eating, and food cravings. Results of this study are particularly important in light of research suggesting current weight loss treatments have been ineffective in helping people to maintain weight losses. It may be that people rely on thought suppression as a short-term weight loss coping technique while "dieting," but the suppression does not work long-term, resulting in weight regain. Nascent research has started to examine the utility of third wave treatments (e.g., mindfulness, ACT) in binge eating, weight loss, and cravings with emerging success. Current findings highlight the importance of continued research into the area of thought suppression and eating behaviors.

Table 1

*Undergraduate Male to Community Male and Undergraduate Female to Community Female Comparisons with Age and Body Mass Index as Covariates*

Variable	Males <i>M (SD)</i>		Females <i>M (SD)</i>	
	Undergraduate	Community	Undergraduate	Community
Age	20.9 (4.4)	40.0 (12.6)	23.5 (7.7)	39.8 (12.8)
BMI	29.3 (4.7)	31.3 (6.4)	29.7 (5.9)	31.5 (6.8)
BSTSI	37.5 (14.5)	32.0 (16.2)	46.7 (15.1)	39.4 (16.1)
EDEQ-B	2.4 (4.6)	3.5 (5.6)	3.4 (5.0)	3.0 (5.1)
EHQ	61.5 (17.5)	64.0 (16.6)	68.4 (17.0)	66.1 (16.6)
FTSI	29.1 (11.5) <sup>a</sup>	22.8 (9.3) <sup>a</sup>	32.6 (14.6)	31.3 (14.0)
FCI-C	15.8 (5.3)	14.6 (5.0)	16.2 (4.6) <sup>a</sup>	14.7 (4.8) <sup>a</sup>
FCI-FF	10.5 (3.2)	10.5 (3.5)	11.1 (2.9) <sup>a</sup>	10.0 (2.9) <sup>a</sup>
FCI-HF	12.9 (4.1)	12.5 (4.4)	11.2 (3.8)	10.5 (3.7)
FCI-S	18.1 (6.6)	18.4 (6.5)	20.7 (5.9)	19.8 (5.6)
LES-Neg	9.3 (9.1)	6.9 (5.7)	10.7 (8.4)	9.1 (8.3)
PSS	40.9 (6.8)	37.3 (8.2)	44.3 (7.5)	39.9 (9.0)
TCQ-D	13.9 (3.0)	13.5 (3.1)	14.3 (2.9)	13.7 (3.1)
TCQ-Re	13.9 (3.0)	13.3 (3.0)	12.8 (2.8)	13.4 (3.4)
TCQ-P	9.2 (2.6)	8.2 (1.8)	9.3 (2.6)	8.9 (2.4)
TCQ-S	12.9 (3.5)	12.0 (3.5)	13.2 (3.8)	13.1 (3.7)
TCQ-W	9.9 (2.8)	8.6 (2.4)	10.6 (2.7)	9.4 (2.7)
WBSI-SD	7.5(3.1)	6.6(3.4)	8.8(3.2)	7.7 (3.6)
WBSI-TS	13.0(3.4)	11.8(3.8)	13.8(3.2) <sup>a</sup>	12.3 (4.0) <sup>a</sup>
WBSI-UIT	25.1(6.2)	21.7(8.2)	25.9(7.1)	22.1 (8.3)
WCQ	9.9(3.3)	10.4(3.8)	11.9(3.4)	11.5 (3.6)

Note. BMI=Body Mass Index; BSTSI=Body Weight/Shape Thought Suppression Inventory; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); LES-Neg=Life Experiences Survey-Negative; PSS=Perceived Stress Scale; TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, Re=Reappraisal, S=Social Control, W=Worry); WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts); WCQ=Weight Cycling Questionnaire. n<sup>a</sup>=significant mean differences between undergraduate men and community men or undergraduate women and community women.



Table 2  
*Participants' Demographic and Categorical Information*

Variable	Males ( <i>n</i> = 108)	Females ( <i>n</i> = 239)
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )
Age	39.6 (12.2)	39.5 (12.0)
Current BMI	31.1 (6.2)	31.9 (7.1)
Highest BMI	34.2 (7.2)	35.6 (8.8)
Weekly Minutes of Exercise	199.2 (146.5)	172.7 (203.7)
	<i>n</i> (%)	<i>n</i> (%)
Currently overweight/obese	97 (89.9)	206 (86.6)
Currently Dieting	43 (39.8) <sup>a</sup>	126 (52.7) <sup>a</sup>
Weight Category		
Maintained	28 (30.4)	53 (30.6)
Relapsed	6 (6.5)	15 (8.7)
Unchanged	58 (63)	105 (60.7)

Note. BMI=Body Mass Index. <sup>a</sup>=significant chi-square differences between men and women.

Table 3  
Means, Standard Deviations, and Group Comparisons of Dependent Variables

Variable	Males <i>M</i> ( <i>SD</i> )	Females <i>M</i> ( <i>SD</i> )
BSTSI	32.5 (16.1) <sup>a</sup>	40.19 (16.56) <sup>a</sup>
EDEQ-B	2.2 (3.8)	2.4 (3.4)
EHQ	64.5 (16.8)	65.7 (17.5)
FTSI	23.9 (10.4) <sup>a</sup>	31.3 (14.3) <sup>a</sup>
FCI-C	14.9 (5.3)	14.9 (4.9)
FCI-FF	10.5 (3.5)	10.2 (2.8)
FCI-HF	12.4 (4.3) <sup>a</sup>	10.9 (3.8) <sup>a</sup>
FCI-S	18.5 (6.5)	19.9 (5.7)
LES-Neg	6.9 (5.6) <sup>a</sup>	9.6 (8.0) <sup>a</sup>
TCQ-D	13.5 (3.1)	13.9 (3.1)
TCQ-Re	13.4 (3.1)	13.3 (3.3)
TCQ-P	8.1 (1.8) <sup>a</sup>	8.8 (2.4) <sup>a</sup>
TCQ-S	12.3 (3.6) <sup>a</sup>	13.2 (3.7) <sup>a</sup>
TCQ-W	8.7 (2.4) <sup>a</sup>	9.5 (2.7) <sup>a</sup>
WBSI-SD	6.7 (3.3) <sup>a</sup>	7.9 (3.6) <sup>a</sup>
WBSI-TS	11.8 (3.8)	12.5 (3.9)
WBSI-UIT	21.9 (7.9)	22.6 (8.3)
WCQ	10.5 (3.8) <sup>a</sup>	11.8 (3.7) <sup>a</sup>

Note. BSTSI=Body Weight/Shape Thought Suppression Inventory; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); LES-Neg=Life Experiences Survey-Negative; PSS=Perceived Stress Scale; TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, Re=Reappraisal, S=Social Control, W=Worry); WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts); WCQ=Weight Cycling Questionnaire. <sup>a</sup>=significant t-test differences between men and women.

Table 4  
Comparisons of Currently and Not Currently Dieting Participants

Variables	Males <i>M(SD)</i>		Females <i>M(SD)</i>	
	Not currently dieting	Currently dieting	Not currently dieting	Currently dieting
BSTSI	30.4 (16.2)	35.7(15.8)	37.2 (15.3) <sup>a</sup>	42.8 (17.2) <sup>a</sup>
EDEQ-B	2.2 (4.0)	2.2(3.6)	1.9 (3.2)	2.8 (3.6)
EHQ	63.0 (17.1)	66.7(16.4)	63.1 (17.1) <sup>a</sup>	68 (17.5) <sup>a</sup>
FTSI	21.5 (8.5) <sup>a</sup>	27.3(11.9) <sup>a</sup>	26.8 (12.0) <sup>a</sup>	35.2 (15.1) <sup>a</sup>
FCI-C	14.6 (5.3)	15.5 (5.3)	14.9(4.7)	14.9 (5.0)
FCI-FF	10.4 (3.5)	10.6 (3.4)	10.2 (2.7)	10.2 (2.9)
FCI-HF	12.2 (4.2)	12.8 (4.3)	10.8 (3.8)	11.0 (3.8)
FCI-S	18.6 (6.2)	18.4 (7.1)	19.5 (5.2)	20.2 (6.1)
LES-Neg	7.0 (5.3)	6.7 (6.3)	8.9 (7.2)	10.4 (8.6)
PSS	37.3 (8.3)	38.1 (7.8)	40.4 (9.1)	39.8 (8.8)
MC1	2.5 (1.2)	2.6 (1.2)	2.5 (1.1)	2.7 (1.2)
MC2	2.3 (1.1)	2.3 (1.1)	2.3 (1.1)	2.4 (1.1)
MC3	3.2 (1.2)	3.3 (1.0)	2.9 (1.2) <sup>a</sup>	3.3 (1.1) <sup>a</sup>
MC4	3.0 (1.2)	3.1 (1.0)	2.8 (1.1) <sup>a</sup>	3.2 (1.1) <sup>a</sup>
MC5	3.3 (1.1)	3.7 (1.1)	3.4 (1.2)	3.7 (1.0)
MC6	2.0 (0.8)	2.0 (0.7)	2.1 (0.9)	2.0 (0.9)
MC7	2.1 (0.8)	2.3 (1.0)	2.7 (1.0)	2.6 (1.1)
MC8	3.0 (1.1)	3.0 (1.2)	2.8 (1.0)	2.9 (1.2)
TCQ-D	13.5 (3.1)	13.6 (3.3)	14.1 (2.9)	13.7 (3.3)
TCQ-Re	13.4 (3.1)	13.3 (3.0)	13.3 (3.3)	13.3 (3.3)
TCQ-P	8.0 (1.8)	8.3 (1.8)	8.2 (1.9) <sup>a</sup>	9.2 (2.6) <sup>a</sup>
TCQ-S	12.1 (3.6)	12.5 (3.6)	13.3 (3.4)	13.1 (4.0)
TCQ-W	8.8 (2.5)	8.6 (2.1)	9.4 (2.8)	9.5 (2.6)
WBSI-SD	6.4 (3.4)	7.2 (3.1)	7.4 (3.4)	8.3 (8.6)
WBSI-TS	11.6 (4.2)	12.2 (3.0)	11.8 (3.8) <sup>a</sup>	13.2 (3.9) <sup>a</sup>
WBSI-UIT	21.2 (8.3)	22.8 (7.3)	21.5 (7.6) <sup>a</sup>	23.6 (8.8) <sup>a</sup>
WCQ	9.8 (3.6) <sup>a</sup>	11.6 (3.8) <sup>a</sup>	11.1 (3.7) <sup>a</sup>	12.4 (3.6) <sup>a</sup>

