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Exploring gender differences in the link between weight suppression and eating pathology

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ABSTRACT

Weight suppression (WS), the difference in one's highest weight (excluding pregnancy) and current weight at current height, is associated with the onset of eating disorders. Previous research has explored the influence of WS in predominantly clinical, female samples. However, the transition to college is a particularly high-risk time for weight gain and the development of eating pathology and men with eating disorders often have higher premorbid weights. This study investigated the associations of WS and dimensions of eating pathology in an undergraduate sample (N = 859) and examined the effect of gender. Results demonstrated that higher levels of WS were associated with more dietary restraint (p = 0.004) and more frequent purging behaviors (p < 0.001); WS was indirectly related to loss-of-control eating through dietary restraint for both men and women (p < 0.001). Additionally, men with higher WS were more likely to engage in extreme weight control behaviors, such as vomiting and laxative abuse (p = 0.036). Findings suggest that weight history might be especially important to assess in men at risk for disordered eating. This approach might be particularly beneficial with college students due to their heightened risk of eating and weight disturbances.

1. Introduction

1.1. Weight suppression

Weight suppression (WS) is defined as the difference between a person's highest adult weight and current weight at current height, excluding pregnancy (Lowe, 1993). Research demonstrates that weight history is a valuable clinical consideration as WS is associated with the onset and maintenance of eating disorders (EDs) and has negative implications for treatment, including higher rates of dropout and increased ED symptoms (e.g., Bodell, Racine, & Wildes, 2016; Butryn, Lowe, Safer, & Agras, 2006; Keel & Heatherton, 2010; Wildes & Marcus, 2012). Most research has focused on the role of WS in bulimia nervosa (BN). In a recent study, drive for thinness mediated the relation between baseline WS and bulimic symptoms 20 years later (Bodell, Brown, & Keel, 2017). Individuals with a history of heavier weights might be positively reinforced for weight loss and develop a preoccupation with thinness that could motivate dietary restraint (Bodell et al., 2017). Dietary restraint accompanied by an overvaluation of one's shape or weight is linked to greater binge-eating (Hagan, Forbush, & Chen, 2016; Lowe, Thomas, Safer, & Butryn, 2007; Tuschl, 1990). Binge eating is often followed by compensatory behaviors to maintain weight loss (Stice, Durant, Burger, & Schoeller, 2011). Moreover, sustained weight loss of 10% or more of one's body weight can result in decreased resting energy expenditure, heightening susceptibility to future weight gain, perpetuating the cycle of restraint, binge eating, and body dissatisfaction (Rosenbaum, Hirsch, Gallagher, & Leibel, 2008; Stice et al., 2011). Indeed, research supports WS as an important indicator of clinical impairment in BN (Hagan, Clark, & Forbush, 2017).

Not surprisingly, WS is negatively associated with BN treatment outcomes. In one study, women with BN who terminated treatment prematurely had greater WS than completers (Butryn et al., 2006). Further, treatment completers who continued binge eating or purging post-treatment had significantly higher WS than participants in remission. Similarly, in a longitudinal study with a non-clinical sample of men and women, higher WS predicted BN symptoms at 10-year follow-up (Keel & Heatherton, 2010).

Research examining the role of WS in the treatment and maintenance of AN has yielded similar results. Greater WS at admission in a (primarily female) sample of patients with AN predicted both more rapid weight gain and BN symptoms at discharge (Wildes & Marcus, 2012). Similarly, in a clinical sample of women with AN, the interaction between WS and BMI predicted increases in eating disorder severity

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over time (Bodell et al., 2016). These results support the hypothesis that individuals with high WS are more likely to experience chronic ED symptomatology.

Prior research on WS has used primarily clinical samples. However, as WS is predictive of weight gain and ED symptom severity (i.e., Bodell et al., 2016; Lowe, Doshi, Katterman, & Feig, 2013), it seems especially important to examine this construct in undergraduate populations, as the risk for weight gain and disordered eating increase during the transition to college (Delinsky & Wilson, 2008; Girz et al., 2013). EDs are prevalent in university settings; yet, most affected individuals do not seek treatment. For example, in one study of undergraduates, 13.5% of women and 3.6% of men endorsed threshold levels of ED symptomatology on a screening measure (Eisenberg, Nicklett, Roeder, & Kirz, 2011). However, of those with positive screens, only 20% received any mental health treatment in the past year. These results support the need to study WS and associated ED symptomatology in nonclinical samples of undergraduates, as the transition to college is a risk period for both weight gain and disordered eating.

