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Effectiveness of lifestyle interventions to reduce binge eating symptoms in African American and Hispanic women

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ABSTRACT

Objective: Lifestyle interventions that promote physical activity and healthy dietary habits may reduce binge eating symptoms and be more feasible and sustainable among ethnic minority women, who are less likely to seek clinical treatment for eating disorders. The purpose of this study was to investigate (1) whether participating in a lifestyle intervention is a feasible way to decrease binge eating symptoms (BES) and (2) whether changes in BES differed by intervention (physical activity vs. dietary habits) and binge eating status at baseline (binger eater vs. non-binge eater) in African American and Hispanic women.
Method: Health Is Power (HIP) was a longitudinal randomized controlled trial to promote physical activity and improve dietary habits. Women ($N = 180$) who completed anthropometric measures and questionnaires assessing fruit and vegetable and dietary fat intake, BES and demographics at baseline and post-intervention six months later were included in the current study.
Results: Over one-fourth (27.8%) of participants were categorized as binge-eaters. Repeated measures ANOVA demonstrated significant two- and three-way interactions. Decreases in BES over time were greater in binge eaters than in non-binge eaters ($F(1,164) = 33.253$, $p < .001$), and women classified as binge eaters who participated in the physical activity intervention reported greater decreases in BES than non-binge eaters in the dietary habits intervention ($F(1,157) = 5.170$, $p = .024$).
Discussion: Findings suggest behavioral interventions to increase physical activity may lead to reductions in BES among ethnic minority women and ultimately reduce the prevalence of binge eating disorder and health disparities in this population.

1. Introduction

Binge Eating Disorder (BED), defined as "recurring episodes of eating significantly more food in a short period of time than most people would eat under similar circumstances, with episodes marked by feelings of lack of control (American Psychiatric Association, 2013)," is the most common eating disorder in the United States, with a lifetime prevalence of 4.5% for any binge-eating behavior compared to only 0.6% and 1.0% for anorexia and bulimia nervosa, respectively (Hudson, Hiripi, Pope, & Kessler, 2007). Prior research has shown that in community samples, the prevalence of BED and sub-threshold BED ranges from 1.4% to 4.5% in African American women (Striegel-Moore, Dohm, et al., 2000; Striegel-Moore et al., 2003), and the lifetime prevalence estimate is 2.3% for Hispanic or Latina women (Alegria et al., 2007). However,

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the true prevalence of binge eating symptoms that precede a BED diagnosis may be much higher in non-treatment seeking samples. BED has been strongly associated with overweight and obesity (Guss, Kissileff, Devlin, Zimmerli, & Walsh, 2002; Hudson et al., 2007), and in samples seeking treatment for overweight and obesity, the prevalence of BED and sub-threshold BED for African American women has been reported to be as high as 33.3% (Mazzeo, Saunders, & Mitchell, 2005). African American and Hispanic women have the highest rates of obesity of any racial/ethnic group or sex, with 56.6% of non-Hispanic black women and 44.4% of Hispanic women categorized as obese (Ogden, Carroll, Kit, & Flegal, 2013), which may, in part, result in a higher prevalence of BED and sub-threshold BED (Hudson et al., 2007; Masheb, Grilo, & Rolls, 2011).

Effective treatments for BED and sub-threshold BED are poorly understood in African American and Hispanic women. Ethnic minority women are less likely than other groups to seek treatment for eating disorders, including BED and sub-threshold BED (Cachelin, Rebeck, Veisel, & Striegel-Moore, 2001; Cachelin & Striegel-Moore, 2006) and are more likely to drop out of psychosocial treatment programs (Thompson-Brenner et al., 2013). This suggests that traditional BED treatments, including pharmacotherapy and psychotherapy, may be less acceptable or accessible for African American and Hispanic women (Bulik, Brownley, & Shapiro, 2007). Treatment strategies that focus on prevention via promoting healthy lifestyles may be more feasible and sustainable for these populations and less intimidating than traditional psychosocial treatment programs for eating disorders (Thompson-Brenner et al., 2013).

