Eating disorders are debilitating and challenging medical conditions (Ackard et al., 2007) that have a very high mortality rates (Hay et al., 2008; Stice et al., 2009). Youth who report eating disturbances are at increased risk for low self-esteem, substance use, depression and suicidal ideation/attempts (Ackard et al., 2011), functional impairment and emotional distress (Stice et al., 2009), and the development of an eating disorder (Cruz-Saez et al., 2015). Unfortunately, adolescents and young adults with type 1 diabetes are at increased risk of eating disturbances and the development of eating disorders (Hanlan et al., 2013; Jones et al., 2000; Troncone et al., 2014; Young et al., 2013). One study reports that teenage girls with type 1 diabetes had more than twice the rate of disordered eating behaviors than those without type 1 diabetes (Jones et al., 2000). Adding to the danger and complexity is that when it comes to dieting, the esthetic outcomes of weight loss and thinness are more strongly valued than health improvements (Calder and Mussap, 2015). When unhealthy weight-control or weight-loss behaviors progress into an eating disorder, individuals with type 1 diabetes experience poorer metabolic control, increased diabetes-related complications and, if they omit insulin, increased risk of mortality compared to their peers with type 1 diabetes without an eating disorder.

**Abstract**
Through focus groups, we examined the development and maintenance of an eating disorder in 16 females with type 1 diabetes and an eating disorder. The quotes and qualitative data summaries provide rich insights into understanding why those with type 1 diabetes are at increased risk for eating disorders. Content analyses revealed five themes pertinent to the dual diagnosis (feeling different, difficulty with control/coping, body image, feelings, and quality of life) of which four themes were relevant to eating disorder development. Findings support early identification of those at risk and inform interventions to mitigate development of an eating disorder.

**Keywords**
behavioral medicine, clinical health psychology, diabetes, eating disorders, qualitative methods, risk

**Margaret A Powers, Sara A Richter, Diann M Ackard and Catherine Cronemeyer**

Eating disorders are debilitating and challenging medical conditions (Ackard et al., 2007) that have a very high mortality rates (Hay et al., 2008; Stice et al., 2009). Youth who report eating disturbances are at increased risk for low self-esteem, substance use, depression and suicidal ideation/attempts (Ackard et al., 2011), functional impairment and emotional distress (Stice et al., 2009), and the development of an eating disorder (Cruz-Saez et al., 2015). Unfortunately, adolescents and young adults with type 1 diabetes are at increased risk of eating disturbances and the development of eating disorders (Hanlan et al., 2013; Jones et al., 2000; Troncone et al., 2014; Young et al., 2013). One study reports that teenage girls with type 1 diabetes had more than twice the rate of disordered eating behaviors than those without type 1 diabetes (Jones et al., 2000). Adding to the danger and complexity is that when it comes to dieting, the esthetic outcomes of weight loss and thinness are more strongly valued than health improvements (Calder and Mussap, 2015). When unhealthy weight-control or weight-loss behaviors progress into an eating disorder, individuals with type 1 diabetes experience poorer metabolic control, increased diabetes-related complications and, if they omit insulin, increased risk of mortality compared to their peers with type 1 diabetes without an eating disorder.
disorder (Colton et al., 2013; Goebel-Fabbri et al., 2008; Neumark-Sztainer et al., 2002; Takii et al., 2008; Tse et al., 2012; Wisting et al., 2013; Young et al., 2013). Thus, it is important to identify individuals at risk of developing an eating disorder before symptomatic behaviors emerge.

Many individuals with type 1 diabetes visit endocrinology or specialty clinics several times each year. These clinic appointments provide opportunities to screen for an eating disorder. However, assessing an individual’s actual risk of an eating disorder can be quite challenging as their eating disturbances may be camouflaged by diabetes management. For example, an individual’s perfectionism and attention to detail related to diabetes care, such as carbohydrate counting and glucose (sugar) monitoring, may receive praise by the diabetes care team while their poor body image, negative quality of life or poor coping skills go unnoticed. As another example, an individual who chronically presents with elevated blood glucose levels may claim not to understand their insulin regimen but instead they may be purposely omitting insulin. No one to our knowledge has interviewed people with type 1 diabetes and an eating disorder to understand the psychological challenges of balancing the two conditions on a daily basis and to identify early eating disorder risk factors.