1.2. Gender and eating behavior

Research consistently suggests that EDs overwhelmingly affect women (Smink, van Hoeken, & Hoek, 2012). Thus, most studies on this topic have included predominantly, or exclusively, female samples. Understanding of eating pathology in men is limited; consequently, men are often underdiagnosed and undertreated (Strother, Lemberg, Stanford, & Turberville, 2012). Although healthcare providers are encouraged to recognize the early signs of EDs, they often lack adequate knowledge of how these behaviors might manifest in men (Jones & Morgan, 2010). Consequently, men might not recognize their own behaviors as disordered (Räisänen & Hunt, 2014). Considering that early identification and treatment are robust predictors of long-term recovery (Le Grange & Loeb, 2007), it is vital that research is directed towards identifying men earlier in their illness and understanding their specific experiences.

WS might be particularly salient for men, as literature suggests that men with EDs have significantly higher premorbid weights and are more likely to have a history of obesity (Muise, Stein, & Arbess, 2003; Welch, Ghaderi, & Swenne, 2015). Indeed, premorbid overweight is a major risk factor for restrictive EDs in men (Carlat, Camargo, & Herzog, 1997). Though men often present for ED treatment at higher weights, this does not preclude medical complications. For example, in one sample of men with restrictive EDs, participants had lost an average of 22% of their premorbid weight and their lab results showed signs of clinical malnutrition (Vo, Lau, & Rubinstein, 2016). Because it is more common for men to present for ED treatment at higher weights and to have a history of overweight, WS might be an important variable in identifying men at risk for eating pathology.

1.3. Purpose

The primary aims of this study were to explore the influence of WS on three dimensions of disordered eating symptomatology: loss-of-control (LOC) eating, purging behaviors (including self-induced vomiting, laxative, and diuretic misuse), and dietary restraint. To date, only one known study considered the relation of WS and eating pathology in men (Schaumberg et al., 2016). However, in that study, data from men and women were analyzed separately. Thus, we sought to expand that work by examining the potential moderating effect of gender. Research has identified associations among WS, restraint, and purging behaviors (Berner, Shaw, Witt, & Lowe, 2013; Keel & Heatherton, 2010; Lowe et al., 2007; Wildes & Marcus, 2012). However, there is little evidence that WS exerts a strong influence on LOC eating in the absence of restraint and purging behaviors (Van Son, van der Meer, & Van Furth, 2013). Thus, we expected significant main effects of WS on both frequency of purging behaviors and dietary restraint, but not LOC eating. Because weight history appears particularly salient for men with restrictive EDs (Carlat et al., 1997; Vo et al., 2016), we hypothesized that the relation between WS and dietary restraint would be stronger for men than women. However, because few prior studies of WS's relation to purging behaviors or LOC eating have included men, no a priori hypotheses were made about the role of gender in the associations of WS to purging behaviors or LOC eating. This study is novel in its exploration of gender as a moderator in the association between WS and eating pathology. Though men comprise a minority of diagnosed ED cases, there is reason to believe actual rates are higher (Strother et al., 2012). Thus, improved methods of identifying EDs in men are needed. If WS emerges as relevant to eating pathology in men, its assessment could facilitate the identification of EDs in this vulnerable group.

2. Method

2.1. Participants

Participants (N = 859) were undergraduates; they received course credit for their participation. Twenty students did not provide complete weight history data; thus, their WS could not be calculated. Ten students indicated their highest adult weight was lower than their current weight, which resulted in a negative WS value. As WS was calculated as the difference in highest weight and current weight at one's current height (excluding pregnancy), the lowest possible WS value was zero. Finally, one student's WS value was 22 SDs above the mean. The responses of these 31 individuals were excluded from analyses. Complete height and weight data were available for 828 participants.

The final sample was 71.7% (n = 593) female and 28.3% (n = 234) male, and included the following ethnic/racial groups: 51.3% White (n = 425), 22.9% Black (n = 190), 7.0% Latinx (n = 58), 18.7% Asian (n = 155) and 5.6% “Other” (n = 46). Students were instructed to choose all races that applied. Mean age was 19.57 (SD = 3.39). Mean BMI was 24.18 with a range from 15.81 to 50.11. According to BMI classifications, 4.6% (n = 38) were underweight, 62.7% (n = 519) were normal weight, 21.5% (n = 178) were overweight and 11.2% (n = 93) were classified as obese.

2.2. Procedure

Participants were recruited through a university sponsored online research participation system as part of a survey on weight-related attitudes and behaviors. Informed consent was completed prior to accessing the measures through REDCap (Research Electronic Data Capture; Harris et al., 2009).

2.3. Measures

2.3.1. Demographics

Participants reported their age, gender, race/ethnicity, and year in school.

2.3.2. Body mass index (BMI)

Body Mass Index (BMI; kg/m^2) was calculated from self-reported current height and current weight.

2.3.3. Weight suppression

Weight suppression was calculated as the difference between self-reported highest adult weight at current height (excluding pregnancy) and current weight in pounds, consistent with prior research (e.g., Lowe et al., 2007).

2.3.4. Eating Disorder Examination-Questionnaire with Instruction (EDE-Q-I)

The Eating Disorder Questionnaire with Instruction