Note. BSTSI=Body Weight/Shape Thought Suppression Inventory; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); LES-Neg=Life Experiences Survey-Negative; MC1=An effective way to cope with food-related thoughts it to try to avoid or suppress them; MC2=An effective way to cope with weight/shape-related thought is to try to avoid or suppress them; MC3=I should be able to suppress food-related thoughts; MC4=I should be able to suppress weight/shape-related thoughts; MC5=Thinking about food *increases* the likelihood that I will eat; MC6=Thinking about food *decreases* the likelihood that I will eat; MC7=Thinking about my body weight/shape *increases* the likelihood that I will eat; MC8=Thinking about my body weight/shape *decreases* the likelihood that I will eat; PSS=Perceived Stress Scale; TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, Re=Reappraisal, S=Social Control, W=Worry); WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts); WCQ=Weight Cycling Questionnaire. <sup>a</sup>=significant t-test differences between dieting and nondieting men or dieting and nondieting women.

Table 5  
Men's Thought Suppression and Covariate Correlations with Outcome Variables

	Age	BMI	BSTSI	FTSI	W-SD	W-TS	W-UIT
BSTSI	-.273**	.264**	--	.750***	.635***	.522***	.558***
EDEQ-B	-.069	.330**	.344**	.178	.173	.133	.065
EHQ	-.176	.265**	.368***	.406***	.336**	.146	.138
FCI-C	-.051	.097	.372***	.444**	.172	.149	.189
FCI-FF	-.176	.300**	.412***	.194 T	.218*	.253**	.237*
FCI-HF	.047	.289**	.226*	.210*	.068	.129	.221*
FCI-S	-.075	.139	.307**	.263**	.251**	.177	.198*
FTSI	-.077	.025	.750***	--	.444***	.296**	.347***
LES-N	-.096	.037	.083	.152	.003	-.067	-.013
MC1	-.038	.048	.200*	.216*	-.017	.243*	.081
MC2	.045	.245*	.306**	.230*	.110	.314**	.188
MC3	-.022	.180	.209*	.100	.072	.344***	.182
MC4	-.035	.129	.218*	.162	.131	.362***	.149
MC5	-.165	.191*	.262**	.329**	.203*	.324**	.278**
MC6	-.078	-.069	-.019	.014	-.115	.107	-.002
MC7	-.005	.045	.121	.150	.096	-.013	-.014
MC8	-.143	.078	.083	.016	.097	.124	.040
PSS	-.310**	.181	.591***	.460***	.485***	.458***	.592***
TCQ-D	.073	.099	.133	.088	.074	.239*	.011
TCQ-Re	-.111	-.265**	.000	.006	.102	-.006	.091
TCQ-P	-.260*	.101	.489***	.307**	.489***	.423***	.497***
TCQ-S	-.104	-.187	-.112	-.017	.067	-.227*	-.278**
TCQ-W	-.164	-.054	.538***	.429***	.544***	.497***	.513***
WCQ	.030	.489***	.596***	.419***	.222*	.210*	.202*
W-SD	-.293**	.034	.635***	.444***	--	.614***	.640***
W-TS	-.171	.184	.522***	.296**	.614***	--	.686***
W-UIT	-.298**	.192*	.558***	.347***	.640***	.686***	--

Note. BSTSI=Body Weight/Shape Thought Suppression Inventory; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); LES-Neg=Life Experiences Survey-Negative; MC1=An effective way to cope with food-related thoughts it to try to avoid or suppress them; MC2=An effective way to cope with weight/shape-related thought is to try to avoid or suppress them; MC3=I should be able to suppress food-related thoughts; MC4=I should be able to suppress weight/shape-related thoughts; MC5=Thinking about food *increases* the likelihood that I will eat; MC6=Thinking about food *decreases* the likelihood that I will eat; MC7=Thinking about my body weight/shape *increases* the likelihood that I will eat; MC8=Thinking about my body weight/shape *decreases* the likelihood that I will eat; PSS=Perceived Stress Scale; TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, Re=Reappraisal, S=Social Control, W=Worry); WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts); WCQ=Weight Cycling Questionnaire. \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$ .

Table 6  
 Women's Thought Suppression and Covariate Correlations with Outcome Variables

	Age	BMI	BSTSI	FTSI	W-SD	W-TS	W-UIT
BSTSI	-.236***	.186**	--	.691***	.570***	.456***	.637***
EDEQ-B	-.018	.212**	.402***	.379***	.162*	.097	.163*
EHQ	-.001	.227**	.345***	.446***	.269***	.247***	.292***
FCI-C	-.043	.121	.317***	.296***	.246***	.259***	.322***
FCI-FF	-.077	.175**	.381***	.224**	.121	.130*	.271***
FCI-HF	.075	.269***	.348***	.264***	.087	.144*	.217**
FCI-S	.003	.105	.315***	.331***	.258***	.230**	.322***
FTSI	-.077	.114	.691***	--	.473***	.363***	.496***
LES-N	-.028	.100	.376***	.393**	.385***	.289***	.301***
MC1	.021	.109	.331***	.278***	.260***	.314***	.184**
MC2	.016	.164*	.341***	.282***	.255***	.302***	.219**
MC3	-.005	.143	.394***	.326***	.198**	.221***	.239***
MC4	-.036	.061	.392***	.345***	.290***	.324***	.311***
MC5	-.146*	.013	.336***	.342***	.232***	.254***	.282***
MC6	.086	-.010	-.138*	-.143*	-.102	-.066	-.079
MC7	-.003	-.196**	.343***	.376***	.275***	.251***	.284***
MC8	-.041	-.095	.146	-.195*	.063	-.026	-.054
PSS	-.252***	.165*	.459***	.316***	.571***	.460***	.554***
TCQ-D	.139*	-.002	-.045	.044	.010	.096	-.070
TCQ-Re	.076	-.126	-.145*	-.096	-.146*	-.151*	-.081
TCQ-P	-.253***	-.009	.499***	.390***	.438***	.463***	.562***
TCQ-S	-.098	-.111	-.245***	-.208**	-.133*	-.196**	-.240**
TCQ-W	-.176**	.112	.462***	.445***	.433***	.324***	.456***
WCQ	.154*	.328***	.417***	.433***	.244***	.214**	.229**
W-SD	-.222***	.053	.570***	.473***	--	.738***	.764***
W-TS	-.063	.127	.456***	.363***	.738***	--	.711***
W-UIT	-.254***	.035	.637***	.496***	.764***	.711***	--

Note. BSTSI=Body Weight/Shape Thought Suppression Inventory; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); LES-Neg=Life Experiences Survey-Negative; MC1=An effective way to cope with food-related thoughts it to try to avoid or suppress them; MC2=An effective way to cope with weight/shape-related thought is to try to avoid or suppress them; MC3=I should be able to suppress food-related thoughts; MC4=I should be able to suppress weight/shape-related thoughts; MC5=Thinking about food *increases* the likelihood that I will eat; MC6=Thinking about food *decreases* the likelihood that I will eat; MC7=Thinking about my body weight/shape *increases* the likelihood that I will eat; MC8=Thinking about my body weight/shape *decreases* the likelihood that I will eat; PSS=Perceived Stress Scale; TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, Re=Reappraisal, S=Social Control, W=Worry); WCQ=Weight Cycling Questionnaire; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts). \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$ .

