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

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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

	%	Mean	SD
Gender (% female)	51.6		
Race (% Caucasian)	71.0		
Living situation post-high school (% living away from home)	65.0		
Age		18.1	0.43
Disease Duration		7.1	4.5
A1C (%)		8.25	

Measures

- Self-Management of Type 1 Diabetes in Adolescents Scale (SMOD-A)
 - Collaboration with Parents
 - Diabetes Care Activities
 - Diabetes Problem Solving
 - Diabetes Communication
 - Goals
- HbA_{1c} levels, average frequency of blood glucose monitoring, and average blood glucose level extracted from medical chart review

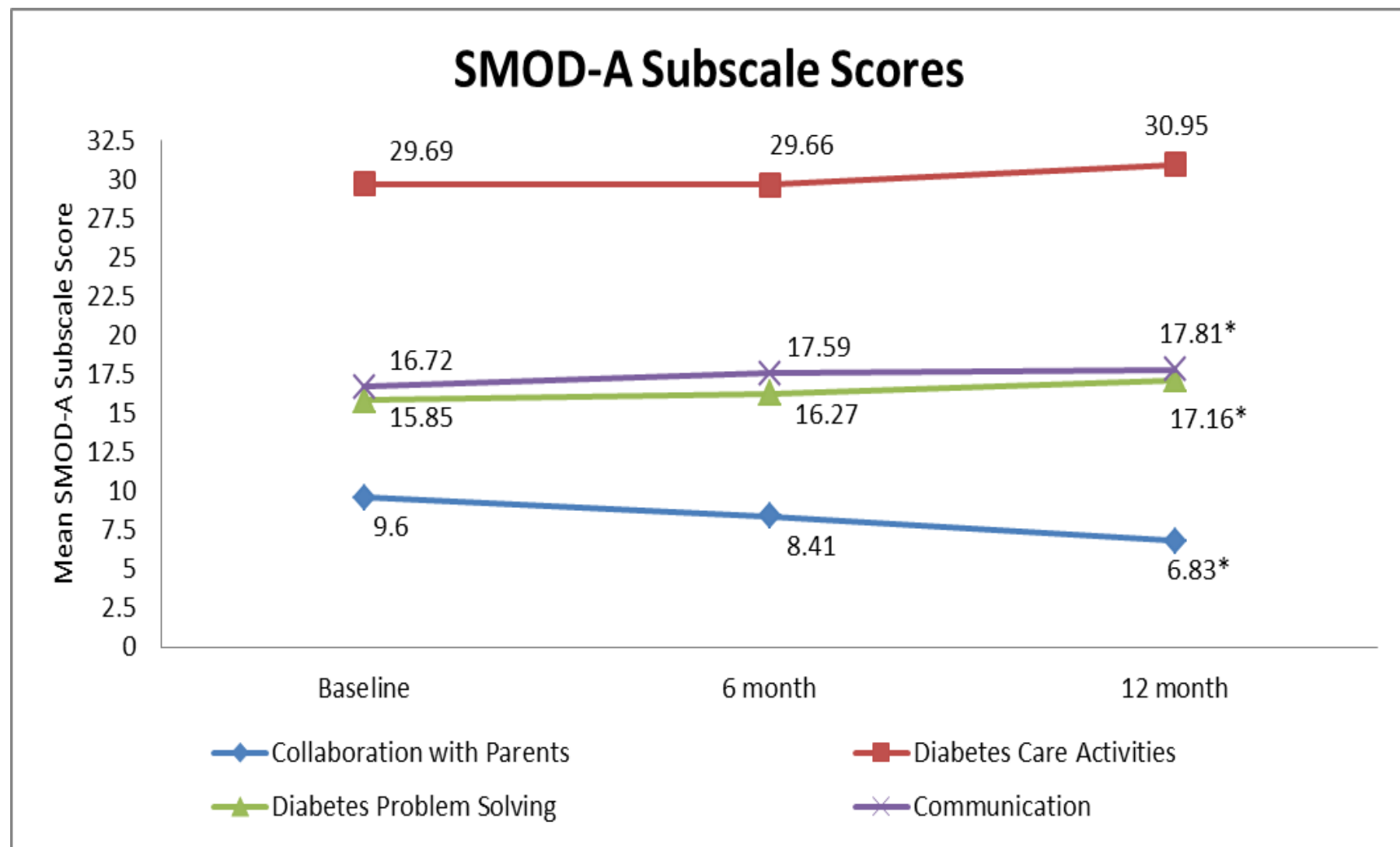
A large, stylized brown bear head graphic that serves as the background for the slide. It has a friendly expression with simple white eyes and a black nose and mouth.

