Food and eating behaviors among adolescents with type 1 diabetes and their parents

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OBJECTIVE
- Adolescence is a particularly sensitive time for weight discussions, with eating disorder (ED) risk increasing during this stage of development (1).
- Adolescents with type 1 diabetes (T1D) are at an increased risk of eating problems, with young women with T1D having approx. 2 times the risk of eating disorders compared to peers (2).
- T1D may contribute to higher risk of ED and disordered eating behavior (DEB) due to:
  - Intense focus on food choices and eating behavior (3).
  - Consistent insulin use may contribute to weight gain.
  - Rapid weight control possible with insulin manipulation and omission (4).
- Higher BMI in females with T1D than peers (5).
- An understanding of attitudes and thought processes around food and eating could help ED and DEB prevention efforts.
- This study sought to better understand eating behaviors and attitudes among adolescents with T1D and their parents.

METHODS
- As part of a larger qualitative study on diabetes health-related quality of life, 82 people with T1D, their parents and partners were interviewed.
- Semi-structured interviews addressed many domains of quality of life including: social issues, mood, food & eating.
- Interviews were recorded and transcribed verbatim.
- Three psychologists and three research staff reviewed transcripts to develop thematic codes, which were applied using Nvivo software.
- 25% of the transcripts were double coded.
- This particular analysis focused on 8 adolescents (12-17 yo) and their 8 parents.
- A more detailed coding scheme was developed by the lead author, reviewed by staff and a diabetes psychologist, and applied to excerpts originally coded as “Food and Eating” using the same process as above.
- 25% of the recorded transcripts were double coded.

PARTICIPANT CHARACTERISTICS

<table>
<thead>
<tr>
<th>Adolescents (n=8)</th>
<th>% (n)</th>
<th>M ± SD</th>
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</thead>
<tbody>
<tr>
<td>Adolescent gender, % female</td>
<td>37.5 (3)</td>
<td></td>
</tr>
<tr>
<td>Parent gender, % female</td>
<td>75.0 (6)</td>
<td></td>
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<tr>
<td>Ethnicity, Hispanic</td>
<td>50.0 (4)</td>
<td></td>
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<tr>
<td>Insurance, Public</td>
<td>75.0 (6)</td>
<td></td>
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<tr>
<td>Adolescent age at interview, years</td>
<td>14.4 ± 1.6</td>
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<tr>
<td>Duration of diabetes, years</td>
<td>4.2 ± 2.8</td>
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<tr>
<td>Most recent A1c, percent</td>
<td>9.3 ± 2.1</td>
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RESULTS

**Strategic eating**

**Using routines and planning timing of food to try to maintain blood glucose levels in range**

“Sometimes if I'm low I have to stop what I’m doing and just kind of take a little break or whatever and just eat something and I eat at a certain time.” - 17 yo male

“Well, … this weekend my friend wants me to go to the movies with her. But I don’t know because like I gotta do so much stuff with this … it kind of gets in the way sometimes…It’s just like you have to eat, make sure you eat on time.” - 13 yo female

**Restriction**

**Refraining from eating certain foods to try and prevent blood glucose excursions**

“...some foods I avoid and like, if it’s ice cream and it’s my blood glucose high I just won’t eat it.” - 12 yo male

“… And then it’s later at night and I can’t eat because I gotta watch—my blood sugar might spike up or go low and I don’t want that to happen while I’m sleeping.” - 13 yo male

**Feeling different**

**Feeling different than peers or family when eating**

“I mean I see everybody else eating them. But you know, like, oh my god can I eat those? Like not without injecting.” - 15 yo female

“...if I knew my blood sugar was high but I still wanted candy they’d be like, [NAME] no. You know better, don’t do it. And I’d be like, okay and then I would just eat a salad that day for lunch and drink water or eat fruit or something.” - 15 yo female

**Family food limits**

**Family promoting healthy eating, restricting “junk food”, and/or controlling food intake**

“We were planning to go on diets anyway… I don’t buy a lot of the food like I used to. I still grocery shop but it’s more nutrition food, what he can have and what he can’t have.” - mother of 14 yo male

“It doesn’t matter how I… put the food up or whatever, he’ll go back and I always know by when we check that sugar. And I say, okay, you know the consequences.” - mother of 14 yo male

**Family fairness**

**Altering the food for entire family to match needs of adolescent with T1D**

“We always talk about how we have to understand like, he is the one who got condition but we have to think like I’m the one, too… We always have to think like I have diabetes to do it fair.” - mother of 12 yo male

**Emotions about food/eating**

**Parents’ emotional responses to food, eating, and T1D**

“You know everyone stays on her. Did you do this? Did you do that? And, I think she hates it because it’s like we’re nagging.” - mother 13 yo female

“The hardest thing is when, she’s… If we’re out and about we’ll eat a late night snack, go for ice cream or something and she have already had her snack sometime she, you know, we don’t want to eat, we don’t feel comfortable eating….” - mother of 13 yo female

**CONCLUSIONS**

- Parents and adolescents describe both adaptive and maladaptive feelings, attitudes and strategies related to food and eating to manage T1D.
- Some encourage positive behaviors:
  - Adolescents describe using planning techniques to make sure they are getting food and insulin doses on time.
  - Parents describe encouraging healthy eating and family togetherness to help adolescent with T1D feel comfortable.
- Some have potential for a negative effect on food and eating:
  - Adolescents describe potentially restricting certain foods.
  - Parents describe desire to restrict and control adolescents’ food intake, and describe going on “diets”.
- Negative attitudes and emotions toward food and eating could set the stage for DEB, and possibly ED, into adulthood.
- Clinicians, dieticians, diabetes educators and mental health providers have opportunity to shape conversation around food and eating in T1D population.
- As food and eating behaviors are further understood in T1D, unhelpful attitudes and actions from adolescent or parent can be identified and addressed clinically.
- One possible strategy to reduce risk for DEB/ED may be to balance blood glucose and A1c goals with goals supporting healthy eating attitudes and behaviors.

REFERENCES