Obesity Interventions for African American Girls:
Does Family Involvement Make a Difference?

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Childhood Overweight, 2009-10

Prevalence (%)

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th></th>
<th>Girls</th>
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<tbody>
<tr>
<td>6-11 yrs</td>
<td>29.7</td>
<td>32.2</td>
<td>25.2</td>
</tr>
<tr>
<td>12-19 yrs</td>
<td>40.9</td>
<td>37.4</td>
<td>39.6</td>
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NH White
NH Black
Hispanic

Our Future...

- **WARNING**
  - CHUBBY KIDS MAY NOT OUTLIVE THEIR PARENTS
  - STOPCHILDHOODOBESITY.COM

- **WARNING**
  - FAT KIDS BECOME FAT ADULTS.
  - STOPCHILDHOODOBESITY.COM

- **WARNING**
  - BIG BONES DIDN’T MAKE ME THIS WAY. BIG MEALS DID.
  - STOPCHILDHOODOBESITY.COM

- **WARNING**
  - HE HAS HIS FATHER’S EYES, HIS LAUGH AND MAYBE EVEN HIS DIABETES.
  - STOPCHILDHOODOBESITY.COM
Need for Interventions

- Disparity in prevalence of obesity, PA, and eating behaviors
- Lesser effectiveness of weight loss interventions in AfAm vs. white populations – particularly in females
  - Attributable to…
    - Cultural tailoring?? Motivation?? Adherence?? Less effective strategies?? Environmental issues??
- Family-based interventions
  - Cultural relevance for AfAms
  - Inclusive of family dynamics and behaviors
What is meant by Family-based or Family Involvement?
Family Involvement

Who is involved?
Family member involvement

What is done?
Goal for the family member

How will they interact?
Session attendance
Family Member Involvement

- Parent-child only

- Multiple family members
  - Parent-child pair plus additional family member(s)

- Whole family involvement
  - 1st and/or 2nd degree relatives in same household

Goal of the Family Member

- Change in own behavior
- Support-related
  - Active or passive support
- No specific goal

Session Attendance

- Full attendance
  - Jointly
  - Separately

- Partial attendance
  - Jointly
  - Separately

- Expected attendance is dependent on involvement and goal of family member(s).

Overview

Physical activity and healthy eating program for AfAm girls ages 10-13 and their AfAm mothers

Community- and home-based

Duration: 9 months

2 month Intensive Phase I
7 month Maintenance Phase II

Expected family involvement

Change in both parent & child behaviors
Attend all sessions together
Outcomes

- Primary target: daughters; Secondary: mothers

- Physical activity
  - Increase physical activity
  - Decrease screen-time (TV, DVD/video, video games, recreational computer use)

- Healthy eating
  - Increase F&V, water, breakfast intake
  - Decrease sweetened beverage intake
Participant Criteria

Daughter
- Self-identified as AfAm
- Age 10-13 years
- $\geq 50^{th}$ BMI percentile
- No restrictions on physical activity
- No special dietary needs due to health issue(s)

Mother
- Self-identified as African American
- No restrictions on physical activity
- No special dietary needs due to health issue(s)
Physical Activity Component

- Home PA kits
  - Hand weights, jump ropes, resistance bands, stability ball
- AfAm guest instructors
- Brief PA conversations/activities during cool down
- Gym memberships
- Goal setting with incentives
Healthy Eating Component

- Interactive, nutrition education sessions
- Hands-on cooking demonstrations
- Taste testing of snacks and meals
- Goal setting with incentives
Social Support Component

- Face-to-face health coaching with goal setting
- Motivational interviewing counseling using text, email, and phone
- Daughter/mother accountability
Intensive Phase 1
Results
Daughters (n=13)
- 11.9 years
- Mean BMI=30.5±7.86 kg/m²
- Mean BMI percentile=88.2

Mothers (n=13)
- 36.2 years
- Mean BMI=38.3±5.97 kg/m²
Intensive Phase 1 Results

Positive trends among daughters
- Increased PA
- Reduced TV time
- Increased breakfast, water, and FV consumption
- Reduced non-carbonated sweetened drink and regular soda consumption

Positive trends among mothers
- Increased attempts at encouraging daughters to be more active
- Limited daughters’ TV time
- Encouraged daughter to eat more fruits/vegetables
Program Activities and Educational Curriculum, Staff & Instructors

“‘My health coach was very motivating and gave me really good advice!’”