Table 7  
Thought Suppression Comparisons by Sex

Dependent Variables	Covariates	ANCOVAs
BSTSI	Age, BMI, Dieting Status	$F(1, 310) = 12.51^{***}$
FTSI	Dieting Status	$F(1, 311) = 17.77^{***}$
WBSI-SD	Age, Dieting Status	$F(1, 334) = 7.25^{**}$
WBSI-TS	Dieting Status	$F(1, 341) = 1.95$
WBSI-UIT	Age, BMI, Dieting Status	$F(1, 331) = 0.37$

Note. BMI=Body Mass Index; BSTSI=Body Weight/Shape Thought Suppression Inventory; FTSI=Food Thought Suppression Inventory; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts). \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$ .

Table 8  
Men's General and Specific Thought Suppression Predicting Weight cycling and Diet Sabotaging Experiences

DV	Step	Predictors	$R^2$ A	$R^2$ Ch	F Ch
EDEQ-B	1	BMI	.098	.110	9.17**
	2	BMI + BSTSI	.158	.070	6.23*
EHQ <sup>a,c</sup>	1	BMI	.031	.044	3.47 <sup>t</sup>
	2	BMI + FTSI	.197	.174	16.69***
FCI-C <sup>a</sup>	1	FTSI	.195	.204	22.50***
FCI-FF <sup>c,d,e</sup>	1	BMI	.119	.128	13.79***
	2	BMI + BSTSI	.222	.110	13.47***
FCI-HF <sup>a,c</sup>	1	BMI	.086	.096	8.97**
	2	BMI + FTSI	.136	.060	5.87*
FCI-S <sup>a,c,e</sup>	1	FTSI	.085	.096	9.04**
WCQ <sup>b,c,e</sup>	1	DS + BMI	.237	.254	14.50***
	2	DS + BMI + BSTSI	.459	.224	35.98***
	3	DS + BMI + BSTSI + WBSI-UIT	.480	.026	4.41*

Note. BMI=Body Mass Index; BSTSI=Body Weight/Shape Thought Suppression Inventory; DS=DiETING Status; DV=Dependent Variables; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); WCQ=Weight Cycling Questionnaire; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts).  $R^2$  A =  $R^2$  Adjusted;  $R^2$  Ch =  $R^2$  Change; F Ch = F Change; <sup>a</sup> = BSTSI excluded; <sup>b</sup> = FTSI excluded; <sup>c</sup> = WBSI-SD excluded; <sup>d</sup> = WBSI-TS excluded; <sup>e</sup> = WBSI-UIT excluded; <sup>t</sup> = trend. \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$

Table 9  
 Women's General and Specific Thought Suppression Predicting Weight Cycling and Diet Sabotaging Experiences.

DV	Step	Predictors	$R^2$ A	$R^2$ Ch	F Ch
EDEQ-B <sup>c,e</sup>	1	BMI	.038	.045	6.32*
	2	BMI + BSTSI	.159	.126	20.09***
	3	BMI + BSTSI + FTSI	.178	.025	4.00*
EHQ <sup>a,d,e</sup>	1	DS + BMI	.062	.073	6.62**
	2	DS + BMI + FTSI	.218	.159	34.31***
	3	DS + BMI + FTSI + WBSI-SD	.233	.019	4.28*
FCI-C <sup>a,c,d</sup>	1	WBSI-UIT	.115	.120	25.39***
	2	WBSI-UIT + FTSI	.151	.040	8.89**
FCI-FF <sup>b,d,e</sup>	1	BMI	.020	.025	4.88*
	2	BMI + BSTSI	.105	.089	18.75***
FCI-HF <sup>b,c,d,e</sup>	1	BMI	.093	.101	20.25***
	2	BMI + BSTSI	.159	.069	15.40***
FCI-S <sup>b,c,d</sup>	1	FTSI	.119	.123	25.48***
	2	FTSI + WBSI-UIT	.150	.036	7.62**
WCQ <sup>c,d,e</sup>	1	BMI + Age + DS	.110	.124	8.90***
	2	BMI + Age+ DS + FTSI	.267	.158	41.14***
	3	BMI + Age+ DS + FTSI + BSTSI	.292	.028	7.51**

Note. BMI=Body Mass Index; BSTSI=Body Weight/Shape Thought Suppression Inventory; DS=DiETING Status; DV=Dependent Variables; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); WCQ=Weight Cycling Questionnaire; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts).  $R^2$  A =  $R^2$  Adjusted;  $R^2$  Ch =  $R^2$  Change; F Ch = F Change; <sup>a</sup> = BSTSI excluded; <sup>b</sup> = FTSI excluded; <sup>c</sup> = WBSI-SD excluded; <sup>d</sup> = WBSI-TS excluded; <sup>e</sup> = WBSI-UIT excluded; <sup>t</sup> = trend. \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$



Table 10  
Men's Thought Control Questionnaire Subscales and Outcome Variable Correlations

	TCQ-D	TCQ-Re	TCQ-P	TCQ-S	TCQ-W
BSTSI	.133	.000	.489***	-.112	.538***
EDEQ-B	.109	.019	.139	-.040	.163
EHQ	.042	-.072	.110	.008	.221*
FCI-C	.124	-.090	.053	.115	.296**
FCI-FF	.190	-.133	.084	.114	.170
FCI-HF	.048	-.186	-.057	-.036	.124
FCI-S	.053	-.048	.267**	.100	.289**
FTSI	.088	.006	.307**	-.017	.429***
WCQ	.114	-.138	.134	.008	.146
W-SD	.074	.102	.389***	.067	.544***
W-TS	.239*	-.006	.423***	-.227**	.497***
W-UIT	.011	.091	.497***	-.278**	.513***

Note. BSTSI=Body Weight/Shape Thought Suppression Inventory; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, Re=Reappraisal, S=Social Control, W=Worry); WCQ=Weight Cycling Questionnaire; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts). \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$ .

Table 11  
 Women's Thought Control Questionnaire Subscales and Outcome Variable Correlations

	TCQ-D	TCQ-Re	TCQ-P	TCQ-S	TCQ-W
BSTSI	-.045	-.145*	.499***	-.245**	.462***
EDEQ-B	-.043	-.183*	.119	-.230**	.215**
EHQ	-.044	-.101	.288**	-.207**	.355***
FCI-C	.045	-.020	.227**	-.170*	.200**
FCI-FF	-.052	-.112	.189**	-.112	.268***
FCI-HF	.052	-.050	.120	-.083	.301***
FCI-S	-.015	-.049	.349***	-.095	.297***
FTSI	.044	-.096	.390***	-.208**	.445***
WCQ	.028	-.151*	.229**	-.184**	.325***
W-SD	.010	-.146*	.438***	-.133*	.433***
W-TS	-.096	-.151	.463***	-.196**	.324***
W-UIT	.070	-.081	.562***	-.240***	.456***

Note. BSTSI=Body Weight/Shape Thought Suppression Inventory; EDEQ-B=Eating Disorder Examination-Questionnaire-Binges; EHQ=Eating Habits Questionnaire; FTSI=Food Thought Suppression Inventory; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, Re=Reappraisal, S=Social Control, W=Worry); WCQ=Weight Cycling Questionnaire; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts). \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$

Table 12  
Men's Thought Control Predicting Weight Cycling and Diet Sabotaging Experiences

DV	Model	Predictors	$R^2$ A	$R^2$ Ch	F Ch
EDEQ-B	NSC				
EHQ	1	BMI	.065	.076	7.17**
	2	BMI + TCQ-W	.111	.056	5.50*
FCI-C	1	TCQ-W	.079	.088	9.64**
FCI-FF	NSC				
FCI-HF	NSC				
FCI-S <sup>a</sup>	1	TCQ-W	.081	.091	9.28**
WCQ	NSC				

Note. BMI=Body Mass Index; DV=Dependent Variables; DS=Dieting Status; EDE-Q=Eating Disorder Examination-Questionnaire-Binges; EHQ= Eating Habits Questionnaire; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); NSC=No Significant Correlations; TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, R=Reappraisal, S=Social Control, W=Worry; WCQ=Weight Cycling Questionnaire.  $R^2$  A =  $R^2$  Adjusted;  $R^2$  Ch =  $R^2$  Change; F Ch = F Change; <sup>a</sup> = Thought Control Questionnaire-Distraction excluded; <sup>b</sup> = Thought Control Questionnaire-Punishment excluded; <sup>c</sup> = Thought Control Questionnaire-Reappraisal excluded; <sup>d</sup> = Thought Control Questionnaire-Social Control excluded; <sup>e</sup> = Thought Control Questionnaire-Worry; <sup>t</sup>= trend. \*  $p < .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .0005$ .

