SELF-CARE BEHAVIORS of COLLEGE STUDENTS with DIABETES

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The University of North Carolina at Chapel Hill
I have NO actual or potential conflict of interest in relation to this educational activity or presentation
Objectives

- Describe the self-care behaviors of college students with diabetes
- Discuss the factors that influence self-care behaviors of college students with diabetes
- Identify strategies to improve self-care behaviors of college students with diabetes
Significance

A vulnerable population

- Developmental stage
  - Adolescence vs. adulthood
  - Leading causes of morbidity and mortality are preventable

- A complex chronic disease
  - 1 in 400 children/adolescents have diabetes
  - Challenges of self-management

- Time of transition
  - Family caregivers to independence
  - Pediatric to adult health services
  - Adaptation to college life
Theoretical Framework

Orem’s Self-care Deficit Nursing Theory

- Self-care defined as the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being.

- Universal self-care requisites
  - *Maintenance of sufficient intake of food*
  - *Maintenance of balance between activity/rest*
  - *Prevention of hazards to life, functioning, and well-being*

Self-care Measurement Index

• Food - Daily intake of five or more fruits & vegetables (ACHA, ADA)

• Activity - Moderate intensity exercise ≥ 30 minutes ≥ 5 days/week, or vigorous intensity exercise ≥ 20 minutes ≥ 4 days/week, or mixture, and muscle strengthening exercises ≥ two times/week (CDC, ADA)

• Rest - Feeling rested every morning, no daytime sleepiness, no difficulty falling asleep in past 7 days (Pittsburgh Sleep Quality Index)

• Prevention of hazards to life – quantity of alcohol at last social event ≤ 1 drink for women and ≤ 2 drinks for men within legal age (ADA); no smoking; no drinking & driving; always uses seat belt
Theoretical Framework

Social Ecological Model

- Intrapersonal Processes - individual characteristics
- Interpersonal Processes and Primary Groups - peer and family social support networks
- Community Factors - mediating structures to which individuals belong

Study Design & Sample

- Descriptive, Comparative Study
- Analysis of Existing Data
  - American College Health Association-National College Health Assessment II
  - Spring 2009
  - 87,105 students; 876 with diabetes
Inclusion Criteria

- 18-24 years of age
- Self-report of having been diagnosed or treated by a professional for diabetes in the previous 12 months
- Final Sample
  - N=1216
  - With diabetes=528
  - Without diabetes=688 (1% randomly selected from reference group)
### Student Characteristics (N=1216)

<table>
<thead>
<tr>
<th></th>
<th>Diabetes (n=528)</th>
<th>No Diabetes (n=688)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (Female)</td>
<td>62%</td>
<td>63.2%</td>
</tr>
<tr>
<td>Race/ethnicity (White)</td>
<td>78.2%</td>
<td>77.3%</td>
</tr>
<tr>
<td>Age</td>
<td>Mean=20.35, SD=1.6</td>
<td>Mean=20.31, SD=1.6</td>
</tr>
<tr>
<td>Grade Average</td>
<td>Mean=3.1, SD=.72</td>
<td>Mean=3.2, SD=.69</td>
</tr>
<tr>
<td>Stress (average or less)</td>
<td>46.6%</td>
<td>50%</td>
</tr>
<tr>
<td>In a relationship</td>
<td>43.7%</td>
<td>48%</td>
</tr>
<tr>
<td>Married/partnered</td>
<td>5.0%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Greek membership</td>
<td>12.5%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Lives with parents</td>
<td>15.1%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Organized athletics</td>
<td>35.2%</td>
<td>32.9%</td>
</tr>
</tbody>
</table>
## Findings: Food

