THE STRESS AND COPING CONTEXT OF TYPE 1 DIABETES MANAGEMENT AMONG LATINO AND CAUCASIAN ADOLESCENTS AND THEIR MOTHERS

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1. Type 1 Diabetes
   - Management is crucial, has complex daily behaviors
   - Mismanagement has serious long-term complications

2. Adolescence
   - Difficult period in life
   - Management deteriorates\(^1\)

3. Ethnicity
   - Ethnic Disparity in diabetes
   - Latinos: poorer glycemic control\(^2\)

\(^1\)Anderson et al. (2002). \(^2\)Gallegos-Macias et al. (2003).
Stress Context of Adolescent Type 1 Diabetes

Stress linked to diabetes management
- Diabetes-related stress is linked to poorer overall management\(^3\)
- General life stress is linked to metabolic control\(^4\)
  - Directly\(^4\) & indirectly through adherence\(^5\)

Ethnic Considerations
- Latinos report more family conflict\(^6\)
- Stress may be more severe, less controllable, among Latinos
  - May have fewer resources to control diabetes
  - ‘Fatalismo’ value: course of life beyond one’s control

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Coping Context of Adolescent Type 1 Diabetes

Coping linked to diabetes management
- Problem- and Emotion-focused coping linked to better outcomes\(^7\)
- Avoidant/Disengaging coping hinders self-care\(^8\)

Ethnic Considerations
- Ethnic minority youth use:
  - More acceptance, distraction, or disengagement coping\(^9\)
- Few studies compared Latino and Caucasian youth directly

Parental Involvement in Diabetes Stress & Coping

- Parental Involvement in diabetes management is crucial\(^{10}\)
- \textit{shared understanding} (congruence) of diabetes stress linked to \textit{better outcomes}\(^{11}\)

Ethnic Considerations

- Congruence between Caucasian mother-child dyads is low\(^{12}\)
- No research on Latino dyad congruence:
  - May be high: Familismo and Personalismo may bolster social ties\(^{13}\)
  - May be low: less disclosure of stress to parents\(^{14}\)

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\(^{10}\)Wiebe et al. (2014).  \(^{11}\)Berg et al. (2013).  \(^{12}\)Beveridge et al. (2006).  \(^{13}\)Halgunseth et al. (2014).
\(^{14}\)Chang (2012).
Objectives of the Present Study

1. Describe everyday diabetes stress and coping in a diverse sample
   • Mixed methods
   • Dyadic perspective

2. Examine ethnic differences in stress and coping

3. Explore associations with diabetes management
Measures

Structured interviews for Adolescents & Mothers (x2)
- “What was the most stressful diabetes-related event you/your child experienced in the past week?”
- “What were 3 things you/your child did to cope with that event?”

Appraisal of Stressful Events
- Severity: “How bad was the event?”
- Control: “How much control did you have over the cause of the stressful event?”

Appraisal of Coping
- Competence: “How well do you think you handled the event?”
- Confidence: “How sure are you that you can handle this type of stressful event in the future?”
Demographics & Illness Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Caucasian</th>
<th>Latino</th>
<th>Full Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Sex (% Female)</td>
<td>47%</td>
<td>63%</td>
<td>54%</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>13.19 (1.63)</td>
<td>13.30 (1.78)</td>
<td>13.24 (1.67)</td>
</tr>
<tr>
<td>Illness Duration (yrs)</td>
<td>4.90 (3.14)</td>
<td>4.31 (2.45)</td>
<td>4.62 (2.84)</td>
</tr>
<tr>
<td>Regimen (% on insulin pump)</td>
<td>31%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Maternal Education (% with &gt; HS)</td>
<td>89%</td>
<td>38%</td>
<td>68%</td>
</tr>
<tr>
<td>Median household income in neighborhood</td>
<td>$63,346.54 $(26,756.04)</td>
<td>$48,060.79 $(20,164.26)</td>
<td>$56,054.26 $(24,940.62)</td>
</tr>
<tr>
<td>Mother’s Marital Status (% married or living with partner)</td>
<td>85%</td>
<td>77%</td>
<td>81%</td>
</tr>
</tbody>
</table>

*Note. Bold values are significant at p < .05.*
Stressor Coding

Stressors thematically coded into 10 categories
- Iterative thematic coding process
- EX: “At school, forgot supplies, had an exam, and went high.”
  - Coded as: High Sugars (MCH), Management Behaviors (MBS), Management Away From Home (MAFH), Class exam stress (SCH)

Stressor Congruence = ‘shared understanding’
- Dyadic measure, 1 per dyad
- # codes adolescent and mother both reported / total # codes reported by dyad
## Coping Coding

<table>
<thead>
<tr>
<th></th>
<th>Approach</th>
<th>Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Problem-focused</strong></td>
<td>Adolescents: 84.5%</td>
<td>Adolescents: 3.8%</td>
</tr>
<tr>
<td></td>
<td>Mothers: 66.9%</td>
<td>Mothers: 6.5%</td>
</tr>
<tr>
<td><strong>Emotion-focused</strong></td>
<td>Adolescents: 10.7%</td>
<td>Adolescents: 0.1%</td>
</tr>
<tr>
<td></td>
<td>Mothers: 22.7%</td>
<td>Mothers: 2.2%</td>
</tr>
</tbody>
</table>

Solberg Nes & Segerstrom, 2006
Stressors Experienced By Adolescent

Adolescent Stressor 1

<table>
<thead>
<tr>
<th>Stressor Category</th>
<th>Caucasian</th>
<th>Latino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metabolic Control High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metabolic Control Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Away from Home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Conflict</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-Interpersonal Conflict</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School-Related</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Stressor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percentage of Participants

* = Significant difference between ethnic groups at the .05 level.
Stressors Experienced By Adolescent (Mother Reports)

Stressor Category

Mother Stressor 1

Mother Stressor 2

Percentage of Participants

Stressor Category

0%
20%
40%
60%
80%
100%

Caucasian
Latino

Caucasian
Latino

Percentage of Participants

Stressor Category

0%
20%
40%
60%
80%
100%

Metabolic Control High
Metabolic Control Low
Management Away From Home
Negative Affect
Socio-Interpersonal Conflict
School-Related
Illness
No Stress

Metabolic Control High
Metabolic Control Low
Management Away From Home
Negative Affect
Socio-Interpersonal Conflict
School-Related
Illness
No Stress

* = significant difference between ethnic groups at the .05 level.

