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Efficacy of an acceptance-based behavioral intervention for weight gain prevention in young adult women

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ABSTRACT

Young adult women, particularly those attending college, may be at risk for future weight gain. The current study examined the efficacy of a brief acceptance-based behavioral approach in facilitating weight gain prevention in female college students with a body mass index between 23 and 32 kg/m^2. Fifty-eight participants were randomized to an intervention group who attended 8 group sessions over 16 weeks (n=29), or an assessment-only control group (n=29) and completed assessments at baseline, 6 weeks, post-intervention, and 1 year. Group sessions taught behavioral (e.g., monitor weight, calories, and exercise) and acceptance-based (e.g., distress tolerance, acceptance of cravings) strategies that could be applied for weight loss or weight gain prevention. The intervention resulted in a decrease in weight and body mass index of 1.57 kg and 0.52 kg/m^2 (respectively) at 16 weeks that was maintained at 1 year follow up (M=−2.24 kg, M=−0.74 kg/m^2) whereas the control group gained 1.07 kg and 0.34 kg/m^2 over the year. Results indicate that a brief acceptance-based behavioral intervention may be effective for a group who appears to be at risk for future weight gain and further research is needed to determine mechanisms of change.

1. Introduction

Despite significant recognition and attention to the obesity problem, long-term success with weight loss maintenance continues to be rare (Wing, 2001). Given the significant health consequences (Kopelman, 2000; Rapp et al., 2005), and the limited long-term effectiveness of weight loss treatment, effective methods for obesity prevention are indicated. One group at increased risk for weight gain is young adult women, particularly those with relatively higher body weight and who are attending college (Williamson, Kahn, Remington, & Anda, 1990; Sheehan, DuBrava, DeChello, & Fang, 2003; Mokdad et al., 1999; Nelson, Story, Larson, Neumark-Sztainer, & Lytle, 2008).

Although several studies have been conducted examining weight gain prevention in normal weight college students (e.g., Hivert, Langlose, Berard, Cerrier, & Carpentier, 2007; Levitsky, Garay, Nausbaum, Neighbors, & DellaValle, 2006), only a few have examined interventions for overweight college students or young adults (e.g., Eiben & Lissner, 2006; Gow, Trace, & Mazzeo, 2010). Given that young adult women attending college (both in the normal and overweight ranges) are prone to weight gain over time (Levitsky et al., 2006; Mokdad et al., 1999; Williamson et al., 1990), college offers a unique opportunity to teach broadly applicable healthy weight control skills with an ultimate goal of achieving weight gain prevention.

Given the population of interest, we chose an acceptance-based approach which aims to promote "experiential acceptance" of internal experiences that may occur in pursuit of weight control, including but not limited to cravings, physical discomfort related to physical activity, and feelings of deprivation. This approach may be particularly useful for college-aged women, given that they are amidst a transition to independence, have increased access to high calorie foods, and factors such as sleep deprivation, stress, and emotional eating may contribute to difficulties engaging in healthy behaviors. Acceptance-based approaches improve coping with food cravings (Forman et al., 2007; Hooper, Sandoz, Ashton, Clarke, & McHugh, 2011), increase physical activity (Tapper et al. 2009; Butryn, Forman, Hoffman, Shaw, & Juarascio, 2011), reduce binge eating (Kristeller & Hallett, 1999), produce significant weight loss in adults, particularly those who struggle with emotional eating (Forman, Butryn, Hoffman, & Herbert, 2009; Tapper et al., 2009; Forman et al., in press; Niemeier, Leahey, Palm Reed, Brown & Wing, 2012), and improve weight loss maintenance (Lillis, Hayes, Bunting, & Masuda, 2009), yet little is known about their efficacy in young adult women.

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The current study utilized a randomized controlled trial to examine the efficacy of a brief acceptance-based intervention in facilitating weight gain prevention over 1 year in young adult women with a mean BMI in the overweight range (23–32 kg/m^2). Given the ubiquity of difficulty adhering to healthy eating and exercise behaviors in the college environment, we included wider range of BMIs, in attempt to examine a unique intervention that could be broadly applied. A secondary aim was to examine the effects of the intervention on short-term (i.e., over initial 6 weeks of intervention) and long-term changes (i.e., over 1 year) in weight self-efficacy, physical activity, emotional and uncontrolled eating, and experiential acceptance, and whether changes in these variables mediated changes in weight.

