



Food thought suppression: A matched comparison of obese individuals with and without binge eating disorder

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ABSTRACT

Preliminary studies of non-clinical samples suggest that purposely attempting to avoid thoughts of food, referred to as food thought suppression, is related to a number of unwanted eating- and weight-related consequences, particularly in obese individuals. Despite possible implications for the treatment of obesity and eating disorders, little research has examined food thought suppression in obese individuals with binge eating disorder (BED). This study compared food thought suppression in 60 obese patients with BED to an age-, gender-, and body mass index (BMI)-matched group of 59 obese persons who do not binge eat (NBO). In addition, this study examined the associations between food thought suppression and eating disorder psychopathology within the BED and NBO groups and separately by gender. Participants with BED and women endorsed the highest levels of food thought suppression. Food thought suppression was significantly and positively associated with many features of ED psychopathology in NBO women and with eating concerns in men with BED. Among women with BED, higher levels of food thought suppression were associated with higher frequency of binge eating, whereas among men with BED, higher levels of food thought suppression were associated with lower frequency of binge eating. Our findings suggest gender differences in the potential significance of food thought suppression in obese groups with and without co-existing binge eating problems.

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1. Introduction

According to the Ironic Processes Theory, thought suppression may have unwanted consequences such as an immediate increase in thoughts following attempts to suppress those specific thoughts and an increase in target thoughts following suppression (the rebound effect; Wegner, 1994; Wegner & Erber, 1992). Individuals who purposely attempt to avoid unwanted thoughts also may experience an increased priming of the to-be-suppressed thoughts (hyperaccessibility; Wegner & Erber, 1992). Despite the relatively few studies examining the association between thought suppression and eating behaviors, existing research does indicate the outcomes of thought suppression, such as hyperaccessibility and rebound, also result from attempting to suppress food-related thoughts (Dejonckheere, Braet, & Soetens, 2003; Smart & Wegner, 1999).

The emerging literature suggests that the consequences of thought suppression may be influenced by various factors including individuals' weight and dieting status. While thought suppression effectively but briefly decreased food craving intensity for normal weight non-dieters, other strategies (such as dynamic visual noise, i.e., “random

squares changed from black to white or white to black”) were more effective for overweight dieters (Kemps, Tiggemann, & Christianson, 2008 p. 180.). Similarly, instructed thought suppression resulted in the rebound effect in obese dieting adolescents but not in obese non-dieters or in healthy-weight persons regardless of their dieting status (Soetens & Braet, 2006).

The consequences of thought suppression may not be limited to increased thoughts but also altered behaviors. Johnston, Bulik, and Anstiss (1999) asked cravers and non-cravers 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 the nonsuppression control group. Similarly, purposely attempting to suppress thoughts of food also resulted in increased food-related thoughts, regardless of participants' weight, and increased food intake in dieting overweight/obese participants but not for healthy weight dieters (Pop, Miclea, & Hancu, 2004). Conversely, among a group of binge eaters, suppression of negative affect did not lead to increased food intake (Dingemans, Martign, Jansen, & van Furth, 2009). The latter study, however, did not focus specifically on suppressing thoughts of food.

Existing research on thought suppression and eating behaviors relied on the White Bear Suppression Inventory (Wegner & Zanakos, 1994), which measures the general use of thought suppression, and not thoughts specific to eating or food. To address and explore this potential limitation, Barnes, Fisak, and Tantleff-Dunn (2010)

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developed the Food Thought Suppression Inventory (FTSI) and found that the FTSI predicted eating pathology even after accounting for the general use of thought suppression. Also based on the FTSI, overweight/obese individuals were more likely to utilize food thought suppression, with healthy weight, overweight, and obese women endorsing progressively higher levels of food thought suppression (Barnes et al., 2010). The measure recently was validated, and weight differences replicated, with a male sample as well (Barnes & White, 2010). Further, preliminary evidence suggests that food thought suppression predicts (Barnes & Tantleff-Dunn, 2010) and is correlated (Barnes & White, 2010) with binge eating in non-clinical samples.

The association between binge eating episodes and food thought suppression in non-clinical samples (Barnes & Tantleff-Dunn, 2010; Barnes & White, 2010) suggest the importance of examining the significance of food thought suppression in clinical samples of obese persons with co-occurring binge eating disorder (BED). Given well-established differences between obese persons with and without BED on a range of eating and psychological variables (Grilo et al., 2008; Grilo, Masheb, & White, 2010), it seems important to compare the presence and significance of food thought suppression in obese persons with and without BED. This seems further indicated in light of emerging findings from so-called “new wave” behavioral interventions (e.g., acceptance and commitment therapy (ACT) and mindfulness) for binge-eating (Kristeller & Hallett, 1999; Telch, 1997; Wiser & Telch, 1999) and obesity (Forman, Butryn, Hoffman, & Herbert, 2009; Lillis, Hayes, Bunting, & Masuda, 2009). Thus, this study aimed to compare food thought suppression in a matched sample of obese persons with BED (i.e., BED group) and individuals who do not binge eat (i.e., NBO group) and to examine whether food thought suppression is associated with eating disorder psychopathology within the BED and NBO groups and separately by gender. It was hypothesized that the BED group would report greater food thought suppression than the NBO group. Similarly, based on previous research suggesting that women are more likely to endorse general thought suppression, women were hypothesized to report higher levels of food thought suppression than men (Barnes & Tantleff-Dunn, 2010). Lastly, we predicted that food thought suppression would be associated with binge eating frequency and other eating disorder psychopathology.

