SINGLE PARENT FAMILIES, SOCIOECONOMIC STATUS, AND EARLY CHILDHOOD OBESITY: A QUALITATIVE STUDY

Cassie Alvarado
NS 5330 – Dr. Boylan
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Overview

- Development of idea
- Aims of the study
- Hypotheses
- Background research
- Significance of contribution
- Design
- Methods
- Implications/Conclusions
- Why should this study be funded?
Background information

- **Childhood obesity epidemic**
  - Rates have doubled in the past 25 years (Veldhuis, 2009)
  - Major health implications
    - Diabetes, early plaque formation, etc.
  - Development of diseases not usually prevalent at age

- **Growing concern for all families**
  - Fear of fat in the USA
  - Teasing - Quality of Life
  - Media

- **Questions of how the epidemic came to be?**
  - Epidemic growth
Development of idea

- Reviewed multiple studies and found that many focused on the mothers of the children
- What about the fathers?
  - Wanted to plan a study focusing on only fathers
- Looked for studies focusing on fathers
  - One focusing on single sex (mother)
- What about households with only one parent?
  - None separating families into single parent categories
- Start to tackle issue by focusing on both mother and father
Aims of the study

- To determine if childhood obesity is more prevalent in single-parent households
  - Time outdoors?
  - Child care?
- To determine if socioeconomic status plays a role in food purchased for the households
  - High energy dense foods for low cost
  - Food shelf-life
  - Eating-out?
Aims of the study continued…

- To determine if food insecurity is prevalent in either of the families
  - Access to food
  - Vehicle?

- To determine if early childhood obesity is more prevalent when parents work longer hours
  - Longer time in child care?
  - After-school programs?
  - Outside play time?

- To determine if stress levels differ in families
  - Any older children playing role of parent?-example
  - Perceptions of children
Hypotheses

- Single parent families will have higher prevalence of childhood obesity
  - Less physical activity because less time in the home
  - Neighborhood?
  - Live in apartment with no backyard? Parking lot?
  - Safety of community
Hypotheses

- Socioeconomic levels will be lower in single parent families compared to families with two or more parents/guardians.
  - Multiple incomes with two parents
  - Single salary?

- Single parent households will have increased levels of stress.
  - Child taking place of parent in meal preparation
  - Lack of cooking skills or time to prepare meals
  - Long hours at work
  - Financial stressors
  - Worry/guilt
Hypotheses

- Food insecurity will be more prevalent in single parent households.
  - Access to food (vehicle?)
  - Financial capability
  - Going to bed hungry
  - Children having snacks/lunch at school
Maternal employment and early childhood overweight: findings from the UK

Objective: Study looked at the relationship to number of hours a mother worked to the overweight status of her children

Study Design: Cohort Study

Participants: 13,113 children at 3 years of age in 2000-2002

Data Collection
- Parental interviews when child was age 9 months and 3 years
- Child’s height and weight measured at 3 years

Statistical analysis
- Analyses conducted using STATA software
- Wald tests
- Univariate logistic regression analyses
Hawkins - Maternal Employment

- Confounding factors
  - Maternal ethnic group
  - Household income
  - Socioeconomic circumstances
  - # of children
  - Smoking during birth
  - Birth weight

- Weaknesses
  - 93% mothers were white - UK study
  - Only looked at mothers
  - No diet control
  - TV viewing
  - PA levels
Results: At 3 years:
- Children were more likely to be overweight for every 10 hours a mother worked per week
- 23% children were overweight

Conclusion: Any maternal employment after child’s birth was associated with early childhood overweight

Why does it support need for my study?
- If single parents are working, there may be an association with increased childhood overweight/obesity
- This only looked at maternal employment
- Potential effects for paternal employment?
Potential determinants of obesity among children and adolescents in Germany: results from the cross-sectional KiGGS study.