<table>
<thead>
<tr>
<th>Food</th>
<th>Students with Diabetes (n=528)</th>
<th>Students without Diabetes (n=688)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets fruits and vegetables recommendations</td>
<td>41 7.8</td>
<td>36 5.2</td>
<td>.073</td>
</tr>
<tr>
<td>Perceived to be the right weight</td>
<td>237 44.9</td>
<td>389 56.5</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>No history of eating disorder in last 12 months</td>
<td>488 93.3</td>
<td>673 98.5</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>No academic problems due to eating disorder in last 12 months</td>
<td>486 93.5</td>
<td>670 98.7</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>Did not use unsafe weight loss strategies in last 30 days</td>
<td>458 87.4</td>
<td>642 94.1</td>
<td>&lt;.001**</td>
</tr>
</tbody>
</table>
## Findings: Activity

<table>
<thead>
<tr>
<th>Activity</th>
<th>Students with Diabetes (n=528)</th>
<th>Students without Diabetes (n=688)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Met exercise recommendations on the past seven days</td>
<td>143</td>
<td>27.6</td>
</tr>
</tbody>
</table>
## Findings: Rest

<table>
<thead>
<tr>
<th>Rest</th>
<th>Students with Diabetes (n=528)</th>
<th>Students without Diabetes (n=688)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Felt rested every morning in past seven days</td>
<td>25</td>
<td>4.8</td>
<td>30</td>
</tr>
<tr>
<td>No daytime sleepiness in past seven days</td>
<td>49</td>
<td>9.3</td>
<td>61</td>
</tr>
<tr>
<td>No difficulty falling asleep in past seven days</td>
<td>188</td>
<td>36.0</td>
<td>302</td>
</tr>
<tr>
<td>No difficulty handling sleep problems within last 12 months</td>
<td>338</td>
<td>64.3</td>
<td>502</td>
</tr>
<tr>
<td>No academic problems due to sleep difficulties within last 12 months</td>
<td>381</td>
<td>73.3</td>
<td>542</td>
</tr>
</tbody>
</table>
## Findings: Alcohol

<table>
<thead>
<tr>
<th>Prevention of Hazards to Life: Alcohol</th>
<th>Students with Diabetes (n=528)</th>
<th>Students without Diabetes (n=688)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets age and gender criteria for legal and moderate alcohol use</td>
<td>153 29.8</td>
<td>203 29.8</td>
<td>.987</td>
</tr>
<tr>
<td>No binge drinking in last two weeks</td>
<td>304 57.7</td>
<td>416 60.6</td>
<td>.299</td>
</tr>
<tr>
<td>Consistently used at least one protective drinking strategy in last 12 months</td>
<td>504 95.6</td>
<td>673 98.5</td>
<td>.002**</td>
</tr>
<tr>
<td>No academic problems due to alcohol within last 12 months</td>
<td>464 88.9</td>
<td>646 94.4</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>No history of substance abuse or addiction in last 12 months</td>
<td>488 93.5</td>
<td>677 99.0</td>
<td>&lt;.001**</td>
</tr>
</tbody>
</table>
## Findings: Smoking

<table>
<thead>
<tr>
<th>Prevention of Hazards to Life: Smoking</th>
<th>Students with Diabetes (n=528)</th>
<th>Students without Diabetes (n=688)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>No use of cigarettes or other tobacco products in 30 days</td>
<td>365</td>
<td>69.8</td>
<td>513</td>
</tr>
</tbody>
</table>
### Findings: Driving

<table>
<thead>
<tr>
<th>Prevention of Hazards to Life: Risky Driving</th>
<th>Students with Diabetes (n=528)</th>
<th>Students without Diabetes (n=688)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>No drinking &amp; driving in last 30 days</td>
<td>423</td>
<td>80.4</td>
<td>581</td>
</tr>
<tr>
<td>No driving after five or more drinks last 30 days</td>
<td>498</td>
<td>95.0</td>
<td>662</td>
</tr>
<tr>
<td>Always used seat belt last 12 months</td>
<td>373</td>
<td>70.9</td>
<td>542</td>
</tr>
</tbody>
</table>
## Predictors to Meeting Self-care Requisites