2. Materials and methods

2.1. Participants

Participants were 60 (21 men and 39 women) obese individuals with BED and 59 (20 men and 39 women) obese individuals who do not binge eat (NBO). Overall, participants had a mean age of 47.7 ($SD = 8.2$) years and a mean body mass index (BMI) of 38.7 ($SD = 6.2$). Ethnicity was as follows: 86.6% Caucasian, 8.4% African-American, 3.4% Hispanic, 0.8% Asian, and 0.8% bi/multi-ethnic. All participants provided written informed consent to the study procedures which were IRB approved for both recruitment protocols.

2.2. Procedures

To compare food thought suppression among obese persons with and without BED, two study groups of obese men and women (BED and NBO), matched for BMI, age, and gender, were obtained. The BED group consisted of a consecutive series of participants who were recruited for a treatment study for obese (BMI of 30 or greater) persons with BED being performed at a medical school research program in an urban setting. The treatment study was an “effectiveness” study with minimal exclusionary criteria intended to enhance generalizability; notable exclusion criteria included current anti-depressant therapy, severe medical problems (heart disease, liver disease), severe psychiatric problems requiring alternative treatments (psychosis, bipolar

disorder, current substance dependence), and uncontrolled hypertension or diabetes. These participants completed self-report questionnaires and were then interviewed by experienced doctoral-level research-clinicians who were trained in all of the study's interviews. BED diagnoses (full research criteria per the *DSM-IV*; American Psychiatric Association, 1994) were determined using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1996).

The NBO group consisted of participants recruited via the internet and at local gyms. At a secure website, they provided informed consent and completed measures about food thought suppression and eating behaviors and psychopathology. The absence of binge eating was determined using the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) described below. The initial NBO sample consisted of 213 women and 99 men. Participants were randomly removed from the overall NBO sample to match them to the BED sample (described above). Independent samples *t*-tests and chi-square analyses were conducted with each random removal, until the two groups (BED and NBO) no longer differed in BMI, age, or gender.

2.3. Measures

Food Thought Suppression Inventory (FTSI; Barnes et al., 2010) is a 15-item self-report measure of the tendency to avoid food-related thoughts. Higher scores indicate higher levels of food thought suppression. The FTSI has a unidimensional factor structure and demonstrated validity. In the present study, the FTSI had good internal consistency in both the BED ($\alpha = .90$) and NBO ($\alpha = .94$) groups.

Eating Disorder Examination Questionnaire (EDE-Q) (Fairburn & Beglin, 1994) is a well-established self-report questionnaire that assesses eating disorder psychopathology with a focus on the previous 28 days. The EDE assesses the frequency of *objective bulimic episodes* (OBEs; i.e., unusually large quantities of food with a subjective sense of loss of control). In addition, the EDE-Q comprises four subscales, Dietary Restraint, Eating Concern, Weight Concern, and Shape Concern, and an overall Global score. The EDE-Q also asks participants to report their height and weight. Participants' body mass index (BMI) was calculated based on this self-report information for both groups. The EDE-Q has received psychometric support, including adequate test-retest reliability (Reas, Grilo, & Masheb, 2006), good convergence with the Eating Disorder Examination interview in studies of patients with BED (Grilo, Masheb, & Wilson, 2001a; Grilo, Masheb, & Wilson, 2001b), and has been found to be a good screening measure in non-clinical community studies (Mondy, Hay, Rodger, Owen, & Beaumont, 2004).

3. Results

Table 1 shows the descriptive values for the two study groups for the primary variables of interest. Based on independent samples *t*-tests and chi-square analyses, the BED group did not differ significantly from the NBO group in terms of age ($t(117) = -0.61$, $p = 0.54$), BMI ($t(113.5) = -1.75$, $p = .08$), or sex ($\chi^2(1) = 0.02$, $p = .90$). Within gender, women with BED did not differ significantly from NBO women in terms of age ($t(76) = -0.57$, $p = 0.57$) or BMI ($t(76) = -1.18$, $p = .24$). Men with BED did not differ significantly from NBO men either in age ($t(39) = -0.30$, $p = 0.77$) or BMI ($t(39) = -1.36$, $p = .18$).

A 2 (sex) by 2 (diagnosis: BED vs. NBO) ANOVA was conducted with the FTSI as the dependent variable (see Table 1). Significant main effects were observed for sex ($F(1,115) = 5.94$, $p = 0.02$, $\eta^2 = .049$, medium) and diagnosis ($F(1,115) = 45.42$, $p < .0005$, $\eta^2 = .283$, large). The sex by diagnosis interaction was not significant ($p = .09$, $\eta^2 = .001$).

Table 2 summarizes correlations between the FTSI and the EDE-Q subscales and global score. The FTSI was more widely correlated with

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