Objective: To find out potential determinants of obesity in children to provide basis for effective prevention strategies

Study Design: Cross-sectional

Participants: 17,641 children and adolescents (ages 1-17) and parents

Data Collection:
- Children
  - Questionnaire with information on socio-demographic characteristics, living conditions, PA, and health.
  - Physical examination to calculate BMI.
- Parents
  - Questionnaire with information on income, occupational status, and education.
  - Self-report of height and weight to calculate BMI
Kleiser - Determinants of Obesity

- Statistical analysis: Binary logistic regression models
- Strengths
  - Large sample size over large range of ages
- Weaknesses
  - PA assessment, FFQ used, cross-sectional study
- Results: Low SES associated with higher frequencies of overweight/obesity.
  - Children whose parents who are overweight, smoke, not predominantly breastfed, low PA status, symptoms of eating disorders, and consume mostly high energy providing foods/beverages are more often overweight or obese.
Table 1: Frequency of overweight (including obesity) and obesity according to potential determinants [% (95% CI)] and odds ratio

<table>
<thead>
<tr>
<th></th>
<th>N=1</th>
<th>Overweight(^a) (including obesity) [%]</th>
<th>OR(^b) for Overweight (95% CI)</th>
<th>Obesity(^a) [%]</th>
<th>OR(^b) for Obesity (95% CI)</th>
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<td>2.12 (1.8–2.4)</td>
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<td>Medium</td>
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<td>1.47 (1.3–1.7)</td>
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<td><strong>Migration background</strong></td>
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<td>One-parent</td>
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<td>Both overweight/obese</td>
<td>2696</td>
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<td>4.92 (4.1–6.0)</td>
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<td>10.2 (6.7–15.3)</td>
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<td>Mother overweight/obese</td>
<td>1056</td>
<td>18.5</td>
<td>2.36 (1.8–3.1)</td>
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<td>Father overweight/obese</td>
<td>3435</td>
<td>17.5</td>
<td>2.21 (1.8–2.7)</td>
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<td>Father and mother smoke</td>
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<td>1.91 (1.7–2.2)</td>
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<td>2.46 (1.9–3.1)</td>
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<td>1788</td>
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<td>1.52 (1.3–1.8)</td>
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<td>1.76 (1.3–2.4)</td>
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<td>Only father smokes</td>
<td>2474</td>
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<td>1.20 (1.1–1.4)</td>
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</table>
Conclusion: Low SES groups are important groups to focus prevention efforts towards.

Why does it support need for my study?

- All SES groups are included in the study. Questionnaire will be passed out to assess SES status of participants in the study.
Early life risk factors for obesity in childhood: cohort study.

Objective: This study aims to identify risk factors in early life for obesity.

Study Design: Prospective Longitudinal Cohort Study

Participants: 8234 children

Data Collection: Collection of anthropometric data over multiple years

Statistical analysis:
- Multivariable analysis
- Binary logistic regression models

Weaknesses:
- Ethnic/minority groups underrepresented
- Underestimate some risk factors
Reilly - Early Life Risk Factors

### Table 2

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Prevalence of childhood obesity (n=7780)</th>
<th>Unadjusted (countable) odds ratio (95% CI)</th>
<th>P value</th>
<th>Final model adjusted odds ratio (95% CI)</th>
<th>P value</th>
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<tr>
<td>Age of mother at delivery</td>
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<tr>
<td>&lt;20</td>
<td>7.4 (1013/1366)</td>
<td>0.91 (0.72 to 1.17)</td>
<td>0.324</td>
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<tr>
<td>20-24</td>
<td>9.6 (989/10351)</td>
<td>1.22 (0.98 to 1.53)</td>
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</tr>
<tr>
<td>≥25</td>
<td>9.1 (860/9497)</td>
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<td>Missing data</td>
<td>13.7 (854/645)</td>
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<td>Birth weight and perinatal factors</td>
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<tr>
<td>Birth weight, continuous* (1000 g)</td>
<td>0.84 (0.90 to 0.98)</td>
<td>0.001</td>
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<td>Male</td>
<td>0.9 (531/594)</td>
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<td>Female</td>
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<td>&lt;0.001</td>
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<tr>
<td>5+</td>
<td>10.4 (627/582)</td>
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<td>&lt;1</td>
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<td>Family size (mean)</td>
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</table>
Results: 8 risk factors of potential 25 risk factors were significantly related to risk of obesity

Conclusion: Numerous risk factors exist for early childhood obesity. Not all of them have been found to be statistically different, but many have been loosely associated.