This study aimed to fill a problematic gap in the literature by increasing our understanding of the development and maintenance of an eating disorder among those with type 1 diabetes. To accomplish this aim, qualitative analyses of focus groups comprised of individuals with both type 1 diabetes and an eating disorder were conducted to identify early eating disorder risk factors.

Data collection

The focus groups were designed to collect information on factors related to living with an eating disorder, with particular emphasis on identification of early signs of an eating disorder that may be unique to the population of individuals with type 1 diabetes. The main interview topics were things that make you feel different from other people in your life (due to having type 1 diabetes, an eating disorder, and...
both); triggers for the eating disorder and early signs of an eating disorder that others did and did not notice. The groups lasted from 60 to 90 minutes and active discussions were allowed to occur naturally.

**Analyses**

Qualitative analyses of the sessions were conducted using an inductive thematic approach (Braun and Clarke, 2006). This approach is a recursive process searching across a data set to find repeated patterns of meaning. The process starts broadly with reading and re-reading of transcripts and extensive discussion among team members followed by coding interesting features of the data in a systematic fashion, collating codes into potential themes and subthemes, creating thematic maps, and rechecking the data set. In our analyses, themes were

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**Table 1.** Demographic and clinical characteristics of focus group participants.

<table>
<thead>
<tr>
<th>Characteristics of focus group participants</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15–17</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>≥18</td>
<td>14</td>
<td>87.5</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>15</td>
<td>93.8</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>6.2</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single/never married</td>
<td>12</td>
<td>75.0</td>
</tr>
<tr>
<td>Married</td>
<td>3</td>
<td>18.8</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>6.2</td>
</tr>
<tr>
<td>Type 1 diabetes was diagnosed before EDa</td>
<td>15</td>
<td>93.8</td>
</tr>
<tr>
<td>Type of ED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anorexia nervosa—total</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bulimia nervosa—total (insulin withholding as one ED symptom)</td>
<td>6 (4)</td>
<td>37.5</td>
</tr>
<tr>
<td>ED not otherwise specified—total (insulin withholding as one ED symptom)</td>
<td>10 (6)</td>
<td>62.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>28.6 (11.2)</td>
<td>23.4</td>
</tr>
<tr>
<td>BMI (n = 14)</td>
<td>23.4 (4.0)</td>
<td>23.6</td>
</tr>
<tr>
<td>Age (years) at type 1 diabetes diagnosis</td>
<td>14.4 (9.1)</td>
<td>11.7</td>
</tr>
<tr>
<td>Number of years of diagnosed diabetes</td>
<td>14.2 (9.0)</td>
<td>12.3</td>
</tr>
<tr>
<td>HbA1c (%) nearest the time of focus groupb</td>
<td>8.8 (2.0)</td>
<td>8.3</td>
</tr>
<tr>
<td>Age (years) when first noticed eating problems/onset of ED (self-report)</td>
<td>14.8 (2.9)</td>
<td>15.0</td>
</tr>
<tr>
<td>Age (years) at ED diagnosis</td>
<td>21.9 (8.6)</td>
<td>19.1</td>
</tr>
<tr>
<td>Number of years diagnosed with DMT1 before being diagnosed with an ED (excludes the one participant diagnosed with ED before DMT1a)</td>
<td>9.2 (7.1)</td>
<td>8.5</td>
</tr>
</tbody>
</table>

SD: standard deviation; BMI: body mass index; ED: eating disorder.
aOne participant was diagnosed with an eating disorder 16.5 years before being diagnosed with type 1 diabetes.
bHbA1c levels were available within 6 months of the focus group dates for 13 (81.2%) participants; only 2 participants (2/13 = 15.4%) had HbA1c ≤ 7.0 percent (53 mmol/mol).
identified and then reviewed in relation to the entire data set to ensure accurate representation. Once themes and sub-themes were finalized, two members of the research team (DA, SR) again reviewed all transcripts, independently identified and counted comments that reflected each theme and then met to discuss their findings. Initial agreement between raters (cases in which both raters identified that a participant did or did not provide comments on one of the principal themes) indicated good inter-rater reliability with percent agreement ranging from 62.5 to 100.0 percent. Discrepancies were discussed further to obtain full agreement.

Results

Five principal themes related to the development and maintenance of an eating disorder were identified through the analysis. The themes and the percentage of participants providing comments to support each theme are as follows: feeling different (100%), difficulty with control and coping (88%), body image (81%), feelings (69%), and quality of life (44%). Each principal theme had two to three sub-themes that provided additional description and context. Early risk factors and triggers related to the start of an eating disorder are denoted below with a T (for trigger) and are listed in more detail in Table 2.

