Perceptions of the Environment & Physical Activity: Gender Differences Among African American Adolescents

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Objectives

1. To create a conceptual map depicting urban African American adolescents’ perceptions of how the environment influences their physical activity

2. To identify physical activity promotion strategies
Why Ask African American Adolescents?
Why Ask African American Adolescents?

- High rates of obesity and low levels of physical activity
- Research on this population is limited
- Experience their environment differently
Why Ask African American Adolescents?

- High rates of obesity and low levels of physical activity
- Research on this population is limited
- Experience their environment differently

**Asking adolescents helps us to...**
Why Ask African American Adolescents?

- High rates of obesity and low levels of physical activity
- Research on this population is limited
- Experience their environment differently

Asking adolescents helps us to...

- Identify environmental factors that are relevant to this population
Participants

• 9th through 12th graders from two magnet high schools in Baltimore, Maryland
• Enrolled in the Baltimore Active Living Teens Study
• Eligibility criteria: African American
Methods

Concept Mapping

- Participatory research methodology
- Uses qualitative and non-parametric statistical methods
- Identifies how different ideas cluster together
Methods

Brainstormed on a focal question: What things in the environment, both good and bad, might influence physical activity among adolescents?

Defined the environment

3 activities, 23 participants

Generated 253 items

Condensed to 71 items, 6 items added
Methods

Concept Mapping

Generation → Structuring

- Sorted the 77 items into piles that are similar to each other
- Rated their relative importance to physical activity using a 5 point scale
- 50 participants; 23 young men, 27 young women
Methods

Concept Mapping

Generation

Structuring

Data Analysis

- Multidimensional scaling
- Hierarchical cluster analysis
- Computation of average importance ratings
Multidimensional Scaling

Sort for one participant

Individual similarity matrix

Aggregate similarity matrix

Source: Concept Systems Inc, www.conceptsystems.com
Multidimensional Scaling

Similarity Matrix

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

If 4 out of 5 people grouped item 1 with 2
If 3 out of 5 people grouped item 1 with 2
If 2 out of 5 people grouped item 1 with 2
If 1 out of 5 people grouped item 1 with 2
If 0 out of 5 people grouped item 1 with 2

Source: Concept Systems Inc, www.conceptsystems.com
Multidimensional Scaling

Similarity Matrix

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<td>5</td>
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</tr>
<tr>
<td>3</td>
<td>2</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Concept Systems Inc, www.conceptsystems.com
Hierarchical Cluster Analysis

<table>
<thead>
<tr>
<th>Merge</th>
<th>Points Merged</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 + 6</td>
</tr>
<tr>
<td>2</td>
<td>5 + 7</td>
</tr>
<tr>
<td>3</td>
<td>9 + 10</td>
</tr>
<tr>
<td>4</td>
<td>(1 + 6) + 8</td>
</tr>
<tr>
<td>5</td>
<td>3 + 4</td>
</tr>
<tr>
<td>6</td>
<td>2 + (9 + 10)</td>
</tr>
<tr>
<td>7</td>
<td>((1 + 6) + 8)) + (3 + 4)</td>
</tr>
<tr>
<td>8</td>
<td>(5 + 7) + ((2 + (9 + 10))</td>
</tr>
<tr>
<td>9</td>
<td>(((1 + 6) + 8)) + (3 + 4) + (5 + 7) + ((2 + (9 + 10))</td>
</tr>
</tbody>
</table>

Methods

Concept Mapping

- Generation
- Structuring
- Data Analysis

Interpretation
- Identified the appropriate number of clusters
- Named the clusters
- 3 activities, 16 participants
- 1 final map created
Methods

Concept Mapping

Generation → Structuring → Data Analysis → Interpretation → Utilization

- Discussed findings to determine how they can be applied: Based on these maps, what do you think should be done to increase physical activity in adolescents?
- 3 activities, 16 participants
- Generated 65 ideas
Conceptually similar items are more proximal to each other
RESULTS: Point Map

#74 bike lanes
#30 trails

Conceptually similar items are more proximal to each other
RESULTS: Point Map

Conceptually similar items are more proximal to each other

#52 safety
#5 crime
RESULTS: Cluster Map

Conceptually similar clusters are more proximal to each other
RESULTS: Cluster Map

“Places for Physical Activity”
1. Places for physical activity (e.g. recreation centers, basketball courts)
2. Physical activity or sports programs outside of school
3. Fields in the neighborhood
   Etc…
“Encouraging & Supportive People”
1. Friends you can be physically active with
2. Neighborhood teams
3. Good supervision at facilities
4. Siblings encouraging you to be active

Etc…
"Negative Social Influences"
1. Crime
2. Violence
3. Drugs and drug dealers
4. Sexual offenders
5. Gangs
6. Police/adults harassing groups of teenagers
    Etc…
"Parental Control"
1. Siblings (taking care of them)
2. Curfew
3. Parents that won’t let you go outside if it’s unsafe
   Etc.
“Negative Environmental Influences”
1. Weather
2. Unsafe facilities for physical activity
3. Dark outside when you get home from school
   Etc…
RESULTS: Cluster Map

“Transportation & Technology Issues”
1. Traffic/busy streets
2. Inefficient transportation (e.g. bus)
3. Access to transportation (e.g. car, bus)
4. Etc…
“Financial Issues”
1. Money to go places
2. Cost of physical activity/sports programs
   Etc…
RESULTS: Cluster Rating Map

- "Financial issues" (3.20)
- "Transportation & technology issues" (2.96)
- "Places for physical activity" (3.11)
- "Negative environmental influences" (3.07)
- "Negative social influences" (2.96)
- "Encouraging & supportive people" (3.31)
- "Parental control" (3.04)
## RESULTS: Cluster Rating Map