Figu 1.

MC= Metabolic Control
M= Metabolism
MB= Metabolic Behavior
MFF= Metabolic Function
MCCL= Metabolic Control Low
MCCH= Metabolic Control High
MCFF= Metabolic Function
MCMB= Metabolic Behavior
MC= Metabolic Control
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MC= Metabolic Control
Ethnic Differences in Congruence

- **Congruence** = # codes adolescent and mother both reported / total # codes reported by dyad

### Caucasian
- Congruence: 47%

### Latino
- Congruence: 34%

**Statistical Test:**

\[ t(115) = 2.98, p = .004 \]
Participants \((N = 118 \text{ dyads})\)

**Inclusion Criteria**

- 10-15 Years Old
- Type 1 Diabetes > 1 year
- Identify as Caucasian or Latino
- Read and Speak English or Spanish
- Living with Mother

**Latino Snapshot**

**Adolescents**
- 1\(^{\text{st}}\) Gen: 12%
- 2\(^{\text{nd}}\) Gen: 57%
- 3\(^{\text{rd}}\) Gen: 31%

**Mothers**
- Of those born outside U.S.: 84% from Mexico
- 43% Speak Mostly English at Home
## Ethnic Differences in Appraisals

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<thead>
<tr>
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<th>Adolescents</th>
<th>Mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Caucasian</td>
<td>Latino</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Stress Appraisals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severity</td>
<td>2.58 (.77)</td>
<td>2.52 (.67)</td>
</tr>
<tr>
<td>Controllability</td>
<td>3.34 (.91)</td>
<td>3.31 (.86)</td>
</tr>
<tr>
<td>Coping Appraisals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>3.69 (.60)</td>
<td>3.46 (.74)</td>
</tr>
<tr>
<td>Confidence</td>
<td>4.15 (.70)</td>
<td>4.04 (.74)</td>
</tr>
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Significant at $p < .05$
### Stress & Coping Appraisals and Illness Management

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<th>Mothers</th>
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<tbody>
<tr>
<td></td>
<td>Adherence</td>
<td>HbA1c</td>
<td>Adherence</td>
<td>HbA1c</td>
</tr>
<tr>
<td></td>
<td>B (SE)</td>
<td>B (SE)</td>
<td>B (SE)</td>
<td>B (SE)</td>
</tr>
<tr>
<td>Severity</td>
<td>-.14 (.09)</td>
<td>.18 (.20)</td>
<td>-.08 (.08)</td>
<td>.32 (.17)*</td>
</tr>
<tr>
<td>Controllability</td>
<td>-.08 (.07)</td>
<td>-.01 (.16)</td>
<td>.04 (.06)</td>
<td>.00 (.14)</td>
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#### Significant at $p < .05$

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<tr>
<td></td>
<td>B (SE)</td>
<td>B (SE)</td>
<td>B (SE)</td>
<td>B (SE)</td>
</tr>
<tr>
<td>Competence</td>
<td>.25 (.10)*</td>
<td>-.23 (.22)</td>
<td>.04 (.06)</td>
<td>-.28 (.14)*</td>
</tr>
<tr>
<td>Confidence</td>
<td>.06 (.09)</td>
<td>.07 (.20)</td>
<td>.11 (.07)</td>
<td>-.06 (.07)</td>
</tr>
</tbody>
</table>

**Significant at $p < .05$**
Congruence and Metabolic Control

Congruence linked to **BETTER** HbA1c ($B = -1.26$ ($SE = .62$))

![Diagram showing the relationship between Congruence, Ethnicity, and HbA1c](diagram.png)

- **Congruence**
  - $-0.13 (.04)*$
  - Indirect Effect = $0.16 (.09)*$
  - BOLD* significant at $p < .05$

- **Ethnicity**
  - $0.28 (.29)$

- **HbA1c**
  - $-1.26 (.62)*$
### What is Congruence?

<table>
<thead>
<tr>
<th>Adolescent-reported Variable</th>
<th>Congruence (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother present during the stressful event (stressor 1, 2)</td>
<td>.02, -.01</td>
</tr>
<tr>
<td>Mother knows about the stressful event (stressor 1, 2)</td>
<td>-.05, .01</td>
</tr>
<tr>
<td>Maternal diabetes monitoring</td>
<td>-.05</td>
</tr>
<tr>
<td>Adolescent disclosure</td>
<td>.02</td>
</tr>
<tr>
<td>Parent-adolescent diabetes responsibility</td>
<td>-.06</td>
</tr>
</tbody>
</table>

All non-significant at $p > .05$
Conclusions

Latino and Caucasian adolescents report similar diabetes stress & coping experiences

- Management behaviors & dealing with glucose fluctuations
- Problem-focused coping most common

Ethnic differences more common among mothers

- Latina mothers knew less about their child’s daily stress & had lower congruence with their child
- Important for adolescent HbA1c levels

Future directions

- Understanding more about congruence for diabetes management
Acknowledgements

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Research Assistants in Texas and California

For references & other correspondences, contact: dmello2@ucmerced.edu