Physical Health Benefits of Children’s Outdoor Recreation in State Parks

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NRPA October 2012
Importance of Children’s Outdoor Recreation

• Outdoor time is critical for youth development!
  (Burdette & Whitaker, 2005; Charles & Louv, 2009; Kahn & Kellert, 2002)
Benefits of Children’s Time Outdoors

• Strengthen social relationships  
  (Ginsburg, 2007)

• Develop pro-environmental attitudes  
  (Chawla, 2006; Wells & Lekies, 2006)

• Increase academic achievement  
  (Coyle, 2010)

• Improve mental health  
  (Burdette & Whitaker, 2005; Taylor et al., 2001)

• Provide opportunities for physical activity  
  (Maller et al., 2006; Mowen et al., 2008; Sallis et al., 2000)

  – Potential role of parks...
Parks & Active Lifestyles

• Studies highlight relationships between park access, park use, & physical activity (PA) (Godbey & Mowen, 2010; Ho et al., 2003; Mowen, 2010; Roemmich et al., 2006)

• Increasing efforts to promote PA via outdoor recreation (especially for kids)
  — Examples from Georgia:
Physical Activity Research Needs

• Research has focused on youth in urban parks (Floyd et al., 2011; Moody et al., 2004)

• Need to:
  – Consider youth PA levels & correlates in other types of park settings (e.g. state parks) (Shores & West, 2010; Wilhelm-Stanis et al., 2009)
  – Adopt mixed-method data collection approaches (e.g., self reports, observations) (Evenson & Mota, 2011; Kruger et al., 2007; Rung et al., 2011)
Research Objectives

Use Georgia State Parks as a case study to:

1. Evaluate parent perceptions of children’s outdoor rec benefits (particularly physical health benefits) overall and within state parks

2. Quantify children’s PA levels in state parks

3. Identify factors associated with children’s state park-based PA
Study Areas

• **Onsite**: State parks in northern Georgia (3)
  – Fort Mountain, Fort Yargo, Red Top Mountain

• **Offsite**: Flea markets in northern Georgia (8)
Research Methods

• Onsite Intercept Surveys
  – N = 1,039 (Summer 2010)
  – Targeted state park visitors in recreation hotspots
  – Response rate = 91.4%

• Offsite Intercept Surveys
  – N = 279 (Summer 2011)
  – Targeted flea market vendors & customers
  – Response rate = 73.7%

*Adults (generally parents) answered questions about kid in group with most recent birthday.
Research Methods

• Onsite Behavior Observations
  \( N = 9,072 \) children observed across 217 observation sessions
  – SOPARC (McKenzie et al. 2006)
  – Focused on multi-use areas & trailheads
  – Documented:
    • Gender
    • Age (Child or Teen)
    • Race/ethnicity (White, Black, Latino, Asian)
    • Activity level/type (Sed, Mod, Vig)
## Parent-perceived Youth Rec Benefits

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Outdoor Rec Location</th>
<th>Mean Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality time with friends/family</td>
<td>Anywhere (Offsite)</td>
<td>4.53</td>
</tr>
<tr>
<td></td>
<td>In State Parks (Onsite)</td>
<td>4.71</td>
</tr>
<tr>
<td>Improve physical health</td>
<td>Anywhere (Offsite)</td>
<td>4.35</td>
</tr>
<tr>
<td></td>
<td>In State Parks (Onsite)</td>
<td>4.37</td>
</tr>
<tr>
<td>Nature exploration &amp; discovery</td>
<td>Anywhere (Offsite)</td>
<td>4.18</td>
</tr>
<tr>
<td></td>
<td>In State Parks (Onsite)</td>
<td>4.28</td>
</tr>
<tr>
<td>Opportunity to try new things</td>
<td>Anywhere (Offsite)</td>
<td>4.22</td>
</tr>
<tr>
<td></td>
<td>In State Parks (Onsite)</td>
<td>4.24</td>
</tr>
<tr>
<td>Improve mental health</td>
<td>Anywhere (Offsite)</td>
<td>4.22</td>
</tr>
<tr>
<td></td>
<td>In State Parks (Onsite)</td>
<td>4.16</td>
</tr>
<tr>
<td>Development of social skills</td>
<td>Anywhere (Offsite)</td>
<td>4.02</td>
</tr>
<tr>
<td></td>
<td>In State Parks (Onsite)</td>
<td>4.17</td>
</tr>
</tbody>
</table>

*Benefit items were rated by adults from 1 = strongly disagree to 5 = strongly agree

- Recognition of physical health benefits:
  - Highest for Latinos, lowest for Afr. Amer. \([F(4,1128) = 3.2, p = 0.012]\]
  - Highest for children ages 6-9 & 10-12 \([F(3,1128) = 3.4, p = 0.018]\]
Children’s PA Levels in State Parks

• 95.4% participated in some PA during visit

• During day use visits...
  – Mean mod. PA = 135 min.
  – Mean vig. PA = 53 min.

