



Weight-related correlates of psychological dysregulation in adolescent and young adult (AYA) females with severe obesity



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ABSTRACT

Objective: Severe obesity is the fastest growing pediatric subgroup of excess weight levels. Psychological dysregulation (i.e., impairments in regulating cognitive, emotional, and/or behavioral processes) has been associated with obesity and poorer weight loss outcomes. The present study explored associations of dysregulation with weight-related variables among adolescent and young adult (AYA) females with severe obesity.

Methods: Fifty-four AYA females with severe obesity ($M_{BMI} = 48.71 \text{ kg/m}^2$; $M_{age} = 18.29$, $R = 15\text{--}21$ years; 59.3% White) completed self-report measures of psychological dysregulation and weight-related constructs including meal patterns, problematic eating behaviors, and body and weight dissatisfaction, as non-surgical comparison participants in a multi-site study of adolescent bariatric surgery outcomes. Pearson and bivariate correlations were conducted and stratified by age group to analyze associations between dysregulation subscales (affective, behavioral, cognitive) and weight-related variables.

Results: Breakfast was the most frequently skipped meal (consumed 3–4 times/week). Eating out was common (4–5 times/week) and mostly occurred at fast-food restaurants. Evening hyperphagia (61.11%) and eating in the absence of hunger (37.04%) were commonly endorsed, while unplanned eating (29.63%), a sense of loss of control over eating (22.22%), eating beyond satiety (22.22%), night eating (12.96%), and binge eating (11.11%) were less common. Almost half of the sample endorsed extreme weight dissatisfaction. Dysregulation was associated with most weight-related attitudes and behaviors of interest in young adults but select patterns emerged for adolescents.

Conclusions: Higher levels of psychological dysregulation are associated with greater BMI, problematic eating patterns and behaviors, and body dissatisfaction in AYA females with severe obesity. These findings have implications for developing novel intervention strategies for severe obesity in AYAs that may have a multidimensional impact on functioning (e.g., psychosocial health, weight loss behaviors).

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Psychological dysregulation (i.e., impairments in the ability to regulate or manage processes of cognition, emotion, and/or behavior) is a factor receiving increased attention in relation to obesity due to its association with eating behaviors (Spinella & Lyke, 2004) and treatment success (Nederkoorn, Jansen, Mulken, & Jansen, 2007). Higher weight status and overweight/obesity in youth are also associated with various executive functioning

impairments in attention, working memory, and mental flexibility (Faith & Hittner, 2010; Lokken, Boeka, Austin, Gunstad, & Harmon, 2009; Riggs, Huh, Chou, Spruijt-Metz, & Pentz, 2012), as well as difficulties with emotional regulation and emotional eating (Goossens, Braet, Van Vlierberghe, & Mels, 2009). Emerging evidence suggests that toddlers' self-regulation skills, including emotional and behavioral regulation, are predictive of obesity and body image concerns in preadolescence (Graziano, Kelleher, Calkins, Keane, & Brien, 2013). Furthermore, behavioral and emotional dysregulation in youth who are overweight and obese have been linked to poorer treatment outcomes (i.e., less weight

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loss) (Nederkoorn et al., 2007; Wildes et al., 2010).

As dysregulation has been linked to disordered eating (Spinella & Lyke, 2004), and eating disorders tend to emerge during adolescence and young adulthood (Hoek & Van Hoeken, 2003), the identification of maladaptive eating cognitions and behaviors are vital in these contexts, particularly as females with obesity are at increased risk for disordered eating (Neumark-Sztainer & Hannan, 2000; Presnell, Bearman, & Stice, 2004). While it has been demonstrated that impairments exist across cognition, behavior, and emotion in youth who are obese, adolescents and young adults (AYAs) with severe obesity have been less studied, yet remain a high risk group in serious need for immediate and novel intervention. Moreover, adolescence and young adulthood is a period of development for neurobiological mechanisms with particular relevance to dysregulation, as response inhibition increases so do reward and risk processing (Bjork, Smith, Danube, & Hommer, 2007; Luna, Garver, Urban, Lazar, & Sweeney, 2004). As such, manifestations of dysregulation may differ as a function of age and specific individual or environmental risk/protective factors (Galvan, Hare, Voss, Glover, & Casey, 2007). Despite the important processes that occur throughout adolescence and emerging adulthood (i.e., development of self-identity and long-term health behavior patterns, increased independence, evolution of social influence and social support systems), research on modifiable weight-related factors and interventions in AYAs are limited (Nelson, Story, Larson, Neumark-Sztainer, & Lytle, 2008).