RESULTS



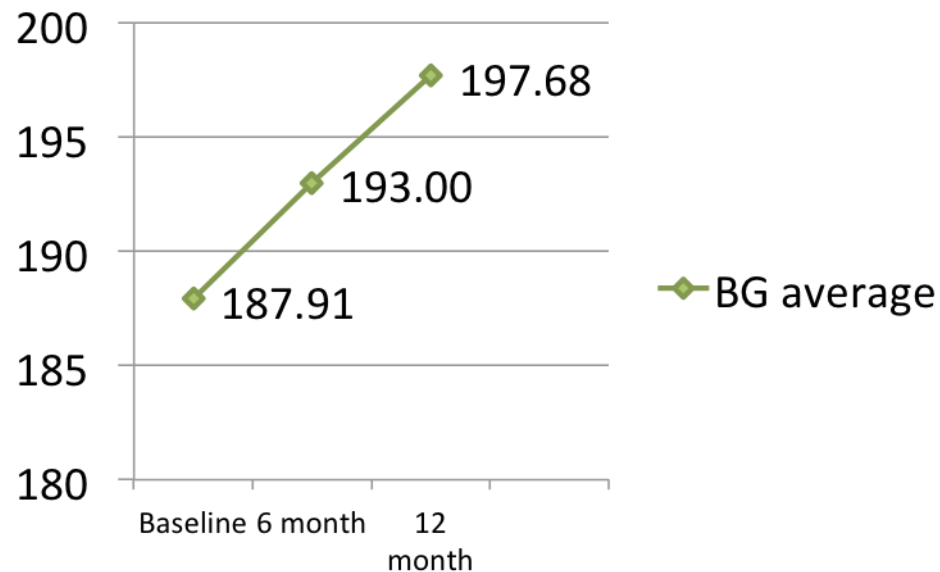
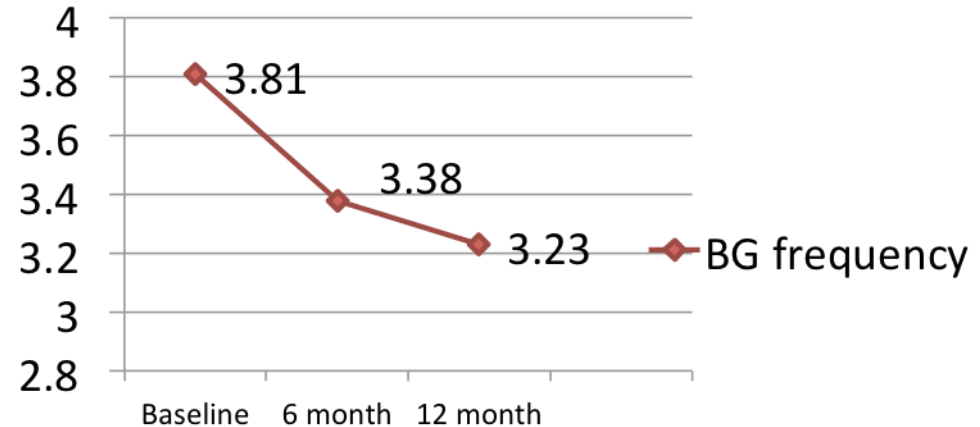
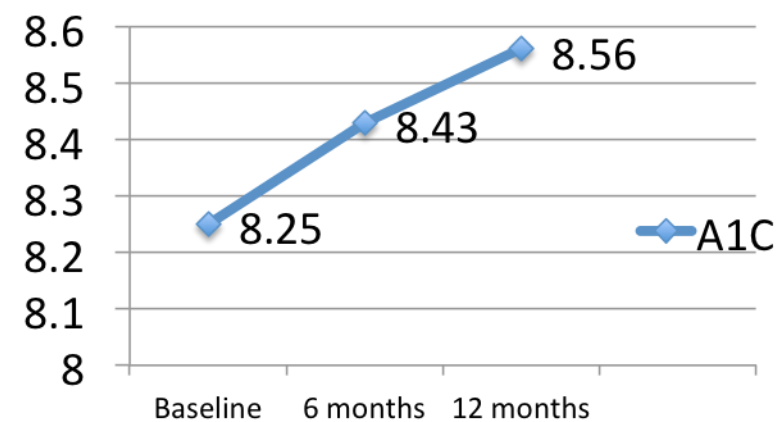
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Figure 1. SMOD-A Subscale Score Changes Over Time