• 89.2% engaged in at least 1 hr. of mod. or vig. activity (MVPA) during visit

• 63.8% engaged in at least 30 min. of vig. activity during visit
Predictors of Children’s Reported MVPA in State Parks

Significant Variables in Linear Regression Models

• Day Use (mean MVPA = 3.2 hours)
  – Total time in park ($\beta = 0.47$, $p < 0.001$)
  – Baseline PA ($\beta = 0.47$, $p < 0.001$)
  – Parent-perceived physical health benefits
    ($\beta = 0.16$, $p < 0.001$)
  – Age: 10-12 years ($\beta = 0.09$, $p = 0.047$)
  – Visitation frequency ($\beta = 0.08$, $p = 0.022$)

• Overnight Use (mean MVPA = 3.8 hours)
  – Baseline PA ($\beta = 0.26$, $p < 0.001$)
## Children’s Activities in State Parks

<table>
<thead>
<tr>
<th>Activity</th>
<th>% Kids Participating</th>
<th>Group Preferences (Sig. $\chi^2$ at $\alpha = 0.05$)</th>
<th>PA Correlation* (partial $r_{pb}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming</td>
<td>70.1</td>
<td>White</td>
<td>0.122</td>
</tr>
<tr>
<td>Beach activities</td>
<td>65.0</td>
<td></td>
<td>0.144</td>
</tr>
<tr>
<td>Picnic/cookout</td>
<td>63.0</td>
<td></td>
<td>0.125</td>
</tr>
<tr>
<td>Play on playground</td>
<td>42.3</td>
<td>6-9, 0-5; Black</td>
<td>0.084</td>
</tr>
<tr>
<td>Hiking/walking</td>
<td>37.2</td>
<td>White</td>
<td>0.036</td>
</tr>
<tr>
<td>Relaxing/no activity</td>
<td>32.9</td>
<td>13-17; Black, Asian</td>
<td>0.051</td>
</tr>
<tr>
<td>Camping</td>
<td>26.4</td>
<td>White, Asian</td>
<td>-0.058</td>
</tr>
<tr>
<td>Fishing</td>
<td>18.5</td>
<td>6-9, 10-12; Asian, White</td>
<td>0.067</td>
</tr>
<tr>
<td>Canoeing/kayaking</td>
<td>15.8</td>
<td>10-12, 13-17</td>
<td>0.070</td>
</tr>
<tr>
<td>Biking</td>
<td>12.1</td>
<td>White</td>
<td>0.044</td>
</tr>
<tr>
<td>Jogging/running</td>
<td>10.9</td>
<td>Latino</td>
<td>0.080</td>
</tr>
<tr>
<td>Team sports</td>
<td>6.2</td>
<td>Latino, Asian</td>
<td>0.000</td>
</tr>
</tbody>
</table>

*Compares activity participation during visit (binary) and overall MVPA during visit (continuous), controlling for total time in park*
SOPARC Observations in State Parks

Children's Observed Activity Levels in State Parks

- Sedentary: 33%
- Moderate: 64%
- Vigorous: 3%

Observed Race/Ethnicity by Park Zone

- **Multi-use Zones**
  - 45.1% White
  - 40.1% Latino
  - 11.4% Afr. American
  - 3.5% Asian

- **Trailheads**
  - 80.5% White
  - 7.0% Latino
  - 6.7% Afr. American
  - 5.7% Asian
Predictors of Children’s Observed MVPA in State Parks: Multi-use Zones

Significant Variables in Logistic Regression Model:
(66% of kids active in multi-use zones)

- **Age: 12 & under** (ref. = teens; OR = 1.72, p < 0.001)
- **Race: Afr. Amer.** (ref. = white; OR = 1.52, p < 0.001)
- **Gender: Boy** (ref. = girl ; OR = 1.20, p < 0.001)
- **Observation Session:**
  - **Morning** (ref. = evening; β = 1.21 p = 0.040)
  - **Afternoon** (ref. = evening; OR = 0.83, p = 0.008)
- **Swimming (34.4%) & walking (17.9%) = most popular activities**
Predictors of Children’s Observed MVPA in State Parks: Trailheads

Significant Variables in Logistic Regression Model:
(92% of kids active at trailheads)

• Ethnicity: Latino (ref. = white; OR = 0.25, p = 0.004)
• White children more likely to be observed hiking
• Afr. American children more likely to be observed playing basketball
• Latinos & Asians more likely to be observed using playgrounds or playing soccer
Conclusions

• **Adults** (especially Latinos) **aware of physical health benefits of youth outdoor rec**
  – Parental support = key activity correlate in state parks

• **Youth activity levels in state parks high & comparable to urban parks**

• **Social & family-oriented park activities** (e.g. picnic, beach activities) very important
  – Promote park-based PA by linking social mingling & active rec
Conclusions

• Recognize cultural differences in activity participation
  – White: Hiking, camping, fishing, wildlife-viewing
  – Afr. American: Playground
  – Latino: Jog, run, team sports
  – ALL GROUPS: Social & family-based activities

• Expand horizons & create new rec experiences that promote PA in state parks
  – Examples: inter-generational activity zones, family-friendly trails, team sport opportunities
Future Research

• Examine other parks in different seasons
• Interact directly with kids (avoid adult proxies)
• Incorporate more objective data collection strategies (move beyond self-reports & moment-in-time sampling)
• Explore role of specific park features as PA correlates
• Consider value of state parks relative to other youth PA locations
• Investigate other benefits associated with youth rec in state parks
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Extra Slide Included for Discussion Purposes...
Physical Activity Locations

Frequency of Use

* Onsite & offsite data