Severe obesity is a rapidly growing pediatric subgroup of excess weight status that now affects 7% of adolescent females (Skinner & Skelton, 2014) and puts them at even greater psychological risk (e.g., greater depression and anxiety; poorer quality of life) than youth who are overweight and obese (Phillips et al., 2012). Preliminary evidence suggests adolescents with severe obesity may have similar aberrant eating profiles to youth who are overweight and obese. The literature on eating behaviors in AYAs with severe obesity is limited, although initial evidence has begun to emerge regarding targeted eating behaviors (i.e., binge eating, a sense of loss of control; LOC) that may be relevant to weight loss surgery outcomes in AYAs with severe obesity. While these initial reports suggest that youth with severe obesity presenting for weight loss surgery may present similarly as children and adolescents who are overweight and obese in terms of prevalence rates (Kim et al., 2008; Zeller et al., 2015) and psychosocial correlates (Sysko et al., 2012; Sysko, Zakarin, Devlin, Bush, & Walsh, 2011), there have been few studies to our knowledge that comprehensively characterize the eating behaviors and patterns among AYAs with severe obesity.

In addition, pertinent factors such as psychotropic medication use will be important to take into account when considering this group's weight-related profile due to their heightened psychosocial risk and the appetite- and weight-altering effects of these medications (Davis et al., 2012; Sussman & Ginsberg, 1999). Furthermore, the majority of adolescents with severe obesity do not present for weight loss surgery (Wabitsch et al., 2013), yet will continue into adulthood with obesity or severe obesity (Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007). Recent evidence indicates that similarly problematic eating behaviors (BED = 15%; LOC = 43%) are present in adults with severe obesity prior to undergoing bariatric surgery (Mitchell et al., 2014). Thus, earlier identification of these maladaptive eating behaviors and potential correlates such as dysregulation is essential for optimal intervention.

The current study utilizes data from a sample of AYA females with severe obesity to extend the literature by (1) comprehensively describing the eating behaviors and patterns of the current sample, and (2) determining the weight-related correlates of psychological dysregulation across domains of affective, behavioral, and cognitive

dysregulation and stratified by age group (adolescents 15–17 and young adults 18–21 years of age) after controlling for relevant identified covariates. We propose that AYA females with severe obesity who have greater psychological dysregulation will have higher BMIs, greater body and weight dissatisfaction, more engagement in disordered and unhealthy eating behaviors, and less engagement in self-monitoring of weight-related behavior. These findings could have important clinical implications for an understudied group, as psychological dysregulation may be a novel target for intervention that could have a multidimensional impact on severe obesity in AYAs.

1. Methods

1.1. Participants

Participants included a comparison group of AYA females ($N = 54$) at a 24-month follow-up visit in a larger series of studies (TeenView/TeenView2) designed to document the psychosocial health trajectories of adolescents with severe obesity who have undergone weight loss surgery (WLS) as compared to those who did not, over the same course of time. TeenView/TeenView2 are separately funded ancillary/supplemental studies to Teen-LABS, a prospective longitudinal observational cohort study executed across five academic medical centers in the U.S. documenting safety, efficacy, and QOL outcomes of adolescent WLS. The non-operative comparison group for the TeenView series was identified at baseline via research registries of eligible youth within non-surgical lifestyle change programs at Teen-LABS sites whose families were willing to be contacted for study enrollment should their child become a demographic match (i.e., gender, race, ± 6 months in age) to a TeenView WLS participant. Study inclusionary criteria included body mass index (BMI) ≥ 40 kg/m², age 13–18 years at baseline, one consenting caregiver, English-speaking, and not in special education classes. Eighty-six potential comparisons emerged as demographic matches, with 83 severely obese comparison adolescents (96.5% recruitment rate) agreeing to participate at baseline. Seventy comparisons continued participation in TeenView/TeenView2 at the 24 month assessment (84.3% retention), with the primary reasons for non-participation being participant refusal ($n = 7$) or inability of the research staff to locate the participant ($n = 6$). For the purposes of the current study, males ($n = 14$) and individuals who did not complete the Dysregulation Inventory ($n = 2$) were excluded, resulting in a final sample of 54 females.

1.2. Study procedures

Data were collected via laptop computer/web-based program and paper and pencil methods. Participants independently completed eating behavior and psychological measures, and were compensated for their time and contribution. Study protocols were approved by the Institutional Review Board at each institution.

1.3. Measures

1.3.1. Demographic data

Age, gender, race, educational status, and caregiver education were collected via self-report questionnaire.

1.3.2. Body Mass Index

Heights and weights were measured by trained research staff using a standardized protocol for the majority of participants. Weight was obtained using a body composition analyzer (Tanita Scale Model TBF310). Height was measured using a wall-stabilized

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