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Activity</th>
<th>Rest</th>
<th>Prevention of Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Alcohol</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tobacco</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Risky Driving</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Drinking &amp; Driving</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Seat Belt</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/ethnicity</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Older</td>
<td>Younger</td>
</tr>
<tr>
<td>Grade average</td>
<td>Higher GPA</td>
<td>Higher GPA</td>
</tr>
<tr>
<td>Stress</td>
<td>Average or less</td>
<td></td>
</tr>
<tr>
<td>Health information</td>
<td>Did not receive</td>
<td></td>
</tr>
<tr>
<td>Relationship status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greek membership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of residence</td>
<td>With parents</td>
<td>With parents</td>
</tr>
<tr>
<td>Organized athletics</td>
<td>Participates</td>
<td></td>
</tr>
</tbody>
</table>
Summary

- Self-care behaviors of college students with diabetes
  - In need of improvement in all areas
  - Not markedly different from students without diabetes in meeting food, rest, and alcohol use recommendations
  - Higher frequency in meeting activity recommendations
  - Lower frequency in meeting recommendations related to tobacco use, drinking & driving, and seat belt use

- Predictors of self-care behaviors
  - Mostly at the intrapersonal level
  - GPA was a predictor for most outcomes
  - Interpersonal level factors were not found to predict any outcomes
Strategies to Improve Self-Care

- Primary healthcare providers – aid transition to college
- Campus health services – supportive services, interventions
- Educators – innovative teaching strategies
- Families – anticipatory guidance
- Research – evaluate interventions, CBPR to explore barriers to self-care
• I have NO actual or potential conflict of interest in relation to this educational activity or presentation.
Objective

• To discuss one university’s strategies to improve the self-care and health care of students with diabetes.
  – To include:
    ▪ Health care team
    ▪ Support/mentor group
    ▪ Community outreach
Why the Focus on Diabetes?

- Affects ~ 26 million people in the US.
- Nearly 2 million people newly diagnosed annually.
- Type I: 5 -10% of total people with diabetes \( \rightarrow \) ~100 students at UNC
- Possible complications of poor control:
  - Short term: missed classes, poor performance, hospitalization
  - heart disease, vision loss, kidney failure, nerve damage, amputations
Benefits of Diabetes Team Care

- Efficient patient education
- Improved blood sugar control
- Higher patient satisfaction
- Lower risk for complications from diabetes
- Reduced hospitalizations
- Decreased health care costs

From Redesigning the Health Care Team; Diabetes Prevention and Lifelong Management 2013
National Diabetes Education Program
NIH/CDC/HHS
The CHS Diabetes Team: Version 1.0
Who We Are

• Margaret Vimmerstedt, MD
  – Ann Chelminski, MD, MPH
  – Sally Laliberte, FNP, CNM

• Antonia Hartley, MPH, RD, LPN

• Rachel Selinger, PharmD, BCACP, CPP, CDE
What We Do

- **Primary Care Provider:**
  - Head of health care team
  - Manages overall health and wellness of student
  - Education about general health/diabetes related issues
  - Referrals to appropriate specialists
  - Prescription and monitoring of therapy
  - Orders labs, reviews blood sugar trends
What We Do

- Registered Dietitian:
  - Nutrition specialist
- Education about general health and diabetes-related issues
- Carb counting, ‘diabetic diet’, etc.
- Intensive medical nutrition therapy to optimize blood sugar control
What We Do

• Pharmacist Certified Diabetes Educator:
  – Provide education about general health/diabetes related issues
  – Referrals to appropriate specialists
  – *Prescription and monitoring of therapy
  – *Orders labs, reviews blood sugar trends

*As a Clinical Pharmacy Practitioner (CPP), I am granted prescriptive and disease management authority with a collaborative agreement between myself and Dr. Vimmerstedt.

[Dual authority from NC Board of Pharmacy and the NC Medical Board]
Our Goals

• To provide exceptional, evidence-based care to our students with diabetes either:
  – to supplement the care of their endocrinologist at home or locally, or
  – to manage their diabetes if they do not see an endocrinologist.