“‘My mom and I enjoyed making [the different recipes] at home.’”

“‘I liked [the different instructors] because I could relate to their size…’”

“‘It’s nice to come here and hear about different lifestyles and to know we’re all kind of on the same quest of losing weight or learning to eat breakfast.’”
We do a lot of things together now that we didn’t do before!

Even on our drives here and back, it’s just us. The other kids aren’t around and we can talk about the things that are going on and normally we don’t have that time.
Daughters (n=5)
- BL BMI=26.0±8.29 kg/m² (74.6th percentile)
- FU BMI=28.4±5.96 kg/m² (88.8th percentile)

Mothers (n=5)
- BL BMI=36.2±5.19 kg/m²
- FU BMI=36.5±5.21 kg/m²
Positive trends among daughters

- Increased PA
- Reduced screen time (TV, computer, & video games)
- Increased breakfast, water, and FV consumption
- Reducing non-carbonated sweetened drink and regular soda consumption

Positive trends among mothers

- Increased attempts at encouraging daughters to be more active
- Limited daughters’ TV time
- Encouraged daughter to eat more fruits/vegetables, eat breakfast, and drink water instead of pop
“I loved [the newsletters]...good eating tips for the summer...and fall, and this is what you can do.”

“I wish I had [gone to the grocery store] and picked the things that I have at home rather than just looking at items.’

“I wished we met more than once a month. I needed the support more often. The health coaching was good, but I needed to see the others so I could stay on track.”
Next Step
Previous F-B Reviews

Interventions that targeted and involved parents, children, or both

Any degree of family involvement

Children and adolescents ages 5-18 years

Limited to 1998-2008

Limited to 2-7 year olds

Excluded studies with minimal parental involvement

Included studies that only targeted parents

Included studies that targeted family system components

Limited to 2-7 year olds

Limited to 1998-2008

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Golley et al. 2010

Kitzman-Ulrich et al. 2010

Knowlden and Sharma 2012

Swanson et al. 2011

Objectives

Examine intervention strategies related to level of family involvement and cultural adaptation.

Assess the effectiveness of studies with different types and levels of family involvement.

Qualitative assessment of patterns related to intervention approaches & effectiveness based on grouping of data.
Inclusion/Exclusion Criteria

- Samples that included AfAm girls aged 5-18
- Some degree of family involvement
- Intervention studies only
- Targeted PA, nutrition, or weight
- Any study design
- Primary outcome: PA, eating behavior, or weight
- Description of intervention available
- US studies only
No Restrictions On…

- Length of study
- Year of intervention
- Weight of participants
Potentially relevant citations identified through systematic searches in SEARCH ENGINES (n=8709)

Excluded citations that were duplicates or unrelated (n=8644)

Articles carefully examined for inclusion (n=67)

Excluded citations that did not stratify by race/ethnicity and/or sex (n=31)
Excluded citations that did not include a family component (n=5)
Excluded citations that did not report post-intervention data (n=4)
Excluded citations that was a review or secondary data analysis (n=4)
Excluded citation that targeted a child less than five (n=1)

Publications included from first literature search February 2011 (n=22)

Five additional publications included from November 2011 literature search (n=27)
Study Characteristics

Duration: 3 weeks to 2 years
15 pilot studies → led to 4 RCTs
1 short-term (12 weeks but not pilot)
12 full-length, non-pilot studies

Design
17 RCTs
8 uncontrolled trials
2 non-randomized trials
1 randomized trial with 3 active interventions
Study Populations

- AfAm girls only (n=15)
- AfAm girls and boys (n=6)
- Multi-ethnic girls and boys (n=5)
- Multi-ethnic girls only (n=1)
Prevention vs. Treatment Studies