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Places for physical activity&quot;</td>
<td>3.11</td>
</tr>
<tr>
<td>&quot;Encouraging &amp; supportive people&quot;</td>
<td>3.31</td>
</tr>
<tr>
<td>&quot;Negative social influences&quot;</td>
<td>3.04</td>
</tr>
<tr>
<td>&quot;Transportation &amp; technology issues&quot;</td>
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</tr>
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<td>3.07</td>
</tr>
<tr>
<td>&quot;Parental control&quot;</td>
<td>2.96</td>
</tr>
</tbody>
</table>

More stacks indicate a higher average cluster importance rating.
RESULTS: Cluster Rating Map

“Places for physical activity”
Rating: 3.11

“Encouraging & supportive people”
Rating: 3.31

“Financial issues”
Rating: 3.20

“Transportation & technology issues”
Rating: 3.07

“Negative environmental influences”
Rating: 2.96

“Negative social influences”
Rating: 2.96

“Parental control”
Rating: 3.04
RESULTS: Cluster Rating Map

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- “Negative social influences” 3.04
- “Parental control” 2.96
RESULTS: Cluster Rating Map

Young Women

"Financial issues" 3.27

"Transportation & technology issues" 2.98

"Places for physical activity" 3.13

"Negative environmental influences" 3.16

"Encouraging & supportive people" 3.27

"Negative social influences" 3.28

"Parental control" 3.03
RESULTS: Cluster Rating Map

- Young Women
  - "Financial issues" 3.27
  - "Transportation & technology issues" 2.98
  - "Places for physical activity" 3.13
  - "Encouraging & supportive people" 3.27
  - "Negative social influences" 3.28
  - "Negative environmental influences" 3.16
  - "Parental control" 3.03
RESULTS: Cluster Rating Map

Young Women

“Financial issues”

3.27

3.13

“Places for physical activity”

“Transportation & technology issues”

2.98

3.16

“Negative environmental influences”

“Negative social influences”

3.28

3.03

“Parental control”

3.27

“Encouraging & supportive people”
RESULTS: Cluster Rating Map

Young Men

“Financial issues”

“Places for physical activity”

“Negative environmental influences”

“Transportation & technology issues”

“Encouraging & supportive people”

“Negative social influences”

“Parental control”
RESULTS: Cluster Rating Map

Young Men

“Financial issues”

3.10*

“Places for physical activity”

3.36

“Encouraging & supportive people”

2.75

“Negative social influences”

2.94

“Transportation & technology issues”

2.96

“Negative environmental influences”

2.87

“Parental control”

2.96

“Negative environmental influences”

3.12
RESULTS: Cluster Rating Map

Young Men

"Financial issues"

"Transportation & technology issues"

"Places for physical activity"

"Encouraging & supportive people"

"Negative social influences"

"Negative environmental influences"

"Parental control"

Young Men

3.10*

3.12

2.94

2.96

2.87

2.75

3.36
Item Importance Ratings
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Young women

- Safety-related items (crime, violence, sexual offenders, drugs, gangs)
- Physical activity settings
- Friends you can be physically active with
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Young women
- Safety-related items (crime, violence, sexual offenders, drugs, gangs)
- Physical activity settings
- Friends you can be physically active with

Young men
- Physical activity settings
- Social influences (friends you can be physically active with, friends and siblings encouraging you to be active, athletic competition)
Adolescents’ perceptions of environmental factors that influence their physical activity vary by gender.
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 For young women only, negative characteristics of their environment, especially their social environment, are very important.
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For young women only, negative characteristics of their environment, especially their social environment, are very important.

For both young women and men, social support, financial issues, and physical activity settings are important.
RESULTS: Utilization

Participant generated suggestions for increasing physical activity
RESULTS: Utilization

Participant generated suggestions for increasing physical activity

- Build new and fix existing recreational facilities
RESULTS: Utilization

Participant generated suggestions for increasing physical activity

- Build new and fix existing recreational facilities
- Reduce cost of admission to facilities
RESULTS: Utilization

Participant generated suggestions for increasing physical activity

- Build new and fix existing recreational facilities
- Reduce cost of admission to facilities
- Increase encouragement for physical activity from friends and family
RESULTS: Utilization

Participant generated suggestions for increasing physical activity

- Build new and fix existing recreational facilities
- Reduce cost of admission to facilities
- Increase encouragement for physical activity from friends and family
- Address concerns about neighborhood safety
Research Implications
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- Identified unique characteristics of the environment that are salient to African American youth
  → Develop and test age- and culturally-appropriate quantitative measures
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- Identified unique characteristics of the environment that are salient to African American youth
  → Develop and test age- and culturally-appropriate quantitative measures

- Revealed gender differences in adolescents’ perceptions of how the environment impacts their physical activity
  → Test interactions by gender when examining safety and physical activity
Program and Policy Implications
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Physical activity promotion efforts targeting urban African American youth should...
Program and Policy Implications

*Physical activity promotion efforts targeting urban African American youth should...*

- Consider the physical activity promotion strategies identified by participants in this study
Program and Policy Implications

*Physical activity promotion efforts targeting urban African American youth should...*

- Consider the physical activity promotion strategies identified by participants in this study
- Address multidimensional, complex environmental factors impacting physical activity by incorporating change to multiple aspects of the environment

   - **Physical**
   - **Social**
   - **Economic**
Program and Policy Implications

*Physical activity promotion efforts targeting urban African American youth should...*

- Consider the physical activity promotion strategies identified by participants in this study.
- Address multidimensional, complex environmental factors impacting physical activity by incorporating change to multiple aspects of the environment.
- Address gender differences by focusing on similarities, such as social support and physical activity settings, and tailoring program components to address differences, such as safety concerns.
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