2. Methods

2.1. Participants

Participants were recruited with fliers and mass email to all female students ages 18–30 at a private northeastern university. Advertisements emphasized that participants may learn healthy eating and exercise behaviors and to control their weight and did not mention monetary compensation. Eligibility criteria were: (1) female, (2) undergraduate or graduate student (full- or part-time), (3) self-reported height and weight that indicated a BMI between 23 and 30 kg/m^2, and (4) planning to be in the Philadelphia area for at least 1 year. The BMI cutoff of 23 was based on our aim to be inclusive of women at risk for and concerned about future weight gain, but to avoid enrolling participants for whom weight loss could be unhealthy. Participants were excluded if they reported a current or past eating disorder diagnosis, if they were unable to attend any of the group sessions, or if their measured BMI was greater than 32 kg/m^2. Five participants self-reported their BMI to be lower than 30 but had a measured BMI between 30 and 32 kg/m^2. They were included due to initial concerns about sample size and our goal of being inclusive with regards to weight. All analyses were completed with and without these participants. Results were unchanged and therefore include all participants. The study received approval from the appropriate ethical review board.

2.2. Procedures

A randomized controlled design was used and participants completed assessments at baseline, 6 weeks, post-intervention (16 weeks), and 1 year follow up. Recruitment was conducted in two waves beginning in September 2010 and January 2011, with an equal number of participants in each wave ($n=29$). Participants were randomly assigned to the intervention or control condition. Participants in the control condition were not given any specific instructions besides to return for future assessments. All participants were given $10 for completing the 6-week assessment, $15 for the post-intervention assessment, and $20 for the 1 year assessment. At each assessment, participants completed self-report questionnaires online and an in-person assessment to assess anthropometrics (see below for details). If participants were unable to attend the in-person assessment (e.g., were away from campus during the assessment period) they were invited to complete the online questionnaires for a payment of $5.

Participants in the intervention condition were invited to attend 8 group sessions lasting 75 min each and the group was called Project HEALTH: Healthy Eating and Exercise as Long-Term Habits. Participants were told that the goal was to help them establish healthy eating and exercise behaviors that would promote long-term weight control and that they may choose to focus on weight gain prevention or "healthy weight loss" during the intervention. Healthy weight loss was described as *no more than* 1–2 pounds per week and any rapid or extensive weight loss was strongly discouraged and monitored via the assessments.

Groups were held weekly for the first 4–5 sessions (depending on holiday scheduling), then monthly for the remaining sessions. Group facilitators were graduate students with behavioral weight loss experience. Facilitators attended weekly supervision meetings with licensed psychologists with expertise in acceptance-based treatments and behavioral weight loss (EMF & MLB). All eight sessions included standard behavioral components (e.g., self-monitoring of weight, food intake, and exercise) and acceptance-related components (see Table 1 for details). The emphasis of each session was on behavior change, and acceptance-based concepts, exercises, and metaphors were utilized to facilitate this change.

2.3. Measures

2.3.1. Anthropometrics and demographic

Height and weight were measured at each assessment to calculate BMI; age, ethnicity, and parental income were also assessed.

2.3.2. Physical activity

A modified version of the Physical Activity History (PAH; Jacobs, Hahn, Haskell, Pirie, & Sidney, 1989) questionnaire was used to measure physical activity over the past month. The PAH has shown adequate internal consistency, reliability, and validity in a large epidemiological study of young adults (Jacobs et al., 1989).

2.3.3. Uncontrolled and emotional eating

The emotional eating and uncontrolled eating subscales of the 18-item version of the Three-Factor Eating Questionnaire were used as a self-reported measure of eating behavior. This measure has shown adequate reliability and robust factor structure (Cappelleri et al., 2009).

2.3.4. Weight self-efficacy

The Weight Life-Style Questionnaire (WEL; Clark, Abrams, Niaura, Eaton, & Rossi, 1991) was used to measure weight-related self-efficacy. This measure has demonstrated adequate internal consistency (Clark et al., 1991), and has been shown to increase after behavioral treatment for binge eating disorder (Wolff & Clark, 2001).

2.3.5. Experiential acceptance

The Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011) was used to measure experiential acceptance, that is, the degree to which an individual is willing to have difficult private events (e.g., thoughts, feelings, and physical sensations) while continuing to behave in a way that promotes a valued life. The measure has demonstrated satisfactory structure, internal consistency, reliability and validity (Bond et al., 2011).

2.3.6. Experiential acceptance related to food cravings

The Food Craving Acceptance and Action Questionnaire (FAAQ; Juarascio, Forman, Timko, Butryn, & Goodwin, 2011) was used to measure experiential acceptance specific to acceptance of food-related urges (e.g., cravings). The 10-item scale assesses the extent to which individuals are willing to experience urges, cravings, and desires to eat unhealthily and still engage in healthy eating, and has demonstrated sound psychometrics (Juarascio et al., 2011).