

# Adolescents with Diet-Related Chronic Health Conditions (DRCHCs) and Unique Risk for Development of Eating Pathology

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## Abstract

Diet-Related Chronic Health Conditions (DRCHCs) are a subset of chronic health illnesses, which presently includes Inflammatory Bowel Disease (IBD), Type 1 Diabetes (T1D), Cystic Fibrosis (CF), and Celiac Disease (CD). Food and diet play integral roles in the management and progression of each condition. The diversity of treatments for DRCHCs encompass therapies that impact diet, weight, and body shape, such as steroids, insulin, and special and/or restrictive diets. Often with efforts to control unwanted side effects of the myriad of treatments, there is poor adherence to prescribed therapies. Given the psychosocial burden of DRCHCs, and the high degree of focus on weight and diet involved in managing each disorder, it is not surprising that those living with DRCHCs may be at risk for developing body image concerns, including poor body image and weight concerns, which may increase the risk for the development of eating pathology. In addition to summarizing current eating pathology risk factors present in DRCHCs, the proposed article builds on previous research by recommending an expansion of the category of DRCHCs to include Type II Diabetes and serious/anaphylactic food allergies, and hypothesizes DRCHC-specific eating pathology risk factors, such as hyper focus on weight, medically-related food restriction, and societal acceptance of thinness despite health issues. The article concludes with clinical recommendations for pediatric medical providers to potentially minimize the negative impact of DRCHC on pediatric patients' medical and psychosocial outcomes.

**Keywords:** Chronic illness, Disordered eating, Pediatrics

## Introduction

DRCHC	Definition	Prevalence
Cystic Fibrosis (CF)	Mucus builds up in a person's lungs and digestive tract, which blocks the pancreatic enzymes in the intestines, causing poor digestion and absorption of nutrients [5]	CF affects about 15,000 people under the age of 18 [71]
Type 1 Diabetes (T1D)	Metabolic disorder caused by the destruction of beta-cells, which produce and release insulin to properly metabolize carbohydrates, fats, and proteins [4]	In 2009, T1D affected 1.93 per 1000 children and adolescents [72]
Inflammatory Bowel Disease (IBD)	Umbrella term for Crohn's Disease and ulcerative colitis, which are chronic, autoimmune disorders that affect the GI system and causes inflammation, disrupting the absorption of nutrients [3]	10%-15% of those with IBD are diagnosed before of the age of 18 [33]
Celiac Disease (CD)	Autoimmune condition where an individual has difficulty digesting gluten, and if the individual does, it can cause pain and inflammation in the GI system [6]	Approximately 1 in 100 children is living with CD, while many cases may remain undiagnosed [45-47]

**Table 1:** Descriptions of DRCHCs and their respective prevalence rates.

Long-term psychosocial issues often present alongside DRCHCs. For instance, individuals with T1D often experience mood difficulties and anxiety associated with their disorder, which may result in non-adherence [12,13]. GI symptoms have been positively correlated with distress, which has been associated with decreased health-related quality of life among those with IBD [14]. Factors that may cause further distress among children and adolescents with IBD include explaining school absences to teachers and peers, a decreased ability to participate in activities (i.e., sports), and frequent trips to the bathroom [15]. Anxiety and depression are prevalent among those with CF [16]. Those with CF also often have less social support than their healthy peers, and are often unable to receive in-person social support from other children with CF, due to the health risks that would be incurred [16].

Given the psychosocial burden of DRCHCs, and the high degree of focus on weight and diet involved in managing each disorder, it is not surprising that those living with DRCHCs may be at risk for developing body image concerns, including poor body image and weight concerns, which may increase the risk for the development of an eating disorder [17]. Rohde et al. [18] conducted a longitudinal study of healthy children and adolescents aimed at assessing predictors of the onset of an eating disorder diagnosis. Findings indicated that body dissatisfaction was a predictor at ages 13, 14, 15, and 16 [18]. Negative affectivity was predictive at ages 14 and 15, while perceived pressure to be thin, thin-ideal internalization, and dieting were predictive at age 14 [18]. Similar risk factors appear among those with DRCHCs including variations in body mass index [19], thin ideal internalization [19], body dissatisfaction [19,20], negative affectivity [12] and dieting, although each risk factor may be expressed differently depending upon the specific DRCHC. Each DRCHC may also be associated with unique risk factors. Exploration of these risk factors and the impact they may have on children and adolescents with DRCHCs is crucial, as development of weight concerns and eating disorder symptomatology may negatively affect adherence to prescribed medical regimens and have long-term health consequences. Thus, the primary aim of this review is to describe the current state of the literature and to suggest future directions. More specifically, this paper aims to review eating disorder risk factors present within CF, T1D, IBD, and CD. Clinical implications and future directions are also discussed.

## Eating Pathology Risk Factors

Risk factors for eating pathology are described in Table 2.

### DRCHCs

#### Cystic

Over 70,000 children in the world are diagnosed with CF [9]. There are approximately 1,000 new cases of CF each year [9]. While there have been few studies examining CF and eating disorders, Pearson and colleagues [21], found that 16.4% of their participants, which was comprised of children and adolescents, had been diagnosed with an eating disorder. Similarly, Byron et al. [22] found that 13% of their participants, which was comprised of children and adolescents, had been diagnosed with an eating disorder.

<b>ED Risk Factor</b>	<b>Description</b>	<b>Citations</b>
Body Mass (e.g., BMI)	An index created by calculating weight in kilograms divided by height in meters squared. An elevated BMI is a risk factor for body dissatisfaction while a low BMI is a risk factor for an eating pathology.	[73]
Thin Ideal Internalization	"Extent to which an individual cognitively "buys into" socially defined ideal of attractiveness and tries to achieve this ideal;" the acceptance of this thin ideal is a risk factor for developing eating pathology.	

when compared to age-matched controls [27]. Additionally, subthreshold eating disorders were more prevalent among those with T1D when compared to controls [27].

#### **ED risk factors associated with T1D**

Disturbed eating behaviors (DEBs), which include binge eating and compensatory behaviors (i.e., self-induced vomiting, laxative abuse) are of en



the illness a DRCHC. The risk factors for Type II Diabetes are summarized in Table 4.

DRCHC	ED Risk Factor	Relevance	Citations
Type II Diabetes	Body Mass (e.g., BMI)	Individuals with Type II Diabetes often have higher BMIs than their healthy weight peers, thus, weight loss is often recommended; one study estimated that 81% of individuals with Type II Diabetes are overweight or obese	[4,81]
	Thin Ideal Internalization	Little research in this area, although overweight/obese individuals have been found to have high rates of thin ideal internalization	[80,87]
	Body Dissatisfaction	Little research in this area, while a study with overweight/obese individuals have been found to have high rates of body dissatisfaction	[80,87]
	Dieting	One study of adolescent females with Type II Diabetes found over one quarter reported binge eating behaviors, with binge eating and bulimia nervosa recognized as a notable issue in this population; exercise and healthy eating is highly encouraged in this population to reduce disease burden; individuals with Type II Diabetes have been found to skip treatment doses (e.g., insulin) as a means of weight control, as well as using laxatives, diet pills, or refusing to eat	[57,88]
	Negative Affect	For adolescent females who reported binge eating behaviors, there were significant correlations to psychological distress and lower quality of life	[57]

**Table 4** Summary of DRCHC-specific eating pathology risk factors for proposed expansion of the diagnostic category.

### Serious and/or Anaphylactic Food Allergies

a pediatric patient with a DRCHC faces routine questioning, examination, and discussion surrounding food and weight with caregivers, nurses, doctors, and additional providers. While these







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