Table 13  
*Women's Thought Control Predicting Weight Cycling and Diet Sabotaging Experiences*

DV	Step	Predictors	R <sup>2</sup> A	R <sup>2</sup> Ch	F Ch
BIN <sup>c</sup>	1	BMI	.039	.046	6.84**
	2	BMI + TCQ-W	.080	.047	7.30**
	3	BMI + TCQ-W + TCQ-S	.110	.036	5.82*
EHQ <sup>b,d</sup>	1	BMI + DS	.063	.074	7.31**
	2	BMI + DS + TCQ-W	.153	.093	20.53***
FCI-C <sup>e</sup>	1	TCQ-P	.038	.043	9.02***
	2	TCQ-P + S	.053	.020	4.21*
FCI-FF <sup>b</sup>	1	BMI	.025	.030	6.48*
	2	BMI + TCQ-W	.081	.059	13.71***
FCI-HF	1	BMI	.068	.072	16.80***
	2	BMI + TCQ-W	.139	.075	18.88***
FCI-S	1	TCQ-P	.102	.015	23.98***
	2	TCQ-P + TCQ-W	.122	.025	5.71*
WCQ <sup>c,d</sup>	1	Age + BMI + DS	.133	.146	11.32***
	2	Age + BMI + DS + TCQ-W	.217	.087	22.51***
	3	Age + BMI + DS + TCQ-W + TCQ-P	.230	.016	4.17*

Note. BMI=Body Mass Index; DV=Dependent Variables; DS=DiETING Status; EDE-Q=Eating Disorder Examination-Questionnaire-Binges; EHQ= Eating Habits Questionnaire; FCI=Food Craving Inventory (C=Carbohydrates, FF=Fast Food, HF=High Fat Foods, S=Sweet); TCQ=Thought Control Questionnaire (D=Distraction, P=Punishment, R=Reappraisal, S=Social Control, W=Worry; WCQ=Weight Cycling Questionnaire. R<sup>2</sup> A = R<sup>2</sup> Adjusted; R<sup>2</sup> Ch = R<sup>2</sup> Change; F Ch = F Change; a = Thought Control Questionnaire-Distraction excluded; b = Thought Control Questionnaire-Punishment excluded; c = Thought Control Questionnaire-Reappraisal excluded; d = Thought Control Questionnaire-Social Control excluded; e = Thought Control Questionnaire-Worry; t = trend. \* p < .05, \*\* p < .01, \*\*\* p < .0005.

Table 14  
 Stress, Thought Suppression, and Weight Cycling Moderations

Sex	Step	Predictors	$R^2$ A	$R^2$ Ch	F Ch
Men	1	PSS + UIT + TS	.044	.074	2.52 <sup>t</sup>
	2	PSS X UIT, PSS X TS	.040	.015	.78
	3	PSS X UIT X TS	.030	.001	.03
Women	1	PSS + UIT + TS	.048	.061	4.60**
	2	PSS X UIT, PSS X TS	.062	.023	2.65
	3	PSS X UIT X TS	.058	.000	.023
Women	1	LESN + UIT + TS	.065	.084	4.32**
	2	LESN X UIT, LESN X TS	.060	.009	.68
	3	LESN X UIT X TS	.071	.016	2.42

Note. LES-Neg=Life Experiences Survey-Negative; PSS=Perceived Stress Scale; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts).  $R^2$  A =  $R^2$  Adjusted;  $R^2$  Ch =  $R^2$  Change; F Ch = F Change; <sup>t</sup>= trend. \*  $p < .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .0005$ .

Table 15  
Metacognition Means, Standard deviations, and Frequencies by Sex

Mean (SD)	Disagree	Mostly Disagree	Neutral	Mostly Agree	Agree
1. An effective way to cope with food-related thought is to try to avoid or suppress them.					
Men: 2.51 (1.18)	25.9%	25.0%	24.1%	22.2%	2.8%
Women: 2.61 (1.13)	18.1%	31.5%	28.2%	16.4%	5.9%
2. An effective way to cope with weight/shape-related thought is to try to avoid or suppress them.					
Men: 2.29 (1.10)	39.6%	31.5%	20.4%	17.6%	0.9%
Women: 2.36 (1.08)	21.5%	41.8%	19.8%	13.1%	3.8%
3. I should be able to suppress food-related thoughts.					
Men: 3.21 (1.12)	10.2%	14.8%	26.9%	39.8%	8.3%
Women: 3.09 (1.15)	10.5%	21.4%	24.8%	34.9%	8.4%
4. I should be able to suppress weight/shape-related thoughts.					
Men: 3.03 (1.14)	13.0%	18.5%	26.9%	36.1%	5.6%
Women: 2.99 (1.14)	11.5%	24.3%	25.1%	32.3%	6.8%
5. Thinking about food <i>increases</i> the likelihood that I will eat.					
Men: 3.47 (1.08)	7.5%	10.3%	22.4%	47.7%	12.1%
Women: 3.58 (1.10)	5.9%	12.2%	18.1%	45.6%	18.1%
6. Thinking about food <i>decreases</i> the likelihood that I will eat.					
Men: 1.96 (.76)	38.7%	48.1%	21.3%	1.9%	0%
Women: 2.01 (.88)	31.2%	42.6%	21.1%	4.3%	0.8%
7. Thinking about my body weight/shape <i>increases</i> the likelihood that I will eat					
Men: 2.15 (.88)	23.1%	48.1%	19.4%	9.3%	0%
Women: 3.63 (1.06)	12.8%	39.6%	24.3%	19.1%	4.3%
8. Thinking about my body weight/shape <i>decreases</i> the likelihood that I will eat.					
Men: 2.99 (1.12)	12.0%	22.2%	25.8%	36.1%	4.6%
Women: 2.86 (1.10)	12.3%	26.4%	28.9%	27.2%	5.1%

Table 16  
Men's Metacognitions Predicting Thought Suppression

Dependent Variable	Step	Predictors	$R^2$ A	$R^2$ Ch	F Ch
BSTSI <sup>1,3,4,5</sup>	1	Age + BMI	.125	.143	7.83**
	2	Age + BMI + MC2	.193	.075	8.89**
FTSI <sup>1,2</sup>	1	DS	.053	.062	6.39*
	2	DS + MC5	.133	.089	9.56**
WBSI-SD <sup>5</sup>	1	Age	.075	.084	9.39**
WBSI-TS <sup>1,2,3</sup>	1	MC4	.126	.134	16.14***
	2	MC4 + MC5	.156	.038	4.73*
WBSI-UIT	1	Age + BMI	.105	.122	7.03**
	2	Age + BMI + MC5	.141	.044	5.24*

Note. BMI=Body Mass Index; BSTSI=Body Weight/Shape Thought Suppression Inventory; DS=Dieting Status; FTSI=Food Thought Suppression Inventory; MC1<sup>1</sup>=An effective way to cope with food-related thoughts it to try to avoid or suppress them; MC2<sup>2</sup>=An effective way to cope with weight/shape-related thought is to try to avoid or suppress them; MC3<sup>3</sup>=I should be able to suppress food-related thoughts; MC4<sup>4</sup>=I should be able to suppress weight/shape-related thoughts; MC5<sup>5</sup>=Thinking about food *increases* the likelihood that I will eat; MC6<sup>6</sup>=Thinking about food *decreases* the likelihood that I will eat; MC7<sup>7</sup>=Thinking about my body weight/shape *increases* the likelihood that I will eat; MC8<sup>8</sup>=Thinking about my body weight/shape *decreases* the likelihood that I will eat; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts).  $R^2$  A =  $R^2$  Adjusted;  $R^2$  Ch =  $R^2$  Change; F Ch = F Change. \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$ .

Table 17  
 Women's Metacognitions Predicting Thought Suppression

Dependent Variable	Step	Predictors	R <sup>2</sup> A	R <sup>2</sup> Ch	F Ch
BSTSI	1	Age + BMI	.112	.124	9.62***
	2	Age + BMI + MC3	.227	.118	31.42***
	3	Age + BMI + MC3 + MC7	.273	.048	13.63***
	4	Age + BMI + MC3 + MC7 + MC5	.289	.019	5.51*
FTSI <sup>1,2,3,8</sup>	1	DS	.086	.081	19.01***
	2	DS + MC7	.236	.158	41.87***
	3	DS + MC7 + MC4	.287	.054	15.47***
	4	DS + MC7 + MC4 + MC5	.303	.019	5.44*
WBSI-SD <sup>1,2,3,5</sup>	1	Age	.040	.044	10.15**
	2	Age + MC4	.115	.079	19.74***
	3	Age + MC4 + MC7	.159	.047	12.39**
WBSI-TS <sup>2,5</sup>	1	DS	.025	.029	6.83**
	2	DS + MC1	.122	.100	25.77***
	3	DS + MC1 + MC7	.159	.040	10.77**
	4	DS + MC1 + MC7 + MC4	.172	.017	4.60*
	5	DS + MC1 + MC7 + MC4 + MC3	.193	.024	6.70**
WBSI-UIT <sup>1,2,3,5</sup>	1	Age + DS	.066	.074	8.76***
	2	Age + DS + MC4	.147	.084	21.83***
	3	Age + DS + MC4 + MC7	.196	.052	14.34***

Note. BMI=Body Mass Index; BSTSI=Body Weight/Shape Thought Suppression Inventory; DS=Dieting Status; FTSI=Food Thought Suppression Inventory; MC1<sup>1</sup>=An effective way to cope with food-related thoughts it to try to avoid or suppress them; MC2<sup>2</sup>=An effective way to cope with weight/shape-related thought is to try to avoid or suppress them; MC3<sup>3</sup>=I should be able to suppress food-related thoughts; MC4<sup>4</sup>=I should be able to suppress weight/shape-related thoughts; MC5<sup>5</sup>=Thinking about food *increases* the likelihood that I will eat; MC6<sup>6</sup>=Thinking about food *decreases* the likelihood that I will eat; MC7<sup>7</sup>=Thinking about my body weight/shape *increases* the likelihood that I will eat; MC8<sup>8</sup>=Thinking about my body weight/shape *decreases* the likelihood that I will eat; WBSI=White Bear Suppression Inventory (TS=Thought Suppression, SD=Self Distraction, UIT=Unwanted Intrusive Thoughts). R<sup>2</sup> A = R<sup>2</sup> Adjusted; R<sup>2</sup> Ch = R<sup>2</sup> Change; F Ch = F Change. \*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .0005$ .



