The Role of Family, Culture, and Body Image on Eating and Physical Activity in Hispanic Families

Alexandria Posada, M.Ed. & Mijin Kim, M.A.

The Latino Health Disparities Lab
University of Houston, Psychological, Health, and Learning Sciences, Dept.
Latinos in the U.S.
LATINOS IN THE U.S. ARE...

50.5 MILLION PEOPLE

16.3% OF THE POPULATION

1 IN EVERY 6 INDIVIDUALS

1 IN EVERY 4 CHILDREN

56% OF THE POPULATION GROWTH FROM 2000 TO 2010

$1 TRILLION IN BUYING POWER

65.5% MEXICAN
9.1% PUERTO RICAN
3.6% SALVADORAN
3.5% CUBAN
2.8% DOMINICAN
2.2% GUATEMALAN
1.9% COLOMBIAN

...AND MORE

SOURCES: U.S. CENSUS BUREAU, P E W HISPANIC CENTER, SELIG CENTER FOR ECONOMIC GROWTH | VISIT: WWW.LATINOBRANDINGPOWER.COM
Hispanic Family and Poverty

Figure 1
Number of Children in Poverty, by Race and Ethnicity, 1976-2010
(in millions)

Notes: Children include all individuals younger than 18. Whites include only non-Hispanic whites. Blacks include both Hispanic and non-Hispanic components of the black population.


PEW RESEARCH CENTER
Immigration from Mexico

Figure 1. Mexican Immigrant Population in the United States, 1980-2013

Table 9a. Age and Gender Distributions for Nativity Groups: 2009

Universe: 2009 resident population

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Foreign Born</th>
<th>Native Born</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 and older</td>
<td>Females</td>
<td>Females</td>
</tr>
<tr>
<td>85 to 89</td>
<td>Males</td>
<td>Males</td>
</tr>
<tr>
<td>80 to 84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75 to 79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70 to 74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65 to 69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 to 64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55 to 59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 to 54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45 to 49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 to 44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 to 39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 to 34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 to 29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 to 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 to 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 to 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Younger than 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Pew Hispanic Center tabulations of 2009 American Community Survey (1% IPUMS)
Demographic Transformation of Harris County (U.S. Census, 1960–2010)

Census data show consistent growth in the Hispanic population in Harris County from 1960 to present.

Major Health Problems Affecting Latinos

Diabetes
Hypertension
Chronic Heart Disease
Cancer
Liver
Smoking
Obesity
Influence of Acculturation
Prevalence of Overweight (BMI $\geq 85^{th}$ Percentile) 2011-2012

Obesity (BMI Prevalence ≥ 95th Percentile) among Children and Adolescents aged 2-19 Years by Age and Race: United States, 2011-2014

* Relative standard error (RSE) of 20%–30%. The estimate for non-Hispanic Asian children aged 2–5 is not shown because the RSE is greater than 30%.

NOTES: Obesity is defined as a body mass index at or above the sex- and age-specific 95th percentile of the CDC growth charts. Highest and lowest percentages are based on observed percentages and were not tested for statistically significant differences against other percentages. See Technical Notes and data table for Figure 22.

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey (NHANES).

Excel and PowerPoint: http://www.cdc.gov/nchs/hus/contents2015.htm#fig22
Figure 2. Age-adjusted prevalence of obesity, by sex and race and Hispanic origin, among adults aged 20 and over: United States, 2011–2012

1Significant difference from non-Hispanic Asian.
2Significant difference from non-Hispanic white.
3Significant difference from women.
4Significant difference from Hispanic.

NOTE: Estimates are age-adjusted by the direct method to the 2000 U.S. census population using the age groups 20–39, 40–59, and 60 and over.
Obesity is an Intergenerational Health Problem

1 Obese parent
50% probability of a child becoming obese as an adult

2 Obese parents
80% probability of a child becoming obese as an adult

Obese 10-14 year old teen + an obese parent
80% probability of a child being obese as an adult

Source: American Academy of Child and Adolescent Psychiatry, 2012
40% of overweight children will remain overweight during adolescence.

75-80% of obese adolescents become obese adults.