* $p < 0.05$

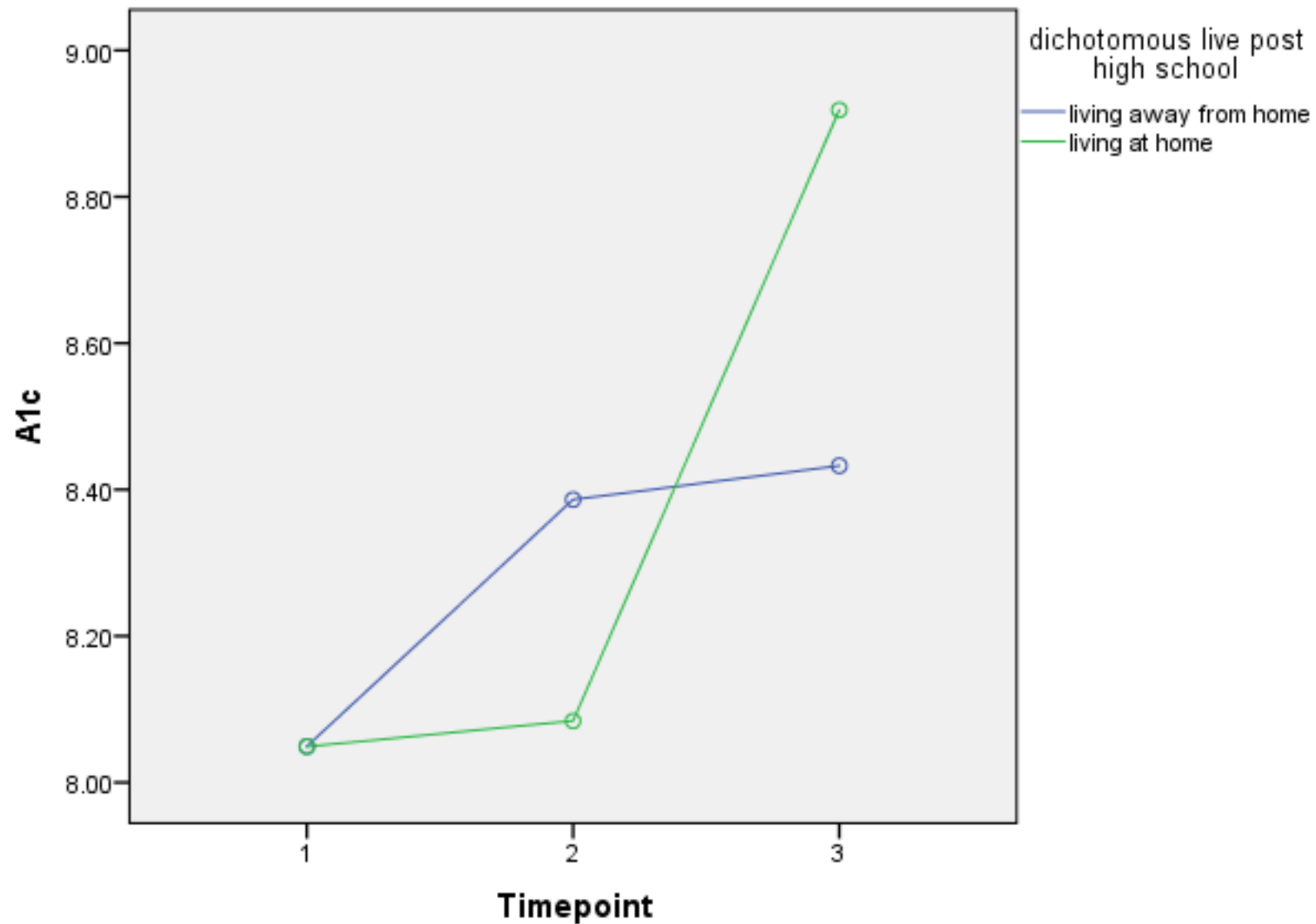
Figure 2. HgbA1C, Blood Glucose Frequency , and Blood Glucose Level Changes Over Time