Theme 1: feeling different

The Feeling Different theme included two sub-themes: (1) viewing the diabetes and/or eating disorder as a barrier to “fitting in” or being “normal” and (2) how the diabetes and/or eating disorder causes a separation (real or perceived) between the participant and their friends/family or goals. Participants described how each condition made them feel different from others in their lives and talked about the difficulties of having both conditions.

Barriers to “Fitting In” or being “Normal.” Initially, participants described the challenges of living with diabetes and making daily decisions to manage blood glucose levels. Food was a central topic as it could limit spontaneity and make it difficult to be social:

You have to pay attention when you’re going to eat and have your day more planned out than a normal person would. Others can just grab something and stuff it down, but we have to actually think about it.

Several participants reported missing out on activities with friends, like going to the gym or out to dinner, while trying to manage blood glucose levels or having to make special accommodations to participate:

We have to have all our [diabetes] stuff with us. If you go out to the bar at night everybody else has their teeny little clutch and I have my back pack.

When I first got it [diabetes] in seventh grade you kind of feel different because everyone else is going to lunch and you have to go to the nurse’s office and take that extra 15 minutes.

At times, these daily demands of diabetes and subsequent accommodations were overwhelming to participants. Some participants identified these times as a trigger for their eating disorder:

I didn’t want to have to worry about the insulin. I just wanted to be like everybody else again. (T)

Generally, participants felt different from others in their life more often because of diabetes than the eating disorder, mostly because they did not tell others in their life they were struggling with an eating disorder. Many participants also felt that others in their lives had misconceptions about diabetes and often had to provide education related to the types of diabetes and treatment regimens:

Other people will feel bad if they put sugar in something and I have to explain, “It’s OK, I can still eat it. Don’t feel bad.”
Table 2. Focus group participant comments supporting the four themes related to triggers and signs of early eating disorder risk.

<table>
<thead>
<tr>
<th>Principal theme</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Feeling different             | • There’s always an overlay of “How does this impact my blood sugar? How do I manage what I’m doing with my blood sugars?”  
• I wasn’t acting like a normal kid. I didn’t have any friends. I didn’t go out and do stuff with friends, or very minimally.  
• I distanced myself. I wouldn’t go out to eat with people. I’d make plans and then cancel at the last second. I just couldn’t go through with it and after you’ve done that for a long time, you really distance yourself from a lot of people and you anger a lot of people.  
• In school and with friends at work, anywhere you encounter somebody finding out that you are diabetic, unless they are diabetic, will say the absolute stupidest things to you. And if you’re in the mindset to let that bother you, then it really eats you up inside and you become very different. |
| Difficulty with control and coping | • It was like a competition with myself. I thought, “Well, I’ll beat myself today. I did better today than I did yesterday.”  
• It’s not that I have this huge need to be skinny or have this huge need for anything else. For me, a lot of it has been [my eating disorder] was something I could control. It was my comfort. It was my safety.  
• I just remember being at the kitchen table by myself eating dinner all the time and then everybody else would eat at a different time, so that was just my way of controlling the situation was becoming bulimic.  
• It started off where I was perfect with my diabetes and I think that’s what set everything off. I just got really tired of doing it and once I get my mindset on something, I take it to the nth degree, which is what led to the coma.  
• There’s the two things and you are constantly battling one against the other. You can make your diabetes great, but it doesn’t make your eating disorder great. I got my diabetes in absolutely perfect control and I hate the word “perfect,” but as far as the endocrinologists were concerned that’s exactly what it needed to look like on paper and yet my weight dropped.  
• It was such a foreign concept to them and so they always looked at my bitchiness, bad behavior and tiredness as just being non-compliant with diabetes. They felt I was being rebellious over having diabetes.  
• I think because I’m a perfectionist and wanted this really great HbA1c, and I had a good one, that when I started having really high blood sugars I got really upset about it, and then the eating disorder in my head said, “YES.” There’s a war in my head that just throws me for a loop, like whose side am I on? |
| Body image                    | • I think it was body image. I was 13 when it started and I was bigger than most of the girls in my grade I guess and that to me was when it really started.  
• I remember comparing myself to my best friends, comparing myself to other girls in my grade, comparing myself to high schoolers when I was in fifth grade thinking, “How do they end up so skinny?”  
• I always picked out the bad things about myself. I’d also compare myself to other people. I knew that probably wasn’t normal. With every person I saw I would do that all the time.  
• I had a friend who was diabetic and she was diagnosed before me, but she never had an eating disorder, and we were very close. I always thought about body, I always thought a lot about my diabetes whereas she had a much more casual approach to it.  
• That age is the worst age to get it, because that’s when you’re developing. So the body image thing just went to hell, and especially going to school with girls who got A’s and after school went and played sports and went to the gym to work out every day and had these perfect physiques. |