Research to date suggests the potential effectiveness of lifestyle interventions, including those to improve dietary habits, increase physical activity, and promote weight loss, as a means to reducing BED and sub-threshold BED (Larose et al., 2014; Levine, Marcus, & Moulton, 1996; Vancampfort et al., 2013). Reeves et al. found a nutrition counseling intervention showed reductions in calories and dietary fat consumption, increases in carbohydrate and protein consumption, and reductions in binge days (Reeves et al., 2001). Another study combined dietary counseling to reduce energy density and promote weight loss with a traditional cognitive-behavioral therapy intervention and found it to enhance the positive effects of traditional strategies (Masheb et al., 2011). Although the literature suggests an association among healthy weight control practices, such as physical activity, and disordered eating behaviors (Hayes & Napolitano, 2012; Kelly-Weeder, Jennings, & Wolfe, 2012; Neumark-Sztainer, Eisenberg, Wall, & Loth, 2011), fewer studies have explored physical activity or exercise to prevent and reduce disordered eating (Danielsen, Sundgot-Borgen, Maehlum, & Svendsen, 2014; Levine et al., 1996). Furthermore, there has been limited research on the effects of exercise or dietary habit interventions on disordered eating in nonclinical and predominantly African American and Hispanic samples, further suggesting the need for lifestyle interventions that focus on prevention of BED and sub-threshold BED in ethnic minority women.

The Health Is Power (HIP; NIH 1R01CA109403) project was a randomized controlled trial designed to increase physical activity and improve dietary habits in African American and Hispanic women (Lee, Mama, et al., 2011; Lee, Medina, et al., 2011; Lee et al., 2012). Previous work by the HIP research team suggests that binge eating symptoms may be more prevalent (over 30%) in this sample than previously reported in community samples (Alegria et al., 2007; Striegel-Moore, Dohm, et al., 2000; Striegel-Moore et al., 2003; Striegel-Moore, Wilfley, Pike, Dohm, & Fairburn, 2000; Wilson et al., 2012), presenting an ideal opportunity to explore whether a lifestyle intervention is effective for reducing binge eating symptoms, and ultimately BED, in ethnic minority women. The purposes of this study were (1) to investigate whether binge eating symptoms (BES) decreased as a result of participating in a lifestyle intervention and (2) to explore whether changes in BES differed by intervention group (physical activity versus dietary habits) and binge eating status (binger eater versus non-binge eater) in African American and Hispanic women. We hypothesized that overall decreases in BES as a result of participating in a lifestyle intervention would be minimal. However, we hypothesized that women in the dietary habits group would experience greater decreases in binge eating symptoms compared to women in the physical activity group and that women who reported being binge eaters would experience greater decreases in BES than non-binge eating controls above and beyond changes in dietary habits.

2. Material and methods

2.1. Study design

This longitudinal study relied on baseline (T1) and post-intervention (T2) assessment data from the HIP study, which took place from June 2006 to July 2008. Eligible African American and Hispanic women were randomized to a physical activity group or a dietary habits intervention group and attended six intervention sessions in their groups over 24 weeks. Although assessed during the HIP study, binge eating and BES were not explicitly discussed or addressed as part of the intervention. Details on the HIP study have been published previously and are briefly described below (Lee, Mama, et al., 2011; Lee, Medina, et al., 2011; Lee et al., 2012). All procedures were approved by the University of Houston's Committee for the Protection of Human Subjects, and all participants provided written informed consent prior to participation.

2.2. Participants and procedures

African American and Hispanic women in Houston and Austin, Texas were recruited via print and electronic fliers and in-person at community events to participate in the study beginning in 2006. Women between 25 and 60 years old who were physically inactive were invited to attend the T1 assessment and completed computer-based questionnaires and a physical health assessment. Women (311 in Houston and 99 in Austin) enrolled in the study and completed a T1 assessment at the Texas Obesity Research Center at the University of Houston. Of those enrolled in Houston, 84.6% identified as African American and 15.4% identified as Hispanic; all participants in Austin identified as Hispanic. Upon completion of the baseline assessment, women completed a two week run-in period during which they completed additional questionnaires of interest. The purpose of the run-in period was to provide time for women to drop out of the study prior to randomization in an effort to enhance participant retention once randomized. Women ($N = 310$) attended a randomization session approximately two weeks after their baseline assessment, where they were randomized by a member of the research team to a physical activity or dietary habits intervention group using a weighted, computer generated randomization procedure to produce an adequately powered sample to detect changes in the physical activity group. Participants in both groups attended six group cohesion intervention sessions over six months and worked toward a shared physical activity or vegetable and fruit consumption goal. Intervention sessions initially occurred biweekly and then monthly, were 60 min in length, and were led by two trained health educators (Lee, Medina, et al., 2011). Intervention session topics included goal setting, the benefits of being physically active or consuming more vegetables and fruit, self-efficacy, social support, and relapse prevention. Intervention content and procedures have been described