- 18 prevention, 9 treatment studies
- Differences in study participants (weight), goals, and participant motivations
- Expect similar behavioral changes, but perhaps not weight changes
- Weight data not presented for:
  - Short-term or pilot prevention studies
  - Uncontrolled studies
Behavioral Change Strategies
Cultural Adaptation Strategies

- None mentioned (n=3)
- Limited adaptation (n=4)
  - AfAm only sample
- Specific attempts to tailor (n=20)
  - Formative assessment with AfAm
  - Tailored curriculum and program content
    - Culturally relevant PA/foods; infusion of AfAm culture; culturally specific health information
  - AfAm interventionists/data collectors
## Results: No or Limited Cult Adapt

<table>
<thead>
<tr>
<th>Author Year</th>
<th>Study Design</th>
<th>MQ</th>
<th>Physical Activity</th>
<th>Dietary Behavior</th>
<th>Weight-related</th>
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<td>Not reported</td>
<td>BMI: +* Waist circ: + %BF: +*</td>
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<td>%fat: +* %satfat: +* %carb: +* %protein: +</td>
<td>Not applicable#</td>
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* indicates a statistically significant difference at a level of $P<0.05$.

^ indicates an objective measure of PA (e.g., accelerometer, pedometer).

~ indicates a subjective measure of PA (e.g., self-report questionnaire).

# Weight data not synthesized for short-term or pilot prevention studies or uncontrolled studies.
Family Involvement Results:
LOTS OF VARIANCE

- Family member involvement
  - Parent-child only
  - Multiple family members
  - Whole family
- Index member (i.e., targeted participant) of the intervention
- Format of intervention delivery
  - Distant
  - Face-to-face
  - Other delivery
- Expected joint attendance by index and family member
  - Single/partial/all sessions attended jointly/separately
- Goal for the family member
  - No specific goal
  - Support-related goal
  - Change in own behavior goal
- Behavior targeted for change
  - PA or eating

Family Involvement Patterns

- **Whole family involvement**
  - Prevention studies only
  - Targeted younger (8-10 yrs) children
  - Attendance of whole family to some sessions

- **Multiple family member involvement**
  - Prevention studies
  - Support-related goals for family members
  - Child attendance emphasized
  - Treatment studies: No clear pattern
Family Involvement Patterns: Parent-child dyad

- Prevention studies (n=12)
  - Change in parent behavior (n=4)
    - Targeted younger children
    - Parent attend all sessions, but child attendance varied
  - Support-related goal (n=7)
    - Some sessions jointly or all sessions child alone
  - No specified goal for parent (n=1)

- Treatment studies (n=5)
  - Change in parent behavior (n=2)
    - All sessions attended separately then jointly
    - Face-to-face delivery
  - No similarities with other 3 studies
Most studies measured PA & diet using multiple measures

- PA (n=14)
  - Positive findings (n=14)
  - Null findings (n=4)
- Diet (n=15)
  - Positive findings (n=15)
  - Null findings (n=8)

Mixed weight outcome results (n=6)
- Positive findings (n=4)
Treatment Studies Results

- **PA (n=5)**
  - Positive findings (n=3)
  - Null findings (n=2)

- **Diet (n=2)**
  - Positive findings (n=1)
  - Negative findings (n=1): psychosocial factors

- Generally positive weight outcome results (n=6)
  - Positive findings (n=4)
Discussion

- Diverse patterns of family involvement
  - No incorporation of AfAm family systems theory
- Most were at least minimally culturally adapted
- Limited comparison of type of family involvement (whole vs partial vs parent-child)
Generally positive trends (some significant) in behaviors, especially PA

Overweight children reported more favorable results when parents also changed behavior

Attending sessions jointly may be beneficial
Examine influence of social and physical environmental change on PA in obese AfAM girls
- Social: family member involvement
- Physical: Changes to home physical environment

Control: Ed sessions (girls only)
Arm 1: Ed sessions + Δ in physical env (girls only)
Arm 2: Ed sessions + Δ in social env (girls + entire family)
Arm 3: Ed sessions + Δ in social & physical env (girls + entire family)
Thank You!
Any Questions?