A child with a high BMI is likely to be overweight or obese at 35 years of life.

Obesity Rates among 12-17 Year Old Adolescents in Houston

- Near Northside-Fifth Ward (57%)
- Downtown-East End (55%)
- Pasadena-South Houston (65%)

34% adolescents were overweight

Source: The Health of Houston Survey 2010
Obesity and Acculturation

- Acculturation is associated with increased rates of obesity in Hispanics living in the United States.
- Longer duration of US residency increases prevalence of obesity.
- Research indicates that immigrants who moved to the US when they were 14 years old or younger are more likely to be obese than those who moved to the US at an older age.

Food Acculturation in Mexican and Mexican Americans

- Eat more processed foods, salty snacks, and fried and fast food
- Drink more sweetened beverages and added sugars
- Eat more low-fat meat, dairy, fish, and fiber
- Eat more fruits and vegetables
- Eat less calories, saturated fat, and sugar
- Have reported to have more access to fruit and vegetables in home country

Sources:
Food Acculturation in Children

- Eat more processed foods, salty snacks, and fried and fast food
- Drink more sweetened beverages and added sugars
- Eat more low-fat meat, dairy, fish, and fiber
- Eat more fruits and vegetables
- Eat less calories, saturated fat, and sugar
- Have reported to have more access to fruit and vegetables in home country

Impact of Hispanic Mothers’ Acculturation on their Food Consumption

Mother Demographic Variables
- Mother Age
- M Education level
- M BMI

Mother Acculturation Variables
- M Year in the US
- M Acculturation

M’s Unhealthy Food Consumption
- Sweets
- Sweetened beverages
- Fried foods

Correlation coefficients:
- 0.26*
- 0.34**
- -0.48**
Mothers viewed their daughters’ actual body size as ideal though 34% of the girls were overweight (Olvera et al, 2005, *Obesity Research, 13*(11), 1970–1979).

**Acculturation and Body Image**

**Maternal Acculturation**
- Daughters 'choice of thinner figures as ideal
- But not with boys

**Child Acculturation**
- More likely to select thinner figures as attractive than were less acculturated counterparts
Access to Food at Schools, Streets, and Farmer Markets
McDonald's Restaurants in Mexico

380
McDonald’s Restaurants in the United States

As of 2014, there were 14,350 McDonald's restaurants in the United States.
Selective Acculturation

- Protective
- Risky

Eating Patterns
Food Preparation
Food Home Environment
Cultural Perceptions:
Body Weight Size
Family and Peer
- Maternal Acculturation
- Parenting Socialization Strategies
- Maternal Body Image Disturbances
- Maternal and Peer Weight-Related Teasing
- Maternal Physical Activity
- Maternal Eating Behavior

Environment
- Neighborhood
- Schools
- Parks
- Spatial Landscape

Child Physical Variables
- BMI
- Adiposity
- Eating Behaviors
- Weight Control Strategies
- Physical Activity

Child Psychological Variables
- Acculturation
- Body Image Dissatisfaction
- Weight-Related Teasing
- Weight Control Strategies

Low income and Immigrant Hispanic Families with an Adolescent (9-14 years old)
- Summer Program
- Parenting Program
- Cooking Demonstration
- Grocery Shopping Tours

BOUNCE
12 YEARS
- Grow Program
- Nutrition Ambassadors/Champions
- BOUNCE 5K Fun Run/Walk
- Positive Parenting Workshop
- BOUNCE STEM Integrated Program
- Lace Up and Move
- Fun with Food Program
BOUNCE HIGHLIGHTS
(SINCE 2010)

- Reached over 1,000 individuals per year!
- Reached over 15 elementary and middle schools.
- Accumulated over 20,000 volunteer hours.
- Featured in over 20 conferences at the local, national and international level.
- 17 Scientific Manuscript Published
Socio-Ecological Model

Eating and PA

- Family: Moms, Dads, Siblings, Relatives
- Schools
- Peers
- Lunch
- Groceries
- Restaurants
- Culture
- Built Environment
Behavioral Opportunities Uniting in Nutrition, Counseling, & Exercise (est. 2005)
# Typical Demographics