Why does it support need for my study?
- We are still trying to find what are major risk factors.
- More research is needed.
Early Intervention of multiple home visits to prevent childhood obesity in a disadvantaged population: a home-based randomized controlled trial (Healthy Beginnings Trial).

Wen, Li Ming, Baur, Louise A., Rissel, Chris, Wardle, Karen, et al. BMC Public Health. 20087. 7:76
Objective: To compare the effect of an intensive, home-based early intervention for first-time mothers to usual care on child and family eating patterns, TV viewing, and PA.

Study Design: Randomized controlled trial

- Two phases: Intervention phase for first 2 years, and follow-up for following 3 years
  - Intervention group: 8 one-hour home visits with trained community nurse, pro-active telephone support, age-appropriate feeding checklist, identify parental needs
  - Control group: Three home visits by trained community nurse, offer home safety promotion materials
Figure 1
Study design.
Wen - Home Visit Interventions

- Participants: 782 first time mothers and their newborns (391 per group)
- Data Collection:
  - Children: Anthropometric measures of height, weight, and waist size at birth, 12mo., and 24mo.
  - Parents: Demographic and socio-economic information collected using Child Health Survey
Wen - Home Visit Interventions

- Statistical analysis:
  - Chi-square for categorical variables
  - t-tests or non-parametric equivalents for non-normally distributed variables

- Weaknesses: No long-term follow up, first two years of life may not be too significant
Wen - Home Visit Interventions

- Results: Success can be seen with home-based interventions.
- Conclusion: Epidemic is prevalent at two-years old. Efforts for prevention of childhood obesity must begin early in life.
- Why does it support need for my study?
  - Interventions with young children have proven to be effective. This study stated that obese children have 25-50% risk of progression to adulthood.
  - Need for more research on specific types of families to target.
Pediatric Obesity Attitudes, Services, and Information Among Rural Parents: A Qualitative Study.

Objective: Learn about barriers and attitudes that parents face when trying to improve weight status and weight loss.

Study Design: Qualitative Study – Focus groups

Participants: 21 parents of overweight children 3rd – 5th grade in rural Kansas

Data Collection: Focus groups held using interactive conference video chat (Telemedicine)

Statistical analysis: No qualitative assessment was conducted. Transcribed conversations, formulated codes, and set themes.
#1-Parents think people’s overweight children are lazy, however did not use these words to describe their own children.

#2- Parents are concerned about child’s weight, and are wanting to take measures to help them, but are afraid it will lower their self esteem.

#3- Obesity has genetic links, and some children have to grow into their height or some children will always just be overweight.

#4- Parents have tried various methods to help their child loose weight, but no success has been found.
#5- Parents are concerned their child is being teased or made fun of because of their weight.

#6- Perceived barriers- lack of resources, high cost of healthy foods, poor school lunches, lack of time.

#7- Hard to provide motivation to the children.

#8- Parents want free or low cost facilities available open late hours so they can participate.
Davis - Pediatric Obesity

- Weaknesses: Small sample size, rural area only, few fathers participated
- Results: Rural children have unique concerns, but also relatable concerns to urban areas. Telemedicine was successful in gaining ideas and concerns parents of overweight children face.
Conclusion: Multiple factors exist when intervening with overweight children and families. Rural areas have less resources, therefore need more unique interventions.

Why does it support need for my study? - Single parent families have a different set of dynamics that 2 parent households. Just as rural differs from urban, I believe single parent households differ from multiple parent households.

Objective: To look at the perceptions that parents have of their children’s weight status to see if they are altered.