APPENDIX A: HUMAN PARTICIPANTS INFORMED CONSENT FORM

## HUMAN PARTICIPANTS INFORMED CONSENT FORM

The purpose of this research project will be to explore how individuals' characteristics are related to their weight history.

Your participation is strictly voluntary, and you may discontinue participation at any time without penalty. You have the opportunity to ask, and to have answered, any questions you may have about this research at any point during the study. If you have such questions, you may call or email Stacey Tantleff Dunn, Ph.D., at (407) 823-3578 or [sdunn@mail.ucf.edu](mailto:sdunn@mail.ucf.edu). If you want to talk to someone other than the supervisor, you may contact Dr. Bob Dipboye, Psychology Department Chair at (407) 823-2216.

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board. Questions or problems regarding these activities should be addressed to: UCFIRB Office, University of Central Florida Office of Research, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. The phone number is (407) 823-3778. If you believe you have been injured during participation in this research project, you may file a claim with UCF Environmental Health & Safety, Risk and Insurance Office, P.O. Box 163500, Orlando, FL 32816-3500 (407) 823-6300. The University of Central Florida is an agency of the State of Florida for purposes of sovereign immunity and the university's and the state's liability for personal injury or property damage is extremely limited under Florida law. Accordingly, the university's and the state's ability to compensate you for any personal injury or property damage suffered during this research project is very limited.

I have read the information provided on the previous page. My questions have been answered to my satisfaction, and I voluntarily agree to participate in this study. I understand that I will receive a consent debriefing form at the conclusion of my participation.

I certify that I am at least 18 years of age.

Printed Name \_\_\_\_\_ Date \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Signature of the Investigator \_\_\_\_\_ Date \_\_\_\_\_

## APPENDIX B: DEMOGRAPHIC INFORMATION

DEMOGRAPHIC INFORMATION

1. Age: \_\_\_\_\_
2. Gender: Male          Female
- 3a. Are you a college student? Yes      No
- 3b. If so, which year are you? First Year    Sophomore    Junior    Senior    Other: \_\_\_\_\_
4. Ethnicity: Hispanic or Latino    Not Hispanic or Latino
5. Race: Caucasian    African-American    Asian-America    American Indian/Alaskan Native  
Native Hawaiian/Other Pacific Islander    Bi-racial    Other: \_\_\_\_\_
6. Sexuality: Heterosexual      Bisexual      Homosexual/Lesbian
7. What is your highest completed education level?  
    Middle school/junior high    High school/GED    2-year degree    4-year degree  
    Post-graduate work    Other: \_\_\_\_\_
8. Height: feet \_\_\_\_\_ inches \_\_\_\_\_
9. Current Weight: \_\_\_\_\_ pounds
10. If you have dieted before, how old were you when you first dieted? \_\_\_\_\_
- 11a. Are you dieting currently? Yes    No
- 11b. For how many months?
12. If you are not currently dieting, how many months ago was your most recent diet? \_\_\_\_\_
13. Weight at 18 years old: \_\_\_\_\_ pounds
- 14a. Highest weight since age 18 (not including during pregnancy): \_\_\_\_\_ pounds
- 14b. At what age was this? \_\_\_\_\_ years
15. If you have lost weight since reaching your highest adult weight, what has been your lowest weight since then? \_\_\_\_\_ pounds
16. What was your weight 1 year ago (approximate if necessary)? \_\_\_\_\_ pounds
17. What was your weight 6 months ago (approximate if necessary)? \_\_\_\_\_ pounds

18. What is your ideal weight? \_\_\_\_\_ pounds
19. What is your goal weight? \_\_\_\_\_ pounds
20. To the best of your ability, please indicate the number of times, since age 18, that you have started a diet that resulted in a 10 pound or more weight loss? \_\_\_\_\_
21. What method did you use to lose the weight most recently (**please check all that apply**):
- \_\_\_\_\_ Independently decrease in food intake
  - \_\_\_\_\_ Independently increase in physical activity
  - \_\_\_\_\_ Journaling food intake
  - \_\_\_\_\_ Following predetermined diet (e.g., South Beach, Adkins)
  - \_\_\_\_\_ Through support of weight loss organization (e.g., Weight Watchers, LA Weight Loss)
  - \_\_\_\_\_ Weight-loss medications
  - \_\_\_\_\_ Individual Therapy
  - \_\_\_\_\_ Group Therapy
  - \_\_\_\_\_ Overeaters Anonymous (O.A.)
  - \_\_\_\_\_ Surgery
  - \_\_\_\_\_ Other:
- 

22. Do you participate in regular exercise? Yes No
23. On average, how many minutes per week do you participate in exercise? \_\_\_\_\_ minutes
24. Have you considered taking medication/supplements for weight loss? Yes No
- 25a. Have you ever take medication/supplements for weight loss? Yes No
- 25b. If yes, what were the names?
- 

**PLEASE CIRCLE THE ANSWER THAT BEST REPRESENTS YOUR RESPONSE TO THE FOLLOWING STATEMENTS:**

26. An effective way to cope with food-related thoughts is to try to avoid or suppress them.

- |          |                 |         |              |       |
|----------|-----------------|---------|--------------|-------|
| 1        | 2               | 3       | 4            | 5     |
| Disagree | Mostly Disagree | Neutral | Mostly Agree | Agree |

27. An effective way to cope with weight/shape-related thought is to try to avoid or suppress them.

1	2	3	4	5
Disagree	Mostly Disagree	Neutral	Mostly Agree	Agree

28. I should be able to suppress food-related thoughts.

1	2	3	4	5
Disagree	Mostly Disagree	Neutral	Mostly Agree	Agree

29. I should be able to suppress weight/shape-related thoughts.

1	2	3	4	5
Disagree	Mostly Disagree	Neutral	Mostly Agree	Agree

30. Thinking about food increases the likelihood that I will eat.

1	2	3	4	5
Disagree	Mostly Disagree	Neutral	Mostly Agree	Agree

31. Thinking about my body weight/shape **increases** the likelihood that I will eat.

1	2	3	4	5
Disagree	Mostly Disagree	Neutral	Mostly Agree	Agree

32. Thinking about my body weight/shape **decreases** the likelihood that I will eat.

1	2	3	4	5
Disagree	Mostly Disagree	Neutral	Mostly Agree	Agree

APPENDIX C: WHITE BEAR SUPPRESSION INVENTORY

## WHITE BEAR SUPPRESSION INVENTORY

Please indicate your response by circling the number that best represents your experience.

	<b>(Strongly Disagree) 1...2...3...4...5 (Strongly Agree)</b>				
1. There are things I prefer not to think about.	1	2	3	4	5
2. Sometimes I wonder why I have the thoughts that I do.	1	2	3	4	5
3. I have thoughts that I cannot stop.	1	2	3	4	5
4. There are images that come to my mind that I cannot erase.	1	2	3	4	5
5. My thoughts frequently return to one idea.	1	2	3	4	5
6. I wish I could stop thinking of certain things.	1	2	3	4	5
7. Sometimes my mind races so fast I wish I could stop it.	1	2	3	4	5
8. I always try to put problems out of my mind.	1	2	3	4	5
9. There are thoughts that keep jumping into my head.	1	2	3	4	5
10. Sometimes I stay busy just to keep thoughts from intruding on my mind.	1	2	3	4	5
11. There are things that I try not to think about.	1	2	3	4	5
12. Sometimes I really wish I could stop thinking.	1	2	3	4	5
13. I often do things to distract myself from my thoughts.	1	2	3	4	5
14. I have thoughts that I try to avoid.	1	2	3	4	5
15. There are many thoughts that I have that I don't tell anyone.	1	2	3	4	5



APPENDIX D: FOOD THOUGHT SUPPRESSION INVENTORY

## FOOD THOUGHT SUPPRESSION INVENTORY

Please indicate your response by circling the number that best represents your experience.

