Perceptions of Diabetes in Rural Mexico: A Frightful Reality

Introduction
- Latino populations within and outside the United States have high levels of diabetes:
  - 2 times higher in US Latinos than whites
  - 2-3 times higher in Mexican-Americans than whites.
- Prior research has indicated that many Mexicans believe diabetes is caused by "susto," referring to a "fright sickness" or "fallen spirit," resulting from a frightening or traumatic event.
- Research on native beliefs about diabetes in Mexico may help physicians understand how immigrants in NC view the disease.

Objective
- To assess beliefs about the etiology of diabetes in communities with high rates of migration to NC.
- To assess associations between these beliefs and individual and/or community factors.

Implications
- Appreciation of these cultural perceptions is an asset to NC providers:
  - NC Latino population increased by 492 percent between 1990 and 2000.
  - High diabetes prevalence among immigrants.
  - Strong connections to source communities.
- Understanding the cultural context of diabetes perception among this immigrant population could help inform preventive efforts and focus patient education strategies.

Methods
- Design: Cross-Sectional Analysis
- Medical students and faculty from UNC - Chapel Hill conducted interviews in 11 rural communities in Guanajuato, Mexico.
- A convenience sample of 367 interviews
- Recruitment: Announcements at church services and posters.
- Participants were asked the following: "How would you describe diabetes?"
  - a) An inability of the body to use glucose or sugar in the blood
  - b) An uncontrollable disease
  - c) A good lifestyle
  - d) The effect of a susto
  - e) I don’t know
- Four interviews were excluded from analysis due to missing data.
- Other data collected:
  - Demographic and health parameters
  - Poverty score based on 2005 census
- Chi square analysis was used to test for an association of perception of diabetes with the following variables: age, sex, education, diabetes diagnosis, diabetes family history, annual doctor visits, and the poverty score of the participant's community.
- Subjects were verbally consented
- Approved by UNC School of Medicine IRB

Results
- 34% attribute diabetes to a "susto"
- 10% called it an uncontrollable disease.
- 18% chose the biological mechanism of diabetes
- Education level had no association with participant response (p=.979). Nor did age, sex, diagnosis of diabetes, family history, or community poverty score (not shown).
- Increased frequency of doctors visits was correlated with increased prevalence of the biological explanation (p=.012), but no change in prevalence of the "susto" response.

Fig. 1: Demographics of survey participants (N=367)

<table>
<thead>
<tr>
<th>Age</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29</td>
<td>68</td>
<td>7</td>
<td>75</td>
</tr>
<tr>
<td>30-49</td>
<td>124</td>
<td>20</td>
<td>144</td>
</tr>
<tr>
<td>50-64</td>
<td>70</td>
<td>20</td>
<td>90</td>
</tr>
<tr>
<td>65+</td>
<td>37</td>
<td>21</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>299</td>
<td>68</td>
<td>367</td>
</tr>
</tbody>
</table>

Fig. 2: Response to the question: "How would you describe diabetes?"

<table>
<thead>
<tr>
<th>Glucose intolerance</th>
<th>None - 5th</th>
<th>6th</th>
<th>Beyond 6th</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susto</td>
<td>96 (46%)</td>
<td>49 (54%)</td>
<td>29 (45%)</td>
<td>174</td>
</tr>
<tr>
<td>Other</td>
<td>73 (35%)</td>
<td>25 (28%)</td>
<td>24 (37%)</td>
<td>122</td>
</tr>
<tr>
<td>Total</td>
<td>208</td>
<td>90</td>
<td>65</td>
<td>363</td>
</tr>
</tbody>
</table>

Fig. 3: Response to "How would you describe diabetes?" compared by education level

<table>
<thead>
<tr>
<th>Glucose Intolerance</th>
<th>0</th>
<th>1 to 11</th>
<th>12+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susto</td>
<td>27 (36%)</td>
<td>74 (32%)</td>
<td>21 (36%)</td>
<td>122</td>
</tr>
<tr>
<td>Other</td>
<td>43 (57%)</td>
<td>108 (47%)</td>
<td>23 (40%)</td>
<td>174</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>230</td>
<td>58</td>
<td>363</td>
</tr>
</tbody>
</table>

Fig. 4: Response to "How would you describe diabetes?" compared by number of annual doctor visits

Limitations
- Study was a convenience sample
- Males were underrepresented.
- Multiple choice format limits participant response.
- Participants may alter responses to satisfy the interviewers' expectations.

Conclusions
- The lack of association of the prevalence of "susto" with any of the studied factors suggests this may be a deeply held cultural belief.
- The high prevalence of "susto" and "uncontrollable disease" suggests that many rural Mexicans feel that factors beyond their control cause diabetes. Thus, belief-based rather than biologically-centered educational interventions may be more useful.
- The next step: Investigate whether Mexican immigrants in North Carolina hold similar beliefs, and how to best educate and care for diabetics with these beliefs.