Study Design: Randomized Qualitative trial

Participants: 593 preschool aged children and their parents

Data Collection: Self-administered parent questionnaire and BMI for children

Statistical analysis: Logistic regression analysis, means and frequencies

Weaknesses: Surveys nearly all completed by mothers, white, educated sample of parents, single metropolitan area
Results:

- Parents classified their children as follows:
  - 90.7% overweight preschoolers were classified as normal weight
  - 94.7% at risk for overweight were classified as normal weight
  - 16% normal weight were classified as underweight
# Harnack - Low Awareness

Table 1. Baseline Characteristics of Survey Participants and Their Preschool-Aged Children, 5 A Day Preschool Power Plus Program, Minneapolis, Minnesota, 2004-2005

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex of child (n = 593)</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>274 (46.2)</td>
</tr>
<tr>
<td>Male</td>
<td>319 (53.8)</td>
</tr>
<tr>
<td><strong>Age of child, y (n = 593)</strong></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>42 (7.1)</td>
</tr>
<tr>
<td>3</td>
<td>221 (37.3)</td>
</tr>
<tr>
<td>4</td>
<td>284 (47.9)</td>
</tr>
<tr>
<td>5</td>
<td>46 (7.8)</td>
</tr>
<tr>
<td><strong>BMI-for-age percentile of child² (n = 593)</strong></td>
<td></td>
</tr>
<tr>
<td>≤5th</td>
<td>3 (0.5)</td>
</tr>
<tr>
<td>6th-15th</td>
<td>16 (2.7)</td>
</tr>
<tr>
<td>16th-50th</td>
<td>97 (16.4)</td>
</tr>
<tr>
<td>51st-84th</td>
<td>251 (42.3)</td>
</tr>
<tr>
<td>85th-94th</td>
<td>151 (25.5)</td>
</tr>
<tr>
<td>≥95th</td>
<td>75 (12.6)</td>
</tr>
<tr>
<td><strong>Race/ethnicity of parent (n = 591)</strong></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic white</td>
<td>511 (86.5)</td>
</tr>
<tr>
<td>White, Hispanic or Latino</td>
<td>19 (3.2)</td>
</tr>
<tr>
<td>Black/African American</td>
<td>21 (3.6)</td>
</tr>
<tr>
<td>Asian</td>
<td>22 (3.7)</td>
</tr>
<tr>
<td>Other</td>
<td>18 (3.0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex of parent (n = 589)</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>533 (90.5)</td>
</tr>
<tr>
<td>Male</td>
<td>56 (9.5)</td>
</tr>
<tr>
<td><strong>Age of parent, y (n = 582)</strong></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>56 (9.6)</td>
</tr>
<tr>
<td>26-35</td>
<td>279 (47.9)</td>
</tr>
<tr>
<td>36-55</td>
<td>247 (42.4)</td>
</tr>
<tr>
<td><strong>Highest level of parent education (n = 588)</strong></td>
<td></td>
</tr>
<tr>
<td>Some high school</td>
<td>5 (0.9)</td>
</tr>
<tr>
<td>High school graduate or GED</td>
<td>52 (8.8)</td>
</tr>
<tr>
<td>Technical school or some college</td>
<td>173 (29.4)</td>
</tr>
<tr>
<td>≥College graduate</td>
<td>358 (60.9)</td>
</tr>
</tbody>
</table>

Abbreviations: BMI, body mass index; GED, general educational diploma.

* Based on 2000 Centers for Disease Control and Prevention’s BMI-for-age growth charts for children aged 2 to 20 years. Underweight ≤5th percentile; normal weight 6th to 84th percentile; at risk for overweight 85th to 94th percentile; overweight ≥95th percentile.
Table 2. Parents’ Perception of Preschool-Aged Child’s Weight Status, by Measured Weight Status (n = 593), 5 A Day Preschool Power Plus Program, Minneapolis, Minnesota, 2004-2005