(Continued)
Participants discussed the ways they felt diabetes impacted their life on a more global scale. Some participants had initial impressions of limitations “imposed” on them simply because of having a diabetes diagnosis:

When I was diagnosed [with diabetes] I felt that automatically meant I would never be normal ... that I wasn’t as capable as everyone else or worthy even maybe of going to a really good college.

Other participants noted actual limitations related to blood sugar levels:

If my blood sugar gets too low I can’t study ... I can’t concentrate. It just puts me back even further.

Other comments related to the differences between diabetes and an eating disorder. Participants described frustrations with the competing treatment regimens and the lack of understanding from fellow eating disorder patients without diabetes:

When I was in eating disorder treatment I’d actually have to leave the room to test [blood glucose level] before meals. [Other patients] would be like “why are you leaving?” They don’t have to leave; they don’t have to take insulin.

Theme 2: difficulty with control and coping

The Difficulty with Control and Coping theme was comprised of three sub-themes: (1) perception of loss of control, (2) efforts to gain control, and (3) inappropriate/unhealthy means of coping. Often, participant comments touched on losses and gains of control at the same time.

Loss of control and efforts to gain control. The participants felt that the eating disorder was an aspect of their life that they could control whereas diabetes just happened to them and was out of their control. They described situations out of their control including co-occurring family turmoil, difficulties with peers and other medical conditions. Participants described the eating disorder as a means of regaining control and coping with life stressors:

You just feel that [the eating disorder is] one thing you can control in your life. You can’t control that you have diabetes, you can’t control other aspects of your life, so that’s something you kind of control—like how much food you eat or what you do about that. (T)
Unhealthy means of coping. While some participants described the eating disorder as a means of gaining control and coping with life stressors, other participants described their desire to be “perfect” with their diabetes care and how that focus on perfectionism was a trigger for their eating disorder:

I’m a really big perfectionist and I know diabetes is all about numbers like weight, sugar numbers, A1c numbers. I figure if I can’t have perfect numbers in my diabetes then why even bother to try to make it work when I can focus on my weight and get the “perfect” weight I want? (T)

The participants also described the high level of complexity that diabetes adds to living with and treating an eating disorder. A number of participants stated that they could more easily manage their eating disorder if they did not have diabetes and also added that one has to be “smart” to have both conditions. Some participants even used misconceptions about diabetes care to hide the eating disorder symptoms:

It’s amazing how smart we are to manipulate things. I don’t think that the average doctor would really understand how well we truthfully hide things and manipulate things.

Theme 3: body image

The Body Image theme included two subthemes: (1) body shape, size, or weight and (2) a more global focus on overall physical appearance. Participants identified instances of internal (i.e. self-imposed) and external (i.e. imposed by others) pressures related to body image as triggers of the eating disorder. Often the internal pressure was related to participants comparing themselves to others in their lives while external pressure was most often related to family members commenting on body image.

Body shape, size, or weight. Almost all of the participants had experiences and strong comments related to body shape, size, or weight. Some participants vividly described past experiences comparing their body image to others’ and their own expectations for their shape, size, or weight:

If I did eat lunch or if I’d eat a lot like the night before, I’d be really worried the next day that people would notice that I’d gained weight. It would be on my mind all day.

Participants also described comments made to them from family, friends, and others regarding their weight. They described the positive attention they received when they lost weight prior to being diagnosed with diabetes (note: weight loss typically occurs with undiagnosed type 1 diabetes) and negative attention when they re-gained weight due to diabetes treatment and achieving control of glucose levels. Additionally, comments were made with weight gain related to treatment of the eating disorder. Such comments were powerful to the participants at that time in their lives:

My coaches put me on a pedestal when I was losing weight [due to the eating disorder]. After I was hospitalized for my eating disorder and gained weight they said “You cannot come back looking like that … I will not have a fat girl on my team.”