<b>(Strongly Disagree) 1...2...3...4...5 (Strongly Agree)</b>					
1. There are <b>foods</b> I prefer not to think about.	1	2	3	4	5
2. Sometimes I wonder why I have the thoughts about <b>food</b> that I do.	1	2	3	4	5
3. I have thoughts about <b>food</b> that I cannot stop.	1	2	3	4	5
4. There are images about <b>food</b> that come to mind that I cannot erase.	1	2	3	4	5
5. My thoughts frequently return to one idea about <b>food</b> .	1	2	3	4	5
6. I wish I could stop thinking of certain <b>foods</b> .	1	2	3	4	5
7. Sometimes my mind races so fast about <b>food</b> I wish I could stop it.	1	2	3	4	5
8. I always try to put <b>eating</b> problems out of my mind.	1	2	3	4	5
9. There are thoughts about <b>food</b> that keep jumping into my head.	1	2	3	4	5
10. Sometimes I stay busy just to keep thoughts of <b>food</b> from intruding on my mind.	1	2	3	4	5
11. There are <b>foods</b> that I try not to think about.	1	2	3	4	5
12. Sometimes I really wish I could stop thinking about <b>food</b> .	1	2	3	4	5
13. I often do things to distract myself from my thoughts of <b>food</b> .	1	2	3	4	5
14. I have thoughts about <b>food</b> that I try to avoid.	1	2	3	4	5
15. There are many thoughts about <b>food</b> that I have that I don't tell anyone.	1	2	3	4	5

APPENDIX E: BODY WEIGHT/SHAPE SUPPRESSION INVENTORY

## BODY WEIGHT/SHAPE SUPPRESSION INVENTORY

Please indicate your response by circling the number that best represents your experience.

(Strongly <u>Disagree</u> ) 1...2...3...4...5 (Strongly <u>Agree</u> )					
1. There are things about my <b>body shape/weight</b> I prefer not to think about.	1	2	3	4	5
2. Sometimes I wonder why I have the thoughts about my <b>body shape/weight</b> that I do.	1	2	3	4	5
3. I have thoughts about my <b>body shape/weight</b> that I cannot stop.	1	2	3	4	5
4. There are images of my <b>body shape/weight</b> that come to mind that I cannot erase.	1	2	3	4	5
5. My thoughts frequently return to my <b>body shape/weight</b> .	1	2	3	4	5
6. I wish I could stop thinking of my <b>body shape/weight</b> .	1	2	3	4	5
7. Sometimes my mind races so fast about my <b>body shape/weight</b> I wish I could stop it.	1	2	3	4	5
8. I always try to put problems about my <b>body shape/weight</b> out of my mind.	1	2	3	4	5
9. There are thoughts about my <b>body shape/weight</b> that keep jumping into my head.	1	2	3	4	5
10. Sometimes I stay busy just to keep thoughts about my <b>body shape/weight</b> from intruding on my mind.	1	2	3	4	5
11. There are things about my <b>body shape/weight</b> that I try not to think about.	1	2	3	4	5
12. Sometimes I really wish I could stop thinking about my <b>body shape/weight</b> .	1	2	3	4	5
13. I often do things to distract myself from my thoughts about my <b>body shape/weight</b> .	1	2	3	4	5
14. I have thoughts about my <b>body shape/weight</b> that I try to avoid.	1	2	3	4	5
15. There are many thoughts about my <b>body shape/weight</b> that I have that I don't tell anyone.	1	2	3	4	5

APPENDIX F: THOUGHT CONTROL QUESTIONNAIRE

## THOUGHT CONTROL QUESTIONNAIRE

*Instructions:* Most people experience unpleasant and/or unwanted thoughts (in verbal and/or picture form), which can be difficult to control. We are interested in the techniques that you **generally** use to control such thoughts. Below are a number of things that people do to control these thoughts. Please read each statement carefully, and indicate how often you use each technique by **circling** the appropriate number. There are no right or wrong answers. Do not spend too much time thinking about each one.

### When I experience an unpleasant/unwanted thought:

Never	Sometimes	Often	Almost Always	
1	2	3		
1. I call to mind positive images instead.	1	2	3	4
2. I tell myself not to be so stupid.	1	2	3	4
3. I focus on the thought	1	2	3	4
4. I replace the thought with a more trivial bad thought.	1	2	3	4
5. I don't talk about the thought to anyone.	1	2	3	4
6. I punish myself for thinking the thought.	1	2	3	4
7. I dwell on other worries.	1	2	3	4
8. I keep the thought to myself.	1	2	3	4
9. I occupy myself with work instead.	1	2	3	4
10. I challenge the thought's validity.	1	2	3	4
11. I get angry at myself for having the thought.	1	2	3	4
12. I avoid discussing the thought.	1	2	3	4
13. I shout at myself for having the thought.	1	2	3	4
14. I analyze the thought rationally.	1	2	3	4
15. I slap or pinch myself to stop the thought.	1	2	3	4
16. I think pleasant thoughts instead.	1	2	3	4
17. I find out how my friends deal with these thoughts.	1	2	3	4
18. I worry about more minor things instead.	1	2	3	4
19. I do something that I enjoy.	1	2	3	4

20. I try to reinterpret the thought.	1	2	3	4
21. I think about something else.	1	2	3	4
22. I think more about the more minor problems I have.	1	2	3	4
23. I try a different way of thinking about it.	1	2	3	4
24. I think about past worries instead.	1	2	3	4
25. I ask my friends if they have similar thoughts.	1	2	3	4
26. I focus on different negative thoughts.	1	2	3	4
27. I question the reasons for having the thought.	1	2	3	4
28. I tell myself that something bad will happen if I think the thought.	1	2	3	4
29. I talk to a friend about the thought.	1	2	3	4
30. I keep myself busy.	1	2	3	4

## APPENDIX G: FOOD CRAVING INVENTORY



## FOOD CRAVING INVENTORY

*Instructions:* Over the past month, how often have you experienced a craving for each food?

	<b>1</b> Never	<b>2</b> Rarely	<b>3</b> Sometimes	<b>4</b> Often	<b>5</b> Always/Almost everyday
1. Cake					1 2 3 4 5
2. Pizza					1 2 3 4 5
3. Fried Chicken					1 2 3 4 5
4. Sandwich bread					1 2 3 4 5
5. Sausage					1 2 3 4 5
6. French fries					1 2 3 4 5
7. Cinnamon rolls					1 2 3 4 5
8. Rice					1 2 3 4 5
9. Hot dog					1 2 3 4 5
10. Hamburger					1 2 3 4 5
11. Biscuits					1 2 3 4 5
12. Ice cream					1 2 3 4 5
13. Pasta					1 2 3 4 5
14. Fried fish					1 2 3 4 5
15. Cookies					1 2 3 4 5
16. Chocolate					1 2 3 4 5
17. Pancakes or waffles					1 2 3 4 5
18. Chips					1 2 3 4 5
19. Rolls					1 2 3 4 5
20. Cereal					1 2 3 4 5
21. Donuts					1 2 3 4 5
22. Candy					1 2 3 4 5
23. Brownies					1 2 3 4 5
24. Bacon					1 2 3 4 5
25. Steak					1 2 3 4 5

## APPENDIX H: EATING HABITS QUESTIONNAIRE

## EATING HABITS QUESTIONNAIRE

Please indicate the degree to which each of the following behaviors causes you to gain weight. In answering these questions, please use the five point scale below. Pick the one number that best describes how much of the behavior contributes to your increased weight.

1. Does not contribute at all.
2. Contributes a small amount.
3. Contributes a moderate amount.
4. Contributes a large amount.
5. Contributes the greatest amount.

_____	A. Eating too much food.
_____	B. Overeating at breakfast.
_____	C. Overeating at lunch.
_____	D. Overeating at dinner.
_____	E. Snacking between meals.
_____	F. Snacking after dinner.
_____	G. Eating because I feel physically hungry.
_____	H. Eating because I crave certain foods.
_____	I. Eating because I don't feel full.
_____	J. Eating because I can't stop once I've begun.
_____	K. Eating because of the good taste of foods.
_____	L. Eating in response to the sight or smell of food.
_____	M. Eating while cooking or preparing food.
_____	N. Eating when anxious.
_____	O. Eating when tired.
_____	P. Eating when bored.

_____	Q. Eating when stressed.
_____	R. Eating when angry.
_____	S. Eating when depressed/upset.
_____	T. Eating when socializing/celebrating.
_____	U. Eating when happy.
_____	V. Eating when alone.
_____	W. Eating with family/friends.
_____	X. Eating at business functions.

## APPENDIX I: WEIGHT CYCLING QUESTIONNAIRE

## WEIGHT CYCLING QUESTIONNAIRE

Please respond to the following questions as honestly as possible

**1 = NEVER 2 = RARELY 3 = SOMETIMES 4 = OFTEN 5 = ALWAYS**

- |       |  |          |          |          |          |          |
|-------|--|----------|----------|----------|----------|----------|
| 1.    | How often do you lose and regain weight?                     | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <hr/> |  |          |          |          |          |          |
| 2.    | How often are you a yo-yo dieter?                            | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <hr/> |  |          |          |          |          |          |
| 3.    | How often do you start a diet and quit?                      | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <hr/> |  |          |          |          |          |          |
| 4.    | How often do you regain more weight than you lost on a diet? | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <hr/> |  |          |          |          |          |          |

APPENDIX J: EATING DISORDER EXAMINATION-QUESTIONNAIRE

## EATING DISORDER EXAMINATION-QUESTIONNAIRE

*Instructions:* The following questions are concerned with the past four weeks (28 days) only.