<table>
<thead>
<tr>
<th>Parent Perception of Child’s Weight Status</th>
<th>Underweight, No. (%)</th>
<th>Normal Weight, No. (%)</th>
<th>At Risk for Overweight, No. (%)</th>
<th>Overweight, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 3)</td>
<td>(n = 364)</td>
<td>(n = 151)</td>
<td>(n = 75)</td>
</tr>
<tr>
<td>Very underweight</td>
<td>0 (0)</td>
<td>2 (0.5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Underweight</td>
<td>1 (33.3)</td>
<td>56 (15.4)</td>
<td>6 (4.0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Average weight</td>
<td>2 (66.7)</td>
<td>305 (83.8)</td>
<td>143 (94.7)</td>
<td>68 (90.7)</td>
</tr>
<tr>
<td>Overweight</td>
<td>0 (0)</td>
<td>1 (0.3)</td>
<td>2 (1.3)</td>
<td>5 (6.7)</td>
</tr>
<tr>
<td>Very overweight</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>2 (2.7)</td>
</tr>
</tbody>
</table>

*Status determined by BMI-for-age percentiles of children aged 2 to 20 years, based on Centers for Disease Control and Prevention’s growth charts. Underweight ≤5th percentile; normal weight 6th to 84th percentile; at risk for overweight 85th to 94th percentile; overweight ≥95th percentile.*
Conclusion

Parental recognition of overweight status is poor, and are unlikely to recognize overweight status. This is a wide-spread problem. Efforts are needed to educate parents of their child’s weight status, both in educated and non-educated populations.

Why does it support need for my study?

Parents have a hard time with recognition of children’s weight classification. Targeting area that needs prevention is key to help hault the epidemic.
Food Insecurity is Associated with Diabetes Mellitus: Results from the National Health Examination and Nutrition Examination Survey (NHANES) 1999–2002

Objective: To look at the association between food insecurity and diabetes

Study Design: Cross-sectional analysis of NHANES (National Health and Nutrition Examination Survey)

Participants: 4,423 adults with income <300% of the poverty line

Data Collection: Questionnaire for food security responses, BMI, waist circumference, and diabetes (self-report)

Statistical analysis: Design-based F statistic (like the chi-squared or t-test) with complex survey design
Seligman - Food Insecurity

- Weaknesses: Self-report diabetes, interpretation of subject, risk factors may be switched due to cross-sectional design (FI risk factor for DM, or DM risk factor for FI) due to heightened awareness of resources.

- Results: Prevalence of diabetes in food secure, mildly food insecure, and severely food insecure were 11.7%, 10%, and 16.1%
Seligman - Food Insecurity

- Conclusion: Independent association between food insecurity and diabetes.
- Why does it support need for my study?
  - Obesity can lead to diabetes. If food insecure households are more prevalent in single parent households, that adds another risk factor for developing diabetes for children.
Significance

- Could not find any studies specific to single-parent families
- Extreme importance and benefit to this study
  - Rising levels of single parent households
    - Divorce rates
    - Teenage pregnancies
- Fathers somewhat excluded from other studies
Significance

- **Primary objective**
  - Examine relationship between overweight status of children and single parent households

- **Secondary objective:**
  - Socioeconomic status
    - Greater prevalence of low status in single parent families?
Design of Study

General idea:

- Form 2 focus groups
  - Single
  - Married/ 2 parents
    - Questions pertaining to specific aims
    - Listen to responses
    - Correlations in both groups

- BMI of their children
Design of Study

Qualitative Study Design:

- Focus groups for parents to find trends:
  - Single parent households (mothers or fathers)
  - Multiple parent households

- Measures for children
  - Anthropometric Data
    - Used to find weight distribution (BMI)
      - Underweight (<18.5)
      - Normal Weight (18.5-24.9)
      - Overweight (25-29.9)
      - Obese (30 >)
Design of Study

- **Recruitment of Participants**
  - Lubbock Independent School District
    - Interest Questionnaire Sheet sent home
      - $50 United Supermarkets gift card
  - Aim for 100 parent participants total (after exclusions)
    - 50 single parent households
    - 50 multiple parents households
  - Estimated 100+ children participants
  - Any socioeconomic status accepted.
Design of Study

- Parent Focus groups
  - Same topics/questions
    - Food Security
      - Ability to provide healthy, well-rounded meals to children on a regular basis
      - Efficacy in preparation of meals
      - Vehicle to get food?
    - Stress in Family
      - Stress levels to provide for family
      - Stress levels of children (are they effected due to financial situation?)
    - Physical Activity
      - Hours playing outside each day
      - Sports involved in
    - Role of Children
      - Chores
      - Meal preparation
Design of Study

