Randomized Controlled Trial of a Primary Care-Based Child Obesity Prevention Intervention: Impacts from 6 months through 3 years
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Background
- Prenatal and pediatric primary care visits represent an unique opportunity to reach high-risk families for child obesity prevention
- Obesity-promoting diet/activity practices begin during pregnancy
- The “Starting Early Program” is one of the first comprehensive early child obesity prevention programs to target low-income, Hispanic families during both prenatal and pediatric primary care
- Designed for families with children at highest risk of early obesity

Objective
- To determine Starting Early impacts on feeding and activity practices and weight and risk of overweight from birth to 3 years in low-income Hispanic families

Methods
- Randomized Controlled Trial which enrolled Hispanic pregnant women at a 3rd trimester prenatal visit
- Usual care control group vs. an intervention group participating in prenatal counseling, postpartum lactation support and nutrition and parenting support groups coordinated with well-child visits
- Inclusion criteria: Hispanic/Latina women, English or Spanish Speaking, at least 18 years old, uncomplicated singleton pregnancy
- Exclusion criteria: Severe medical or mental illness, homelessness, substance abuse, severe complications with pregnancy or fetus

DESIGN/SUBJECTS
- Study Sample (n=533)

OUTCOME
- Weight for age z-scores (WFAz) based on WHO growth charts
- Growth parameters obtained from medical records
- WFAz ≥95th% defined as overweight
- Feeding practices and styles, and activity practices assessed by 24-hour recalls and validated survey measures

STATISTICAL ANALYSIS
- Independent sample t-tests and chi square to assess intervention impact on feeding and activity at 3, 10 and 19 months and WFAz at 6, 12, 18, 24 and 36 months old
- Using within-intervention group analyses, we explored the impact of number of sessions attended on mean WFAz and % overweight

Results

Study Sample (n=533)

<table>
<thead>
<tr>
<th>Maternal Characteristics</th>
<th>Control</th>
<th>Intervention</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean (SD))</td>
<td>27.9 (5.8)</td>
<td>28.5 (6.0)</td>
<td>.20</td>
</tr>
<tr>
<td>US born</td>
<td>19%</td>
<td>21%</td>
<td>.56</td>
</tr>
<tr>
<td>Education (less than HS)</td>
<td>29%</td>
<td>38%</td>
<td>.03</td>
</tr>
<tr>
<td>WIC participant</td>
<td>85%</td>
<td>89%</td>
<td>.20</td>
</tr>
<tr>
<td>Prenatal depressive sx</td>
<td>34%</td>
<td>34%</td>
<td>.88</td>
</tr>
<tr>
<td>Pre-pregnancy obese</td>
<td>31%</td>
<td>30%</td>
<td>.80</td>
</tr>
<tr>
<td>Gestational weight gain (kg)</td>
<td>10 (5.4)</td>
<td>9.7 (5.4)</td>
<td>.50</td>
</tr>
</tbody>
</table>

Infant Characteristics

- Female sex
- C-section
- Birth weight z-score

Program Impacts on Feeding and Activity

- At infant age 3 months:
  - Increased exclusive breastfeeding and intensity
  - Reduced early introduction to complementary foods/liquids
  - Increased infant tummy time and increased unrestrained floor time
  - Increase in breastfeeding mediated by increased maternal knowledge
  - Increased infant tummy time and increased unrestrained floor time
  - Greater exposure to the intervention led to increased impacts

- At infant age 10 and 19 months:
  - Increased breastfeeding and daily family meals
  - Reduced juice consumption and cereal in the bottle
  - Decreased non-responsive maternal infant feeding styles
  - Decreased excess milk consumption

Conclusions and Implications

- Starting Early intervention infants had healthier feeding and activity practices
- Intervention infants had lower mean weight z-scores, with a dose dependent reduction in overweight risk
- Findings demonstrate a scalable system with the potential to augment obesity prevention in primary care for at-risk families

Weight and Dose Results

- Intention to Treat Analysis
- Within Intervention Group Analysis

Dose Effect

- Mean 7.8 (range 1-15) out of 15 possible sessions attended
- Top tertile attended ≥ 10 sessions by age 3 years
- Within the intervention group, those attending ≥ 10 sessions at age 2 and 3 years had:
  - Lower mean WFAz
  - Reduced risk of overweight

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