<table>
<thead>
<tr>
<th></th>
<th>Daughters</th>
<th>Mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M&lt;sub&gt;age&lt;/sub&gt;</strong></td>
<td>11 years ± 1.3</td>
<td>38 years ± 5.6</td>
</tr>
<tr>
<td><strong>Country of Birth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>90%</td>
<td>23%</td>
</tr>
<tr>
<td>Mexico/Central Am.</td>
<td>10%</td>
<td>73%</td>
</tr>
<tr>
<td>Other</td>
<td>---</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 8 or less</td>
<td>100%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Grade 9 – 12</td>
<td>---</td>
<td>36.5%</td>
</tr>
<tr>
<td>Some college or higher</td>
<td>---</td>
<td>33.3%</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 25,000</td>
<td>---</td>
<td>68%</td>
</tr>
<tr>
<td>&gt;25,000</td>
<td>---</td>
<td>31%</td>
</tr>
<tr>
<td><strong>Average Family Size</strong></td>
<td>---</td>
<td>5</td>
</tr>
</tbody>
</table>

*CDC Guidelines: Children status based on BMI percentiles (overweight: > 85th and < 95th percentile, obese > 95th percentile); Adults based on BMI (overweight: BMI > 25 and <30, Obese > 30)
## Typical Adiposity Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Daughters</th>
<th>Mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td>%BF M(SD)</td>
<td>42% ± 6.0%</td>
<td>41% ± 7.8%</td>
</tr>
<tr>
<td>Waist Circum.</td>
<td>96.9cm ± 13.7cm</td>
<td>101.7cm ± 19.3cm</td>
</tr>
<tr>
<td>BMI M(SD)</td>
<td>30.9 ± 5.5</td>
<td>32.9 ± 8.5</td>
</tr>
<tr>
<td>Healthy</td>
<td>--</td>
<td>20%</td>
</tr>
<tr>
<td>Overweight</td>
<td>18%</td>
<td>32%</td>
</tr>
<tr>
<td>Obese</td>
<td>82%</td>
<td>48%</td>
</tr>
</tbody>
</table>

*CDC Guidelines: Children status based on BMI percentiles (overweight: > 85th and < 95th percentile, obese > 95th percentile); Adults based on BMI (overweight: BMI > 25 and <30, Obese > 30)*
A statistically significant mean reduction of 2.49%-3.5% in percent body fat

A statistically significant mean reduction in waist circumference (5.27 cm)

A mean reduction of 1 pound per wk

A statistically significant reduction in 2.5 minutes in one mile walk/round
## Pre/Post-Intervention Changes in Adiposity Indicators and Aerobic Endurance Among Daughters

### Combined (2008-2010)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre</th>
<th>Post</th>
<th>F</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Effect Size (Partial η²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%BF M (SD)</td>
<td>42.18 (6.69)</td>
<td>39.69 (7.38)</td>
<td>46.14</td>
<td>1, 87</td>
<td>&lt;0.001</td>
<td>0.374</td>
</tr>
<tr>
<td>WC (cm) M (SD)</td>
<td>93.93 (14.86)</td>
<td>88.30 (14.44)</td>
<td>25.95</td>
<td>1, 87</td>
<td>&lt;0.001</td>
<td>0.230</td>
</tr>
<tr>
<td>Weight (lb) M (SD)</td>
<td>159.16 (47.17)</td>
<td>157.60 (46.14)</td>
<td>22.00</td>
<td>1, 87</td>
<td>&lt;0.001</td>
<td>0.202</td>
</tr>
<tr>
<td>1-Mile Run/Walk (min) M (SD)</td>
<td>17.43 (3.36)</td>
<td>15.00 (2.76)</td>
<td>66.10</td>
<td>1, 85</td>
<td>&lt;0.001</td>
<td>0.473</td>
</tr>
</tbody>
</table>

**Note:** Small effect (≤.10 to <0.30); Medium effect (≥0.30 to <0.50); Large effect (≥0.50)
## Pre/Post-Intervention Changes in Adiposity Indicators and Aerobic Endurance Among Mothers by Status