- Children
  - Non-invasive
  - Simple weight and height measurement (cheap)
    - Digital Scale
      - No jackets, heavy shoes, etc.
    - Portable Stadiometer
  - Calculation of BMI
  - Are children’s BMI different between families
  - Factors influencing weight status
    - Correlations/associations between responses of parents
Design of Study

- **Focus Group**
  - Chance for parents to talk to see if similarities exist
    - Food security
    - Stress in Family
    - PA of children
    - Role/Responsibility of Children

- **FFQ**
  - Chance for researcher to see if similarities exist among foods provided in each of the two groups
  - *Filled out before focus group session begins

- **Income/Hours worked**
  - Find mean of income and hours worked
  - *Filled out before focus group session begins
Design of Study - Parents

Single Parent Households
- Focus Group:
  - Food Security
  - Stress in Family
  - PA of Children
  - Role/Responsibility of Child
- n=50
- FFQ of typical foods served
- Income/Hours worked questionnaire

Two or more Parent Households
- Focus Group:
  - Food Security
  - Stress in Family
  - PA of Children
  - Role/Responsibility of Child
- n=50
- FFQ of typical foods served
- Income/Hours worked questionnaire
Design of Study - Children

Children of Single Parent Households

n=50+

Height/Weight for BMI Calculation

Children of Two or more Parent Households

n=50+

Height/Weight for BMI Calculation
Why this Design?

- Focus group – Optimal Design
  - Chance to talk with the parents - discussion
  - Can clarify questions to get clear responses
  - All literacy levels
  - Vehicle availability
  - Truthful answers
Statistics

- Comparison between single/multi-parent households and socioeconomic status
  - Student’s two-sample T-test for statistical significance
    - Two populations being compared
    - Separate sample groups
    - Unpaired (not before and after)
    - P<0.05
  - Analysis of variance
    - Means of several groups are equal
    - Statistical significance of groups being compared
Limitations/Exclusion Criteria

- **Income**
  - Single parent households – one parent income
  - Multiple parent households – two parent income
  - No minimum or maximum amount
- **Gender of participating parent**
  - Groups must include male parents
- **Employment**
  - 3+ jobs per parent excluded
- **Special Needs**
  - No families with special needs due to additional care provided from outside source
  - Unclear results with added family care/support
Limitations / Exclusion Criteria cont.

- Multi-family households
  - Two families sharing household
    - Childcare sharing responsibilities
    - Meal preparation
- 1+ parent unemployed
  - Lack of income source
    - Government issued income source
- Children over age 10
  - Role of additional parent
    - Looking at early childhood obesity
Control of Bias

- **Focus Groups**
  - No researcher leading group (researcher bias)
  - Not having single parent lead single parent group
  - Vice versa

- **Trained Dietitian**
  - Anthropometric measures

- **$50 gift card after focus group completed**

- **Random sample collected**
  - Any parent in Lubbock Independent School District
Implications/Conclusions

- If hypothesis is correct...
  - Nutrition education and prevention efforts refocused
  - Greater success if correct population getting educated
  - Participation increased if children are at greater risk?
  - Re-evaluate of food purchases
Implications/Conclusions

Potential Interventions:

- Day care centers
- Cooking classes for children
  - Meal prep if parents work late
- KOSP- Kids of Single Parents
  - Counseling for stress
- Big brothers / Big sisters
- Nutrition education efforts focused towards single parents
  - Good snacks
  - Cooking on a budget classes
Conclusion: Why fund this study?

- Childhood obesity rates climbing
- No studies focusing on association of single parents and obesity rates
- Increasing divorce rates
- Teenage pregnancies
- Growing low socioeconomic status families with current job market - unemployment
- More research is needed
References, cont.


- McGrath Davis, Ann, James, Rochelle L., Curtis, Melanie, et al. Pediatric Obesity Attitudes, Services, and Information Among Rural Parents: A Qualitative Study. Obesity. 2008. 16(9): 2133-2140


References, cont.


