

# Disordered Eating Behaviors in Emerging Adults With Type 1 Diabetes: A Common Problem for Both Men and Women

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## ABSTRACT

**Introduction:** Emerging adults (EA) with disordered eating behaviors (DEBs) and Type 1 diabetes (T1D) are at increased risk for severe complications of T1D, and these behaviors have been reported in EA women with T1D. Few studies, though, have included men. This study assessed the prevalence of DEB in both EA men and women with T1D.

**Methods:** DEB was measured with the diabetes-specific Diabetes Eating Problem Survey–Revised (DEPS-R); scores of 20 or greater indicate need for further evaluation for DEB.

**Results:** A total of 27 women and 33 men (age range =  $21 \pm 2.5$  years) completed the DEPS-R; 27% of women and 18% of men had scores of 20 or greater ( $p = .23$ ). Hemoglobin A1c level was significantly higher in subjects with elevated DEPS-R scores ( $10.4 \pm 2.1\%$  vs.  $7.8 \pm 1.3\%$ ;  $p < .001$ ), and DEPS-R scores correlated with increased body mass index values ( $r = 0.27$ ,  $p < .05$ ).

**Discussion:** Clinicians should assess for DEB in both male and female emerging adults with T1D, especially overweight

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## KEY WORDS

Disordered eating behaviors, metabolic control, Type 1 diabetes, young adults

## INTRODUCTION

In addition to the challenges of managing their chronic condition, many adolescents and young women with Type 1 diabetes (T1D) struggle with disordered eating behaviors (DEBs; Baechle et al., 2014; Goebel-Fabbri, 2013; Peveler et al., 2005). The term *disordered eating behaviors* encompasses many different pathologic eating behaviors. Clinical eating disorders, as specified in the *Diagnostic and Statistical Manual of Mental Disorders* (i.e., anorexia nervosa, bulimia nervosa, etc.; American Psychiatric Association, 2013) are composed of a specific constellation of DEBs that need to be present to meet the criteria for a diagnosis of an eating disorder. However, an individual may exhibit DEBs such as excessive dieting and/or exercise for weight control, binge eating, and purging behaviors, yet not meet the specific diagnostic criteria for a clinical eating disorder. Thus, individuals with DEB do not have the severity or frequency of these abnormal eating behaviors as would be found with a clinical eating disorder, yet they are at increased risk for developing an eating disorder.

Individuals with T1D also may have a unique DEB—that is, purging calories through omitting insulin, which has been referred to as diabulimia (Davidson, 2014). Omitting insulin causes increased glucosuria, which can limit weight gain but also causes poor metabolic control, increasing the risk of long-term microvascular complications of T1D (Diabetes Control and Complications Trial Research Group, 1993). Previous studies have shown that young women with T1D are twice as likely as their nondiabetic peers to develop an eating disorder (Jones, Lawson, Daneman, Olmsted, & Rodin, 2000) and that the prevalence of DEBs is as high as 31% to 40% in adolescents and women ages 15 through 30 years with T1D (Goebel-Fabbri, 2013).

This high prevalence of DEBs in young women with T1D is especially alarming because of the increased risks associated with the co-diagnosis of T1D and DEB. These risks include microvascular complications of diabetes (Bryden, Dunger, Mayou, Peveler, & Neil, 2003; Goebel-Fabbri et al., 2008; Peveler et al., 2005; Takii et al., 2008) and a 3-fold increased risk of mortality, after controlling for baseline age, body mass index (BMI), and hemoglobin A1c (HbA1c; Goebel-Fabbri et al., 2008). In their prospective study of 87 adolescents and adults (age range = 11–25 years at baseline) with T1D, Peveler et al. (2005) reported that 26% of their sample had clinical

eating disorders or evidence of bingeing or purging, with 35% of their sample reporting omitting insulin for weight control. An increase in microvascular complications was observed among their participants with DEB, and the incidence of severe complications was associated with the presence of a probable eating disorder and insulin misuse (Peveler et al., 2005).

Because DEB places the emerging adult at increased risk for poor metabolic control (Goebel-Fabbri, 2013), he or she will likely have greater health care costs (McBrien et al., 2013; Menzin et al., 2010). Additionally, poor metabolic control not only increases the risk that someone with diabetes will require hospitalization, but the actual hospitalization costs are higher if a patient has an elevated HbA1c level (Menzin et al., 2010). Furthermore, data from the Type 1 Diabetes Exchange Network, a registry of over 25,000 children and adults with T1D, have suggested that both youth and adults with T1D are at increased risk for diabetic ketoacidosis if they are in poorer metabolic control (Cengiz et al., 2013; Weinstock et al., 2013). Thus, because of the many risks associated with DEB and T1D, it is essential for health care providers to be aware that omission of insulin, as well as other manifestations of DEB, are common among young women with T1D to enable initiation of interventions as early as possible.

It is also noteworthy that very few studies of the prevalence of DEB in T1D have included male adolescents and men, which may relate to the very low rates of clinical eating disorders previously reported in males in the general population (Neumark-Sztainer & Eisenberg, 2014). Although one recent study reported a prevalence of DEB of 11.7% in males with T1D (Baechle et al., 2014), that study used a standard, rather than a diabetes-specific instrument, to measure DEB. Standard DEB questionnaires are less appropriate for patients with T1D (Young et al., 2013) for two main reasons. On one hand, standard measurements may overestimate the prevalence of DEB, because appropriate attention to food intake for the management of T1D might be misinterpreted as disordered eating (Markowitz et al., 2010). On the other hand, standard questions may underestimate the prevalence of DEB because they will miss patients with diabulimia who are intentionally omitting insulin as a means of losing weight (Goebel-Fabbri, 2013). More recently, Wilson, Smith, Coker, Hobbis, and Acerini (2015) also examined DEBs in 20 male and 30 female adolescents ages 14 through 16 years and found that only 10% of the young men ( $n = 2$ ) reported DEB. However, they measured

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