Overall physical appearance. In addition to specific comments about weight and shape, participants identified internal and external pressures to look a certain way or present themselves in a certain manner. As with the weight and shape pressures, these pressures came from participants comparing themselves to others and from expectations from family and friends:

The trigger was the obsession at school with being perfect and being the “whole package.” (T)

Theme 4: feelings

The Feelings theme included two sub-themes: (1) feelings, mood, and emotional states overall in life and (2) those feelings related to diabetes and/or eating disorders.
Feelings, mood, and emotional state overall. Participants expressed a high level of stress in their lives and described sudden mood swings, persistent depression, and low self-esteem. Many of these comments reflect similar mood changes and feelings as those reported in the literature from patients who struggle with an eating disorder without diabetes:

[My spouse] noticed the emotional components - the depression, the shame, the irritability, my fluctuating moods and stuff.

Feelings related to diabetes and/or eating disorders. In addition to overall mood changes, participants described heightened awareness when others made comments related to their eating behaviors or diabetes and their emotional reactions to those comments:

I would become very defensive about a lot of things, including my weight, food, the fact that I exercised—things like that.

I was so ashamed and so embarrassed of it that I hated when people mentioned the word “diabetes.”

Participants also had strong feelings about having an eating disorder and often stated that they felt obsessed with it and judged because of it. Several related the eating disorder to an addiction and planning their day around the eating disorder behaviors:

My daily focus was on when can I binge, when can I get my next binge, when can I throw up?


Participants also discussed their mood changes and impaired thinking when their blood glucose levels were elevated, although they did not necessarily recognize it at the time. They recognized that this influenced their behaviors, thinking patterns, and abilities to function on a daily basis:

I had high blood sugars for 10 years. I couldn’t tell you the last time I had a reasonable thought from beginning to end, and finally the blood sugars came down and things were different.

Theme 5: quality of life

The Quality of Life theme contained three subthemes, each a facet of quality of life: (1) physical quality of life, (2) emotional quality of life, and (3) functional (job, school, etc.) aspects of day-to-day living. Most of the comments were related to the negative impact the eating disorder had on their life. None of the participants identified quality of life as a trigger for their eating disorder.

Physical aspects. Some participants reported a number of physical consequences related to the eating disorder such as hair loss and amenorrhea. They also recognized that the eating disorder resulted in high blood glucose levels which caused a variety of complications ranging from frequent urination, excessive thirst, and even longer term complications of diabetes such as neuropathy and retinopathy. They reported these symptoms as an accepted part of the eating disorder:

When someone has got high blood sugar, you go to the bathroom all the time, you’re drinking all the time, your hair is falling out, your skin is dry … all that stuff.

Emotional aspects. In addition to physical limitations, participants described the emotional toll of the eating disorder, often from trying to hide their eating disorder symptoms and from the worsening of the eating disorder:

You used to be worthwhile because you were skinny and now you’re fat, you’re worth nothing, you’re not good for anything.

Functional aspects. For some participants, the demands of the eating disorder started to overwhelm daily living leading to disruptions in school and work, loss of friends, and cessation of social activities:

My behavior was out of control. I lost jobs, I lost friends, my life was very chaotic because of the eating disorder.
Discussion

The aim of this research was to better understand what it is like for individuals with type 1 diabetes to develop and maintain an eating disorder and, in particular, identify signs of early risk. Focus group methodology provided a rich venue for study participants to share their experiences. The research identified five principal themes—feeling different, difficulty with control and coping, body image, feelings, and quality of life. While many of these themes reflect typical adolescent demands, navigating these issues under the additional stress of a chronic disease yields a high-risk period of time; caution is warranted to help adolescents with type 1 diabetes master these demands without developing disordered eating or an eating disorder.

Our focus group participants identified that four of the five principal themes were relevant to eating disorder development: feeling different, difficulty with control and coping, body image, and feelings. Given that past research has found only a short window of time between the diagnosis of type 1 diabetes and the onset of disordered eating symptoms, early detection and intervention is vital to protecting the physical and mental health of youth with type 1 diabetes (Powers et al., 2012).

Clinical implications and early signs of an eating disorder

Some of the comments related to the five principal themes could have been stated by many people with type 1 diabetes, even those without an eating disorder, especially those relating to diabetes management (i.e. the burden of carrying diabetes supplies, checking blood glucose levels, aiming for “good” numbers, having convenient access to appropriate foods, carefully monitoring food intake, and managing weight). Health care professionals frequently hear such comments and offer suggestions to manage these concerns. However, what may be missed is the link they have to an eating disorder.

