Development of Benefit-Finding in Adolescents with Type 1 Diabetes

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Adolescent Type 1 Diabetes Management

- Stressful challenges of type 1 diabetes management
  - Coordinate multiple daily behaviors to maintain blood glucose levels in a relatively normal range

- Adolescence is a time of risk, but many adolescents manage their illness fairly well

- Resilience and positive adaptation in type 1 diabetes (e.g., Hilliard et al., 2012; Tran et al., 2011)
Benefit Finding as a Resource

• Benefit Finding
  ○ Perception of benefits in the face of adversity

• Adolescents report benefits of diabetes (Helgeson et al., 2009)

• Diabetes-related benefit finding
  ○ Associated with better adherence (Helgeson et al., 2009; Tran et al., 2011)
  ○ Buffered associations between negative emotional reactions to diabetes and glycemic control (Tran et al., 2011)
Development of Benefit Finding across Adolescence

- Aspects of adolescent development may influence benefit finding
  - Emergence of abstract and future-oriented thought
  - Identity development
  - Independence in diabetes management
  - Development of secondary coping skills

- Does benefit finding systematically increase or decrease across adolescence?
Objectives of Present Study

- Longitudinal trajectories of benefit finding across adolescence
  - Individual differences in trajectory patterns

- Associations with subsequent diabetes management

- Predictors of these trajectories
  - Illness variables
  - Adolescent variables
  - Family relationship variables
ADAPT
Adolescents with Diabetes and Parents Together
NIDDK RO1 DK063044

TIME 1:
M (sd) Age = 12.5 (1.5) yrs old
M (sd) time since dx = 4.7 (3.0) years
54.4% Female
51.2% on insulin pump
92.8% Caucasian
Benefit Finding and Outcome Measures

- **Benefit Finding** (Tomich & Helgeson, 2004)
  - Adolescent report assessed every 6 months (Times 1 - 4)
  - Having diabetes has: taught me to be more accepting of things; brought my family closer together; helped me realize who my real friends are; taught me to be more patient.
  - (1 = not at all, 5 = extremely)

- **Self Care Inventory** (Lewin et al., 2009)
  - Adolescent and parent report assessed at Time 6
  - How often do you (does your child) follow advice for monitoring blood glucose? (1 = never, 5 = always do as recommended without fail)

- **HbA1c**
  - Medical records at Time 6
Latent class growth analyses indicated a 3-class solution.
 Benefit Finding Trajectories Predicted Subsequent Adherence

Adolescent Report

Mother Report

Benefit Finding Latent Classes

- Low and Decreasing
- Moderate and Decreasing
- High and Stable

Adherence

* *
## Predictors of Benefit-Finding Trajectories

<table>
<thead>
<tr>
<th>Time 1 Variable</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness Duration</td>
<td>ns</td>
</tr>
<tr>
<td>Insulin Pump Status</td>
<td>ns</td>
</tr>
<tr>
<td>Adolescent Age</td>
<td>ns</td>
</tr>
<tr>
<td>Adolescent Sex</td>
<td>ns</td>
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<tr>
<td>Adolescent IQ</td>
<td>ns</td>
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</tbody>
</table>
**Predictors of Benefit-Finding Trajectories**

Adolescents who displayed different benefit-finding trajectories had different relationships with their parents at Time 1.

<table>
<thead>
<tr>
<th>Time 1 Variable</th>
<th>p</th>
<th>Post-hoc tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Responsibility (M)</td>
<td>ns</td>
<td>--</td>
</tr>
<tr>
<td>Diabetes Responsibility (F)</td>
<td>ns</td>
<td>--</td>
</tr>
<tr>
<td>Relationship Quality (M)</td>
<td>&lt; .005</td>
<td>Low &lt; Moderate &amp; High</td>
</tr>
<tr>
<td>Relationship Quality (F)</td>
<td>&lt; .005</td>
<td>Low &amp; Moderate &lt; High</td>
</tr>
<tr>
<td>Diabetes Monitoring (M)</td>
<td>&lt; .01</td>
<td>Low &amp; Moderate &lt; High</td>
</tr>
<tr>
<td>Diabetes Monitoring (F)</td>
<td>&lt; .01</td>
<td>Low &amp; Moderate &lt; High</td>
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M = Mother; F = Father
<table>
<thead>
<tr>
<th>T3 Variable</th>
<th>p</th>
<th>Post-hoc tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPQ Illness Chronicity (T3)</td>
<td>ns</td>
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</tr>
<tr>
<td>IPQ Illness Severity (T3)</td>
<td>&lt; .05</td>
<td>Low &lt; High</td>
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<tr>
<td>IPQ Teen Control (T3)</td>
<td>&lt; .01</td>
<td>Low &lt; Moderate &amp; High</td>
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<tr>
<td>IPQ Parent Control (T3)</td>
<td>&lt; .05</td>
<td>Low &lt; High</td>
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<tr>
<td>IPQ Treatment Control (T3)</td>
<td>&lt; .01</td>
<td>Low &lt; Moderate &amp; High</td>
</tr>
<tr>
<td>IPQ Negative Emotions (T3)</td>
<td>ns</td>
<td>--</td>
</tr>
<tr>
<td>Emot Reg – Cognitive Analysis (T3)</td>
<td>&lt; .001</td>
<td>Low &lt; Moderate &lt; High</td>
</tr>
<tr>
<td>Emot Reg – Positive Reframing (T3)</td>
<td>&lt; .001</td>
<td>Low &lt; Moderate &lt; High</td>
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<tr>
<td>Emot Reg – Emotion Expression (T3)</td>
<td>&lt; .005</td>
<td>Low &lt; Moderate &lt; High</td>
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<tr>
<td>Emot Reg – Reappraisal (T3)</td>
<td>&lt; .005</td>
<td>Low &lt; Moderate &amp; High</td>
</tr>
<tr>
<td>Emot Reg – Emotional Suppress (T3)</td>
<td>ns</td>
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Conclusions

- Benefit finding decreases across adolescence, but there are individual differences in these longitudinal trajectories, with some adolescents developing and maintaining high levels of benefit finding.

- Benefit finding may be a resource for adolescents dealing with type 1 diabetes that can motivate better diabetes self-management.

- Benefit finding may be developed out of high quality relationships with parents, and reflect self-regulation skill development.

- Unclear whether benefit finding effects are independent of other self-regulation skills.
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