<table>
<thead>
<tr>
<th></th>
<th>Gainers (%)</th>
<th>Maintainers (%)</th>
<th>Losers (%)</th>
<th>Losers M(SD) Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMI</strong></td>
<td>39.3%</td>
<td>10.7%</td>
<td>50.0%</td>
<td>1.02(2.20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.1 to -2.6</td>
</tr>
<tr>
<td><strong>Percent Body Fat</strong></td>
<td>10.7%</td>
<td>7.1%</td>
<td>82.1%</td>
<td>1.58(1.04)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.1 to -4.10</td>
</tr>
<tr>
<td><strong>Fat Mass</strong></td>
<td>10.7%</td>
<td>7.1%</td>
<td>82.1%</td>
<td>3.44(3.12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 to -13.4</td>
</tr>
<tr>
<td><strong>Waist Circumference</strong></td>
<td>50.0%</td>
<td>0.0%</td>
<td>50.0%</td>
<td>2.30(2.24)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.25 to -7.0</td>
</tr>
<tr>
<td><strong>One Mile Run/Walk</strong></td>
<td>40.7%</td>
<td>0.0%</td>
<td>59.3%</td>
<td>1.49(1.29)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 to -4.7 min</td>
</tr>
</tbody>
</table>
How do you describe your child’s body size?

- Plump
- Gordita
- Big Boned
- Well Rounded
- Heredo el cuerpo de su papá
- Fluffy
Mother's Ideal, Healthy, and Realistic Perception of Daughter's Body Size

- **Mom-Healthy**: Red bars indicating the healthy perception
- **Mom-Ideal**: Gray bars indicating the ideal perception
- **Mom-Realistic**: Tan bars indicating the realistic perception

The chart shows the percentage distribution across different body sizes, with the highest percentage in category 4.
Body Dissatisfaction

PRE
POST1

Child-Self
Mother-Self
Mother-Child

PRE
POST1
Figure 2. Final structural model with standardized path coefficients and residual variance. Solid lines represent significant paths, dashed lines represent non-significant paths.

Proportion of MVPA by Activity

<table>
<thead>
<tr>
<th>Traditional Fitness</th>
<th>Dancing</th>
<th>Sports</th>
<th>Fun Games</th>
<th>Flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step Aerobics</td>
<td>Spinning &amp; Circuit</td>
<td>Circuit</td>
<td>Kickboxing</td>
<td>Salsa</td>
</tr>
</tbody>
</table>
| 10% | 25% | 20% | 15% | 25% | 30% | 35% | 40% | 45% | 50% | 50% | 45% | 40% | 35% | 30% | 25% | 20% | 15% | 10% | 5% | 5% | 5% | 5%
Factors to Consider when Working with Hispanic Immigrant Families

Acculturation Level-Language, Years in USA, place of birth

Literacy Level

Family Structure

Traditions & Values
Future Studies

Mindful Eating and Exercise

Summer Program-Boys and Girls

Use of Technology
Fitbits/Active Watch

Youth – Leadership
Major Collaborators and Partners

- City of Houston, Department of Health and Human Services
- Clinics and Social Agencies (e.g., Community Family Centers, Gulfgate Pediatric Clinic)
- Community Health Choice
- Good Neighbor Healthcare Center
- Grocery Stores: H-E-B, Kroger, Fiesta
- Hispanic Health Coalition
- Houston Food Bank
- Texas Children’s Hospital
- UH ARAMARK
- UH-Main Campus and Downtown: Health Experts, Graduate and Undergraduate Students
- United HealthCare
- UT MD. Anderson Cancer Center
Past Sponsors and Partners

-aetna
-Harris County Hospital District Foundation
-General Mills
-The Oliver Foundation
-Safeway Foundation
-St. Luke’s
-Robert Wood Johnson Foundation
-University of Houston Foundation
-College of Education Educational Psychology
-Telemundo
For questions

BOUNCE (bouncelite@yahoo.com)
Phone: (832) 842-5921
Fax: 713-743-9412

Department of Educational Psychology
University of Houston
491 Farish Hall
Houston, TX 77204-5029

Executive Director
Dr. Norma Olvera (nolvera@uh.edu)