Diabetes Outcomes and High Fructose Corn Syrup Education

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For Dr. Najood Azar | GNRS 508A
July 30, 2014
23.6 million people

15 years less life expectancy

2 – 4 x increase in heart disease

Leading cause – kidney failure, blindness, and leg amputation

174 billion financial cost in 2007

HealthyPeople.gov: Diabetes
- 70,000 annual deaths
- 16.4% Hispanic prevalence
- $116 billion direct cost estimate in 2007
- Ave. cost for hospital inpatient day due to diabetes: $1,853-$2,281
- Diabetes-related hospitalizations: 24.3 million days in 2007 up from 16.9 million days in 2002
Culturally tailored anti-HFCS education
+ Client support
+ Diet monitoring

Hispanic Adults

A1C
BMI
BP
Research Hypothesis

- A Certified Diabetes Educator (CDE) nurse led educational intervention that includes avoiding high fructose corn syrup and reading labels, will result in improved health outcomes of Hemoglobin A1C (A1c), Body Mass Index (BMI), and Blood Pressure (BP), in Hispanic adults with T2DM over 18 years of age.
Literature Review: Comparison and Analysis

● **Culturally Appropriate Interventions**
  ○ Reductions in A1C were greater and longer lasting in those studies that implemented a culturally tailored intervention

● **Diabetes Education**
  ○ All literature shows positive effects on A1C when participants received specific diabetes education

● **Gaps**
  ○ Hispanic population
  ○ Anti-fructose education
Theoretical Framework

- Health Promotion Model by Nola Pender
- Our intervention is targeted at: **Behavior-specific Interventions** (Category 2)
  - *DSME Education* that includes *Healthy eating*,
  - *Avoiding fructose*
  - **Goal:** affect healthy choices and outcomes manifested by a decrease in:
    - A1C
    - BMI
    - BP
Research Design

● Pre/ Post Test longitudinal design

● Subjects randomly assigned to two brackets
  ○ Bracket A: AF-DSME + support + diet monitoring
  ○ Bracket B: DSME alone
Research Design

- **Study Location**: Community center classroom
- **Study Length**: 8 months
  - BP measurement weekly
  - A1C and BMI measurement every other month
  - Rationale for length of study
Research Variables

- **Independent Variables**
  - Education
  - Support
  - Dietary monitoring

- **Dependent Variables**
  - A1c
  - BMI
  - Blood pressure

(Burke & Vannice, 2011)
Operational Definitions

● **Education: Diabetes Self Management (DMSE)**
  ○ pre and post test

● **Dietary monitoring**
  ○ Food worksheet diet “worksheet” to be collected each week

● **Support**
  ○ Did you receive your weekly call? yes or no
  ○ Attendance measured by CDE
Conceptual Definitions

- **Education**: Diabetes Self Management Education (DMSE)
- **Support**
  - Weekly phone call and diabetes support group (after education portion ends)
- **Dietary Monitoring**
  - Modified Idaho Plate Model
Sampling Plan

Inclusion Criteria

● Diagnosed with TDM2 for at least one year
● Hispanic
● Over 18 years old
● English speaking,
● Cognitively able to sign consent form

Exclusion Criteria

● Comorbid conditions
● More than two hypoglycemic meds
Sampling Plan

- Target population: Hispanic adults with TDM2
- Accessible Population: those adults living in LA county
- Convenience Sampling
  - Effect size 0.41
  - Recruiting from restaurants, community centers, churches, flea markets
  - Subjects randomly assigned to two brackets
    - AF-DSME + support + diet monitoring
    - DSME alone

(Janson et al., 2012)
Data Collection

- **Education: ordinal**
  - Measured via improvement in pre/post test scores
  - A: 90-100%
  - B: 80-89%
  - C: 70-79%
  - D: 60-69%
  - F: 59% or below

- **Support: nominal**
  - Did you receive a support phone call?
    - No: 0
    - Yes: 1
# Data Collection

<table>
<thead>
<tr>
<th>Health Outcome: Ordinal</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure</td>
<td></td>
</tr>
<tr>
<td>1. Normal</td>
<td>&lt;120/&lt;80</td>
</tr>
<tr>
<td>2. Prehypertension</td>
<td>120/80-139/89</td>
</tr>
<tr>
<td>3. Hypertension I</td>
<td>140/90-159/99</td>
</tr>
<tr>
<td>4. Hypertension II</td>
<td>&gt;160/&gt;100</td>
</tr>
<tr>
<td>A1C</td>
<td></td>
</tr>
<tr>
<td>1. Normal</td>
<td>&lt;6%</td>
</tr>
<tr>
<td>2. Healthy Diabetic</td>
<td>7-9%</td>
</tr>
<tr>
<td>3. Hyperglycemia</td>
<td>10-11%</td>
</tr>
<tr>
<td>4. Extreme Hyperglycemia</td>
<td>12%+</td>
</tr>
<tr>
<td>BMI</td>
<td></td>
</tr>
<tr>
<td>1. Normal</td>
<td>0-24</td>
</tr>
<tr>
<td>2. Overweight</td>
<td>25-29</td>
</tr>
<tr>
<td>3. Obese</td>
<td>30-34</td>
</tr>
<tr>
<td>4. Morbidly Obese</td>
<td>35+</td>
</tr>
</tbody>
</table>
Data Analysis

● Independent $t$-test
  ○ To determine whether there is a statistically significant difference in health outcomes between group A (support+education+diet monitoring) and group B (education alone)
Ethical Considerations

- Informed Consent
- IRB approval
- Only imposed action is education there is no real threat to participants.
  - Able to personally choose whether or not to implement intervention
Implications

- Nurses at all levels are in a key position to effect positive change and improve health outcomes
- Educational efforts may include:
  - Avoid HFCS
  - Healthy eating
  - Setting goals
  - DSME - a life-long endeavor working with a team
Resources

Resources


Questions