Please read each question carefully. Please answer all of the questions.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions refer to the past four weeks (28 days) only.

<b>On how many of the past 28 days...</b>	<b>No days</b>	<b>1-5 days</b>	<b>6-12 days</b>	<b>13-15 days</b>	<b>16-22 days</b>	<b>23-27 days</b>	<b>Every day</b>
1. Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your shape or weight (whether or not you succeeded)?	0	1	2	3	4	5	6
2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?	0	1	2	3	4	5	6
3. Have you <u>tried</u> to exclude from your diet any foods that you like in order to influence your shape or weight?	0	1	2	3	4	5	6
4. Have you <u>tried</u> to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you succeeded)?	0	1	2	3	4	5	6
5. Have you had a definite desire to have an <u>empty</u> stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6
6. Have you had a definite desire to have a <u>totally flat</u> stomach?	0	1	2	3	4	5	6
7. Has thinking about <u>food, eating, or calories</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
8. Has thinking about <u>shape or weight</u> made it very difficult to							



concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9. Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10. Have you had a definite fear that you might gain weight?	0	1	2	3	4	5	6
11. Have you felt fat?	0	1	2	3	4	5	6
12. Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

Questions 13 to 18: Please fill in the appropriate number in the box on the right. Remember that the questions only refer to the past four weeks (28 days).

Over the past four weeks (28 days) ...

\*13. Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)? .....

\*14. ....On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)? .....

15. Over the past 28 days, on how many DAYS have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food and have had a sense of loss of control at the time)? .....

16. Over the past 28 days, on how many times have you made yourself sick (vomit) as a means of controlling your shape or weight? .....

17. Over the past 28 days, on how many times have you taken laxatives as a means of controlling your shape or weight? .....

18. Over the past 28 days, on how many times have you exercised in a “driven” or “compulsive” way as a means of controlling your shape, weight, or amount of fat, or to burn off calories? .....

Questions 19 to 21: Please circle the appropriate number. Please note that for these questions the term “binge eating” is what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating (Please review description before answering questions).

19. On how many of the past 28 days, on how many days have you eaten in secret (i.e.,	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
---	---------	----------	-----------	------------	------------	------------	-----------

furtively)? ...Do not count episodes of binge eating	0	1	2	3	4	5	6
20. On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight? ...Do not count episodes of binge eating	None of the times	A few of the times	Less than half	Half of the times	More than half	Most of the time	Every time
	0	1	2	3	4	5	6
21. Over the past 28 days, how concerned have you been about people seeing you eat? ...Do not count episodes of binge eating	Not at all	Slightly		Moderately		Markedly	
	0	1	2	3	4	5	6

Questions 22 to 28: Please circle the appropriate number. Remember that the questions only refer to the past four weeks (28 days).

Over the past 28 days...

	Not at all	Slightly	Moderately	Markedly			
22. Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
23. Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
24. How much would it upset you if you had been asked to weight yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5	6
25. How dissatisfied have you been with your <u>weight</u> ?	0	1	2	3	4	5	6
26. How dissatisfied have you been with your <u>shape</u> ?	0	1	2	3	4	5	6
27. How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?	0	1	2	3	4	5	6

---

---

28. How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?

0            1            2            3            4            5            6

---

What is your weight at present? (Please give your best estimate.) .....

What is your height? (Please give your best estimate.) .....

If female: Over the past three-to-four months have you missed any menstrual periods? .....

If so, how many? .....

Have you been taking the "pill"?.....

## APPENDIX K: BINGE EATING DESCRIPTIONS

Some questions (marked with an asterisk) asked about 1) eating what most people would regard as an unusually large amount of food and 2) feeling a sense of having lost control while eating.

1. An unusually large amount of food is something that most people would feel is more than a large meal.
2. A sense of having lost control while eating might be experienced as feeling driven or compelled to eat; not being able to stop eating once you have started; not being able to keep yourself from eating large amounts of certain kinds of food in the first place; or giving up on even trying to control your eating because you know that, no matter what, you are going to overeat.

Here are some examples:

After work one evening, Dina ate two pieces of chicken, a 16-ounce package of frozen vegetables, three cups of rice, three fourths of a coffee cake, and a piece of fruit. This is an unusually large amount of food. While she ate Dina felt completely out of control, ate more quickly than usually, and ate until she felt uncomfortably full. Afterwards, Dina was very upset about how much she had eaten, and she felt depressed, guilty, and hated herself for giving in to the urge to binge.

Several times a week JoAnne ate lunch at McDonald's with two coworkers. Her usual order was a Big Mac, a fish fillet sandwich, two large orders of fries, and a large chocolate shake. This is an unusually large amount of food. Although she ate somewhat more than her friends did and knew she was eating a lot of high-fat foods, she did not feel out of control while she was eating or feel upset afterwards about how much she had eaten.

For lunch one day, Joseph had a ham and cheese sandwich, with mayonnaise on a roll, a small bag of potato chips, a candy bar, and a diet coke. Although this was a large meal, it was *not* unusually large. However, Joseph felt out of control because he had planned to have turkey on whole wheat with lettuce and tomato plus a piece of fruit for dessert, but changed his mind at the last minute while ordering his sandwich.

Carol ate two donuts someone brought to the office one morning. She had started a diet that day and planned to skip breakfast. Carol initially refused the donuts, but after everyone else had gone to a meeting, she snuck into the break room and very quickly ate the donuts so no one would see her eating. She felt very guilty and ashamed afterwards and hated feeling so out of control of her eating, resolving to start dieting again the next day. Although Carol felt bad about eating the donuts, this was not an unusually large amount of food. Dina and JoAnne ate an unusually large amount of food, but Joseph and Carol did not. Dina, Joseph, and Carol felt a loss of control while eating, but JoAnne did not. Of the four, Dina is the one who actually had a binge episode, which includes both 1) eating an unusually large amount of food and 2) feeling a sense of having lost control while eating.

APPENDIX L: LIFE EXPERIENCES SURVEY

## LIFE EXPERIENCES SURVEY

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. *Please check those events which you have experienced in the last year.* Be sure that all check marks are directly across from the items they correspond to.

Also, for each item checked below, *please indicate the extent to which you viewed the event as having either a positive or negative impact on your life* at the time the event occurred. That is, *indicate the type and extent of impact that the event had.* A rating of -3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact.

√		Extremely negative	Moderately negative	Somewhat negative	No impact	Slightly positive	Moderately positive	Extremely positive
1. Marriage		-3	-2	-1	0	+1	+2	+3
2. Detention in jail or comparable institution		-3	-2	-1	0	+1	+2	+3
3. Death of a spouse		-3	-2	-1	0	+1	+2	+3
4. Major change in sleeping habits (much more or much less sleep)		-3	-2	-1	0	+1	+2	+3
5. Death of close family member:								
a. mother	a.	-3	-2	-1	0	+1	+2	+3
b. father	b.	-3	-2	-1	0	+1	+2	+3
c. brother	c.	-3	-2	-1	0	+1	+2	+3
d. sister	d.	-3	-2	-1	0	+1	+2	+3
e. grandmother	e.	-3	-2	-1	0	+1	+2	+3
f. grandfather	f.	-3	-2	-1	0	+1	+2	+3
g. other (specify)	g.	-3	-2	-1	0	+1	+2	+3
6. Major change in eating habits (much more or much less food intake)		-3	-2	-1	0	+1	+2	+3
7. Foreclosure on mortgage or loan		-3	-2	-1	0	+1	+2	+3
8. Death of a close friend		-3	-2	-1	0	+1	+2	+3
9. Outstanding personal achievement		-3	-2	-1	0	+1	+2	+3
10. Minor law violations (traffic tickets, disturbing the peace, etc.)		-3	-2	-1	0	+1	+2	+3
11. <i>Male:</i> Wife/girlfriend's pregnancy		-3	-2	-1	0	+1	+2	+3
12. <i>Female:</i> Pregnancy		-3	-2	-1	0	+1	+2	+3
13. Changed work situation (different work responsibility, major change in working conditions, working hours, etc.)		-3	-2	-1	0	+1	+2	+3
14. New job		-3	-2	-1	0	+1	+2	+3

