Diabetes Self-Management in Emerging Adulthood: Changes One Year Post-High School

Elora Majumder, BA; Fran Cogen, MD, CDE; Maureen Monaghan, PhD, CDE

Children’s National Health System
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Objectives

• Developmental context of emerging adulthood
• Type 1 Diabetes in emerging adults
• Current study
  – Examination of changes in diabetes self-management and glycemic control post-high school graduation
• Practice Implications
Emerging Adulthood

• Emerging adulthood: a transitional period representing late adolescence/early young adulthood where youth begin to assume independent responsibility for most activities of daily living

• Emerging adults begin moving away from home during this time period
  – College
  – Work force

• Many competing priorities
Type 1 Diabetes Management

• Emerging adulthood associated with:
  – Worsening glycemic control
    • ~20% meet the ADA recommendation for A1C < 7.0%
  – Acute complications
  – Poor long term health outcomes

• However, emerging adulthood is critical time period to establish health lifelong habits...
Type 1 Diabetes Management Post High-School

• The post-high school period may be especially important

• The first year post-high school is associated with:
  – Preparation for or entrance into adult medical care
  – Increased general diabetes responsibility
  – Decreased parental involvement
  – Increased risky behaviors (e.g. alcohol use)

• Less is known about changes in specific diabetes self-management behaviors and variations by living situation
• **Study objective:** To examine changes in self-management behaviors in patients with T1D across 1 year period (from senior year high school to first year post-graduation)

• **Study hypothesis:** self management behaviors would increase across 1 year period, particularly in youth who lived away from home
Participants

- 79 emerging adults reported on T1D self-management behaviors at 3 time points across 1 year period

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<thead>
<tr>
<th></th>
<th>%</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>Gender (% female)</td>
<td>51.6</td>
<td></td>
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<tr>
<td>Race (% Caucasian)</td>
<td>71.0</td>
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<td>Living situation post-high school (% living away from home)</td>
<td>65.0</td>
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<tr>
<td>Age</td>
<td></td>
<td>18.1</td>
<td>0.43</td>
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<tr>
<td>Disease Duration</td>
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<td>4.5</td>
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<tr>
<td>A1C (%)</td>
<td></td>
<td>8.25</td>
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Measures

• Self-Management of Type 1 Diabetes in Adolescents Scale (SMOD-A)
  – Collaboration with Parents
  – Diabetes Care Activities
  – Diabetes Problem Solving
  – Diabetes Communication
  – Goals

• HbA1c levels, average frequency of blood glucose monitoring, and average blood glucose level extracted from medical chart review
RESULTS
Figure 1. SMOD-A Subscale Score Changes Over Time

- **SMOD-A Subscale Scores**
  - Baseline:
    - Collaboration with Parents: 9.6
    - Diabetes Care Activities: 16.72
    - Diabetes Problem Solving: 15.85
    - Communication: 16.27
  - 6 month:
    - Collaboration with Parents: 8.41
    - Diabetes Care Activities: 17.59
    - Diabetes Problem Solving: 16.27
    - Communication: 17.16
  - 12 month:
    - Collaboration with Parents: 6.83
    - Diabetes Care Activities: 30.95
    - Diabetes Problem Solving: 17.16
    - Communication: 17.81

- * p<0.05
Figure 2. HgbA1C, Blood Glucose Frequency, and Blood Glucose Level Changes Over Time
Living Situation

• 65% of sample lived away from home for at least part of the first year post-high school
• Females were more likely to live away from home
• No differences in diabetes indicators (A1c, BG monitoring, mean BG level) at baseline
  – A1c worsened more for youth remaining at home post-high school
• At baseline, emerging adults with plans to live away from home post-high school reported higher diabetes-related communication:
  – Differences diminished one year post-high school
Estimated Means - A1c

Model includes the following covariate: regimen
Estimated Means - SMOD-A Communication Subscale

dichotomous live post high school

- living away from home
- living at home

Model includes the following covariates: sex, regimen
Hierarchical multiple regression analyses found:

- **Diabetes problem solving**: the most protective self-management behavior against worsening glycemic control
- Higher scores on SMOD-A Problem Solving subscale predicted better A1C levels at 1 year, accounting for baseline A1C, regimen, and family income
- Adjusted $R^2 = .51$; $F (4, 58) = 16.88, p < .01$; SMOD-A Problem Solving $\beta = -.20, p < .05$
Conclusions

• During emerging adulthood:
  – Glycemic control worsens
    • Short term: average BG levels
    • Long term: Hemoglobin A1C levels
  – Youth collaborate less with parents, increase in autonomy
  – Youth increase problem solving capabilities
    • Deciding insulin doses, adjusting insulin based on blood glucose numbers, know A1C values and goals
  – Youth improve in diabetes communication skills
    • With parents, healthcare providers, peers
• No differences in measures of glycemic control (HbA1C, BG frequency, BG averages) by living situation at baseline
  – A1c worsens for both groups but is more pronounced in youth living at home
• Youth living at home still experience increased responsibility for diabetes management – improvements in diabetes communication
• Diabetes problem solving as a protective factor
  – Promoting effective problem solving skills with adolescents in preparation for transition period
Study Limitations

• Attrition rate of the study about 18%
  – May underrepresent youth with greatest risk factors and poor glycemic control

• Demographics: majority of participants Caucasian, high socioeconomic status

• Longitudinal study of 1 year, relatively short time frame to capture changes
Clinical Implications & Future Directions

• *Healthcare providers have influential role:*
  – Supporting emerging adults and promoting self-management behaviors
  – Providing resources which will foster problem solving skills before youth graduate high school
  – Advocating for transition programs in pediatric diabetes clinics to prepare emerging adults for adult healthcare system
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Questions?
References