The results of this study show the significant relationship between these two conditions. The language used to instruct about and discuss diabetes care practices focuses on numbers (e.g. blood glucose levels, grams of carbohydrate eaten, units of insulin needed, body weight, amount of activity, and timing of insulin and meals), perfectionism of decision-making, being in control (glucose control) and goal attainment. Although this language is often considered positive in a diabetes-related discussion, it could also influence disordered eating and mask the identification of eating disorder risk factors in someone with type 1 diabetes. Because of this, we encourage health care professionals to (a) be alert to subtle comments from patients or their family/caregiver that may reflect incongruencies related to the five principal themes from this study, (b) take time to inquire about these topics in a non-judgmental manner, (c) avoid terminology and questions that reflect expectations for thinness and perfectionism, and (d) create a tone and atmosphere in the health care setting that focuses on overall well-being and includes unconditional acceptance of the client’s current state of health. In fact, even slight “criticism” about body weight can have a dramatic effect on the degree of disordered eating in those without diabetes (Santoncini et al., 2013). In those youth with diabetes, the burden of a chronic condition can further impair their already delicate self-esteem (Luyckx et al., 2014).

Adolescents and young adults with type 1 diabetes are typically seen three to four times a year by a specialized diabetes care team. Thus, the clinical team has several opportunities per year to assess for early signs of an eating disorder and to intervene in an attempt to prevent eating disturbance development. Future research should consider developing a brief screening tool that would allow clinical teams to assess eating disorder risk among type 1 diabetes patients, but do so in a manner that would not suggest either the need to lose weight nor unhealthy practices to manage weight such as omitting insulin. In one study of adolescents, 13 percent of boys and girls in grades 5–12 said that they would be too embarrassed, afraid, or uncomfortable to talk about eating problems with their health
care provider, and yet 44 percent of boys and 66 percent of girls indicated that their provider should discuss the topic of eating disorders with them (Ackard and Neumark-Sztainer, 2001). Concerned adults need to sensitively initiate the topic of eating and weight concerns with all youth, and particularly those at risk of developing an eating disorder.

Some participants shared examples of unhelpful comments that other people made regarding weight, such as “It will be really interesting to see if you gain weight’ when I started insulin” or “Wow, they really put some weight on you—this is not how you should be. You do realize you need to get some of that weight off.” We encourage families, health care professionals, and other concerned persons to understand that some seemingly benign comments, or even comments intended to be helpful, could create confusion and distress regarding body weight and drive unhealthy weight management practices.

Participants also expressed worry that people in their life did not inquire further regarding their obsessions with food or other symptoms that should be of more obvious concern. We believe it is important to allow ample time for thorough and empathetic discussion of topics that can be complicated by having a chronic illness, such as nutritional intake, weight changes, body image, and typical adolescent milestones. Careful inquiry on these delicate issues can provide welcome opportunities for discussion, and brief screening assessments may be one means to broach these sensitive topics.

**Strengths and limitations**

This focus group evaluation of individuals with both type 1 diabetes and an eating disorder is valuable in that it is the first of its kind to investigate non-symptomatic factors influencing the development of eating disturbances in this at-risk population and provides depth to the significant burden that is felt by those with type 1 diabetes. The focus group participants provided valuable insights as to the development of their eating disorder symptoms in the context of managing the daily demands of living with diabetes. However, this study is limited in that persons with type 1 diabetes without an eating disorder were excluded. While it is assumed that they would have similar introductions to diabetes and its treatment, their inclusion in future research could help to differentiate between typical demands of type 1 diabetes and those that are unique to persons who develop an eating disorder.

**Conclusion**

Our focus group research identified five principal themes related to having an eating disorder and type 1 diabetes. Four of these themes related to early risk of developing an eating disorder in people with type 1 diabetes: feeling different, difficulty with control and coping, body image, and feelings. The early identification of risk factors towards the development of an eating disorder is a responsibility of concerned persons and health care professionals. Because persons with type 1 diabetes are at increased risk of developing an eating disorder, health care professionals who frequently engage with adolescents with type 1 diabetes have a unique opportunity to identify early factors contributing to and signs of eating disturbances. Additionally, those providers who are part of an eating disorder team can glean insights into the eating disorder from these focus groups, including factors that maintain eating disorder symptoms.

**Acknowledgements**

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