We follow the American Diabetes Association’s Standards of Care (updated annually).
Our Goals

- Education
- Preventive Care
- Blood Sugar Monitoring
- Nutrition
- Physical and Mental Wellness
- Academic and Personal Success
Our Goals

• Continuous quality improvement:
  – Monthly team meetings with all members
  – As needed case reviews with team members
  – Creation of an education checklist in EMR
  – Request for input from students about their needs and suggestions for improvements in care
  – Creation of a registry or database of students due for follow-up
Activities Outside of the Clinic...

- Support/mentor group for students with diabetes
- ADA Diabetes camp
- Community outreach
- Exploring affiliation with national organizations:
  - JDRF, College Diabetes Network, Students with Diabetes
UNC Student Group – History

• MD and CSW held semester-long education and support groups for students at UNC-CH
  – Closed member groups, met weekly x 8-10 weeks
  – Sessions: 30 min presentation, 1 hr discussion

• ADA annual meeting 1987- presented their experiences

• Results compiled and published by ADA:
UNC Student Group – History

- Focus group topics included:
  - Managing sick days
  - Insulin and insulin-injection techniques
  - Sexuality and pregnancy
  - Aerobic exercise
  - Managing stress
  - Insulin reactions
  - Psychological issues
  - Complications
  - New developments
  - Alcohol and diabetes
  - Employment discrimination and other legal issues
UNC Student Group – History

- **1989-1999**: Provider-lead support groups based on manuscript by Shalom and Ryan
- **2000**: focus groups for students with diabetes
  - Focused more on community service/advocacy
- **2001-2003**: “Diabetes in Balance”
  - Cognitive behavioral model, 3-4 week series
UNC Student Group: Current

- **2005-2014**: reinvented by 2 UNC students, 1 Campus Health physician and 1 local pediatric endocrinologist

**Heels and Hearts:**
UNC student group for diabetes education, support, and outreach

- Safe place to discuss diabetes-related issues with peers and professionals together:
  - Alcohol, exercise, reproductive health, insulin pumps and devices, etc.

Heels and Hearts – Mentor Training

- Training for students to serve as mentors for others with diabetes, based on mentor training program by JDRF, including:
  - Listening skills
  - Role of a mentor
  - When to refer to a health care provider
  - Appropriate boundaries
  - Youth protection (including how to recognize and report suspected child abuse).
Mentoring – JDRF Program

• “The JDRF Mentor Program matches newly diagnosed families, teens, or adults with T1D with others that have lived with diabetes for years. Our JDRF mentors are the voices of experience and hope for those facing an unfamiliar lifestyle after diagnosis or dealing with any life stage changes.”

• “Mentors are volunteers who give comfort, answer non-medical questions, provide resources, share stories and simply listen when you want to talk.”
Heels and Hearts – Community Outreach

“Finding the Sweet Life in College”

• Event to connect local high school students with diabetes with college mentors with diabetes

• Address the questions and concerns of students and their parents about the transition from high school to college
Outside of Clinic - Diabetes Camp

• ADA-sponsored regional week-long residential camp for kids ages 7-17 with type 1 diabetes

• **Heels and Hearts** members often serve as camp counselors

→ Build *leadership, confidence, mentoring skills*
Outside of Clinic - Diabetes Camp

• CHS staff get in-depth, 24 hour/day, hands-on, intensive diabetes refresher
  – Dr. Vimmerstedt: Camp Medical Director
  – Dr. Selinger: Camp Medical Staff
  – Ms. Hartley: Camp Nutrition Staff

Camp Carolina Trails
Additional Resources: National Organizations

- JDRF (Juvenile Diabetes Research Foundation)
- www.JDRF.org
Additional Resources:
National Organizations

• College Diabetes Network
• www.collegediabetesnetwork.org
Additional Resources: National Organizations

- Students with Diabetes
  - [http://hscweb3.hsc.usf.edu/studentswithdiabetes/](http://hscweb3.hsc.usf.edu/studentswithdiabetes/)
The CHS Diabetes Team: Version 2.0

- Primary Care Provider
- Registered Dietitian
- Certified Diabetes Educator
- Mental Health Professional
Questions?

The Team Approach to Diabetes Care
UNC Campus Health Services
Rachel Selinger, PharmD, BCACP, CPP, CDE