	√	Extremely negative	Moderately negative	Somewhat negative	No impact	Slightly positive	Moderately positive	Extremely positive
15. Serious illness or injury of close Family member:								
a. mother	a.	-3	-2	-1	0	+1	+2	+3
b. father	b.	-3	-2	-1	0	+1	+2	+3
c. brother	c.	-3	-2	-1	0	+1	+2	+3
d. sister	d.	-3	-2	-1	0	+1	+2	+3
e. grandmother	e.	-3	-2	-1	0	+1	+2	+3
f. grandfather	f.	-3	-2	-1	0	+1	+2	+3
g. other (specify)	g.	-3	-2	-1	0	+1	+2	+3
16. Sexual difficulties		-3	-2	-1	0	+1	+2	+3
17. Trouble with employer (in danger of losing job, being suspended, demoted, etc.)		-3	-2	-1	0	+1	+2	+3
18. Trouble with in-laws		-3	-2	-1	0	+1	+2	+3
19. Major change in financial status (a lot better off or a lot worse off)		-3	-2	-1	0	+1	+2	+3
20. Major change in closeness of family members (increased or decreased closeness)		-3	-2	-1	0	+1	+2	+3
21. Gaining a new family member (through birth, adoption, family member moving in, etc.)		-3	-2	-1	0	+1	+2	+3
22. Change of residence		-3	-2	-1	0	+1	+2	+3
23. Marital separation from mate (due to conflict)		-3	-2	-1	0	+1	+2	+3
24. Major change in church activities (increased or decreased attendance)		-3	-2	-1	0	+1	+2	+3
25. Marital reconciliation with mate		-3	-2	-1	0	+1	+2	+3
26. Major change in number of arguments with spouse (a lot more or a lot less arguments)		-3	-2	-1	0	+1	+2	+3
27. <i>Married male</i> : Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.)		-3	-2	-1	0	+1	+2	+3
28. <i>Married female</i> : Change in husband's work (loss of job, beginning new job, retirement, etc.)		-3	-2	-1	0	+1	+2	+3
29. Major change in usual type and/or amount of recreation		-3	-2	-1	0	+1	+2	+3



	√	Extremely negative	Moderately negative	Somewhat negative	No impact			
31. Borrowing less than \$10,000 (buying car, TV, getting school loan, etc.)		-3	-2	-1	0	+1	+2	+3
32. Being fired from job		-3	-2	-1	0	+1	+2	+3
33. <i>Male</i> : Wife/girlfriend having abortion		-3	-2	-1	0	+1	+2	+3
34. <i>Female</i> : Having abortion		-3	-2	-1	0	+1	+2	+3
35. Major personal illness or injury		-3	-2	-1	0	+1	+2	+3
36. Major change in social activities, e.g., parties, movies, visiting (increased or decreased participation)		-3	-2	-1	0	+1	+2	+3
37. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc.)		-3	-2	-1	0	+1	+2	+3
38. Divorce		-3	-2	-1	0	+1	+2	+3
39. Serious injury or illness of close friend		-3	-2	-1	0	+1	+2	+3
40. Retirement from work		-3	-2	-1	0	+1	+2	+3
41. Son or daughter leaving home (due to marriage, college, etc.)		-3	-2	-1	0	+1	+2	+3
42. Ending of formal schooling		-3	-2	-1	0	+1	+2	+3
43. Separation from spouse (due to work, travel, etc.)		-3	-2	-1	0	+1	+2	+3
44. Engagement		-3	-2	-1	0	+1	+2	+3
45. Breaking up with boyfriend or girlfriend		-3	-2	-1	0	+1	+2	+3
46. Leaving home for the first time		-3	-2	-1	0	+1	+2	+3
47. Reconciliation with boyfriend/girlfriend		-3	-2	-1	0	+1	+2	+3
<i>Other recent experiences which have had an impact on your life</i>								
48. _____		-3	-2	-1	0	+1	+2	+3
49. _____		-3	-2	-1	0	+1	+2	+3
50. _____		-3	-2	-1	0	+1	+2	+3

## APPENDIX M: PERCEIVED STRESS SCALE

## PERCEIVED STRESS SCALE

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

For each question chose from the following alternatives:

0. never
1. almost never
2. sometimes
3. fairly often
4. very often

1. In the last month, how often have you been upset because of something that happened unexpectedly?  
**0 1 2 3 4**
2. In the last month, how often have you felt that you were unable to control the important things in your life?  
**0 1 2 3 4**
3. In the last month, how often have you felt nervous and "stressed"?  
**0 1 2 3 4**
4. In the last month, how often have you dealt successfully with irritating life hassles?  
**0 1 2 3 4**
5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?  
**0 1 2 3 4**
6. In the last month, how often have you felt confident about your ability to handle your personal problems?  
**0 1 2 3 4**
7. In the last month, how often have you felt that things were going your way?  
**0 1 2 3 4**
8. In the last month, how often have you found that you could not cope with all the things that you had to do?  
**0 1 2 3 4**
9. In the last month, how often have you been able to control irritations in your life?  
**0 1 2 3 4**
10. In the last month, how often have you felt that you were on top of things?  
**0 1 2 3 4**

11. In the last month, how often have you been angered because of things that happened that were outside of your control?  
**0 1 2 3 4**
12. In the last month, how often have you found yourself thinking about things that you have to accomplish?  
**0 1 2 3 4**
13. In the last month, how often have you been able to control the way you spend your time?  
**0 1 2 3 4**
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?  
**0 1 2 3 4**

APPENDIX N: HUMAN PARTICIPANTS DEBRIEFING STATEMENT

## HUMAN PARTICIPANTS DEBRIEFING STATEMENT

### FOOD FOR THOUGHT: THE RELATIONSHIP BETWEEN THOUGHT SUPPRESSION AND WEIGHT CONTROL

#### RESEARCH CONDUCTED BY

RACHEL PETERSON, M.S. AND STACEY TANTLEFF-DUNN, PH.D.

UNIVERSITY OF CENTRAL FLORIDA.

Thank you for your participation in this research project. Participation by individuals like you is critical for research and results to be relevant.

The prevalence of people who are overweight or obese has risen dramatically throughout recent decades, with current estimates ranging as high as 65% (Baskin, Ard, Franklin, & Allison, 2005; Hendley et al., 2004). Virtually two-thirds of the United States population, therefore, is at increased risk for early death due to health related illnesses (e.g., heart disease, stroke, diabetes) and employers face increased costs related to medical problems and absenteeism for employees who are overweight or obese (Finkelstein, Fiebelkorn, & Wang, 2005; Fontaine, Redden, Wang, Westfall, & Allison, 2003). The overall efficacy of weight loss treatments has continued to improve, with people experiencing increased success with initial attempts at weight loss (Ayyad & Anderson, 2000; Glenny, O'Meara, Melville, Sheldon, & Wilson, 1997). Despite the improvements, research continues to demonstrate that many people are unable to maintain weight losses over time (e.g., Carlos Poston, 1999; Glenny et al., 1997; Jeffrey et al., 2000). Reviews of the literature estimated that only 15 to 20% of people treated for obesity were able to maintain losses long-term (Ayyad & Anderson, 2000; Wing & Phelan, 2005). Attempts to lose weight may include attempts to avoid thoughts of food, weight, and appearance. Ironically, attempts to regulate one's thoughts may inadvertently increase unwanted thoughts (Wegner, Schneider, Carter, & White, 1987). Research suggests that attempting to suppress thoughts about food may actually lead to increases in attempts to obtain food (Johnston, Bulik, & Anstiss, 1999). The present study seeks to determine if the utilization of thought suppression as a technique to avoid food/weight related thoughts may negatively impact individuals' attempts to successfully lose weight and maintain the losses.

If you experience discomfort or negative feelings after participating, you may call Dr. Stacey Tantleff Dunn at the University of Central Florida, Dr. Bob Dipboye, Psychology Department Chair at (407) 823-2216, or the organizations listed below. If you wish to learn the outcome of this study, or if you have any questions, please contact one of the people listed below.

Thank you, your participation is very much appreciated.

Dr. Stacey Tantleff Dunn	<a href="mailto:sdunn@mail.ucf.edu">sdunn@mail.ucf.edu</a>	407-823-3578
Rachel Peterson	<a href="mailto:racheldpeterson@yahoo.com">racheldpeterson@yahoo.com</a>	407-823-3872

UCF Counseling Center (for UCF students)	407-823-2811
Community Counseling Clinic (For Community Members)	407-823-2052

APPENDIX O: IRB APPROVAL FORM



Office of Research & Commercialization

December 6, 2006

Rachel D. Petersen  
c/o Stacey Tantleff Dunn, Ph.D.  
University of Central Florida  
Department of Psychology  
PH 305D  
Orlando, FL 32816-1390

Dear Ms. Petersen & Dr. Tantleff Dunn:

With reference to your protocol #06-4026 entitled, "The Relationship Between Thought Suppression and Weight Control," I am enclosing for your records the approved, expedited document of the UCFIRB Form you had submitted to our office. **This study was approved on 12/6/06. The expiration date for this study will be 12/5/2007.** Should there be a need to extend this study, a Continuing Review form must be submitted to the IRB Office for review by the Chairman or full IRB at least one month prior to the expiration date. This is the responsibility of the investigator.

Please be advised that this approval is given for one year. Should there be any addendums or administrative changes to the already approved protocol, they must also be submitted to the Board through use of the Addendum/Modification Request form. Changes should not be initiated until written IRB approval is received. Adverse events should be reported to the IRB as they occur.

Should you have any questions, please do not hesitate to call me at 407-823-2901.

Please accept our best wishes for the success of your endeavors.

Cordially,

A handwritten signature in cursive script that reads 'Joanne Muratori'.

Joanne Muratori  
(FWA00000351 Exp. 5/13/07. IRB00001138)

Copies: IRB File

JM:jt



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