Living Situation

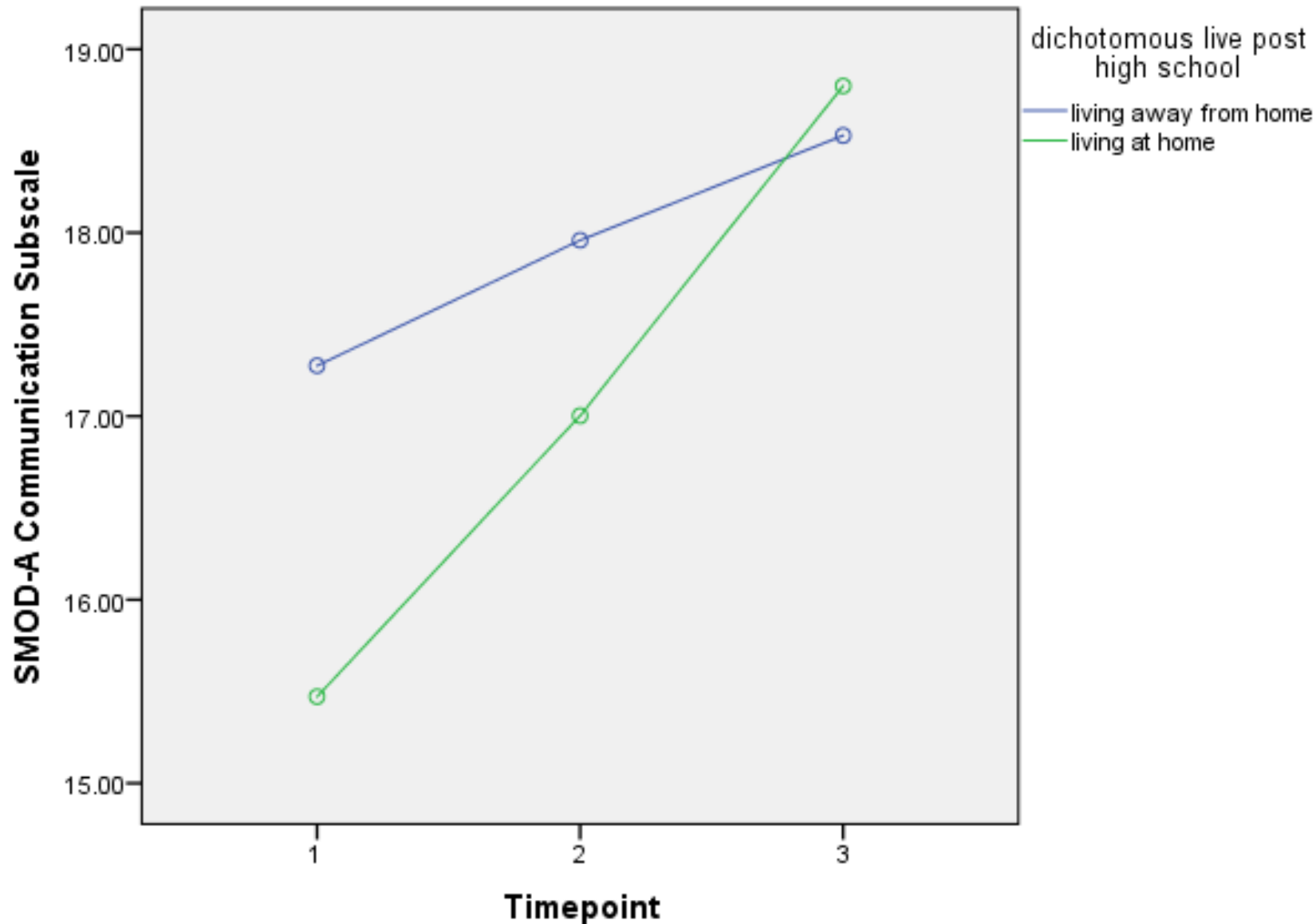
- 65% of sample lived away from home for at least part of the first year post-high school
- Females were more likely to live away from home
- No differences in diabetes indicators (A1c, BG monitoring, mean BG level) at baseline
 - A1c worsened more for youth remaining at home post-high school
- At baseline, 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



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?



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