Evaluation of policies to promote physical activity in afterschool programs: Are we meeting current benchmarks?

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Abstract

Background. Policies now recommend afterschool programs (ASP, 3–6 pm) provide children a minimum amount of physical activity daily. We examined the extent to which children attending ASPs meet existing national and state-level policies that specify expected levels of physical activity (PA).

Methods. Accelerometer-derived physical activity (light and moderate-to-vigorous, MVPA) of 253 children (5–13 years) was compared to policies that recommend varying amounts of PA children should achieve during an ASP.

Results. The proportion of children achieving a policy ranged from 0.0% (California 60 min MVPA and North Carolina 20% of daily program time devoted to MVPA), 1.2% (California 30 min MVPA), to 48.2% (National Afterschool Association 30 min light plus MVPA). Random effects logistic models indicated boys (odds ratio [OR] range 2.0 to 6.27) and children from a minority background (Black/Hispanic, OR range 1.87 to 3.98) were more likely to achieve a recommended level of physical activity, in comparison to girls and White children. Neither age nor BMI were related to achieving a policy.

Conclusions. The PA of children attending ASP falls below policy recommended levels; however, these policies were developed in absence of data on expected PA levels during ASPs. Thus, concerted effort towards building a stronger ASP evidence-base for policy refinement is required.

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Introduction

Afterschool programs (ASP, 3–6 pm) are recognized as an important behavior setting to promote physical activity (PA) for children and young adolescents (5–14 years) (Beets et al., 2009, Beighle et al., 2010, Pate and O’Neill, 2009). The notion that ASPs are important settings to promote PA is recognized in recent state and national policies that delineate the amount of PA youth should achieve while attending an ASP (Beets et al., 2010). However, there is a lack of ASP-based evidence that informed the development of these policies (Beets et al., 2010). Understanding and describing the extent to which policies are being met is a vital part of the “informing the policy continuum” to improve public health outcomes through evidence-based public health policy (Brownson et al., 2009). The purpose of this study was twofold: (1) describe PA levels of children attending ASPs; and (2) determine the extent to which children meet current policies for PA within ASPs.

Methods

Participants for this study were recruited from a single community-based organization that conducted three large-scale (attendance across locations ranged from 80 to 150 children/day) ASPs serving Columbia, SC. Each site was staffed with a program leader and multiple part-time ASP counselors who were responsible for supervising, planning, and implementing ASP activities. Counselors received 30 h of training (bullying, health promotion, group management). Staff-to-student ratio across the sites was 1:10 to 1:15. All sites had a similar schedule of offerings of homework/academic time, snack/beverage, and structured (staff-led) and unstructured (free-play) activities. Each site had access to indoor/outdoor facilities (gymnasiums, soccer fields, open green spaces). All children arrived directly from school at each site via a bus at the same time and could leave any time from the program if accompanied by an adult (parent/guardian). The ASPs had no policies in place related to PA, yet three-fourths of the schedule was devoted to active games and/or sports (touch football, Zumba, indoor jungle gym). All procedures were approved by the Institutional Review Board at the University of South Carolina. Written informed consent and verbal assent were collected from the participants’ parent/guardian and each child.

The policies used in the current study were taken from a comprehensive review on state and national policies to promote PA in ASPs (Beets et al., 2010). Four distinct policies were used in the current study (see Table 1).
These recommendations are meant to be achieved on a daily basis. Because children could have attended the ASP for any length of time, comparisons were also made in relation to the proportion of time each child spent being physically active based on length of attendance/day.

PA was collected using the ActiGraph GT1M accelerometer (Shalimar, FL). The epoch was set at 5-s interval to account for the intermittent/sporadic nature of children’s PA (Bailey et al., 1995) and to improve the ability to capture the transitory PA patterns of children (Baquet et al., 2007). Upon arrival to the ASP, children were fitted at the waist with an accelerometer and the arrival time measured sample) had at least one day of valid accelerometer wear from 0.1% (California-60 min) to 71.7% (NAA) and for the reintegration of time spent in MVPA (36 out of 180 min ASP) 0.0% (California-60 min) to 48.2% (National Afterschool Association, 2006). A valid day of data was a total wear time ≥711, the prevalence of meeting a policy on any given day ranged from 0.0% (California-60 min) to 71.7% (NAA) and for the reintegration of time spent in MVPA. All estimates were adjusted for age, sex, and race (1=African American and non-White Hispanic, and BMI ≥85th-centile were included in the models. A second series of models were estimated on children who met a given policy benchmark on each day of attendance (i.e., 100% of the observed days for any given child). All estimates were adjusted using the length of time in attendance as a time varying covariate. All analyses were conducted using Stata (v.10, College Station, TX).

Results

Of the 344 children enrolled, 274 (80%) provided written informed consent/verbal assent to participate. Descriptive characteristics are presented in Table 2. Of these, 253 (73.5% of total sample, 92% of measured sample) had at least one day of valid accelerometer wear time. The numbers of valid days the children were monitored were 1 (14%), 2 (21%), 3 (35%), and 4 complete days (30%). This resulted in an average of 2.8 days for each child for a total of 711 observations on 253 children. On average, 12.9 min and 18.5 min was spent in MVPA for girls and boys, respectively. Time spent sedentary (e.g., homework, sitting) was 73.7 min and 65.2 min for girls and boys, respectively.

The prevalence of meeting one of the four policies is presented in Table 1. Children (n=253) meeting the policies daily ranged from 0.1% (California-60 min) to 71.7% (NAA) and for the reinterpreted policies from 3.4% to 93.3%. These recommendations are meant to be achieved on a daily basis. Because children could have attended the ASP for any length of time, comparisons were also made in relation to the proportion of time each child spent being physically active based on length of attendance/day.

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Table 1

<table>
<thead>
<tr>
<th>State</th>
<th>Policy Benchmark</th>
<th>Percentage</th>
<th>Age (95%CI)</th>
<th>Sexa</th>
<th>Raceb</th>
<th>≥85th BMI percentilec</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Carolina</td>
<td>20% of daily program time for MVPA (36 out of 180 min ASP)</td>
<td>0.0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>California</td>
<td>Minimum of 30 min of MVPA</td>
<td>1.2</td>
<td>0.61</td>
<td>1.19</td>
<td>0.12</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>Minimum of 60 min of MVPA</td>
<td>1.0</td>
<td>0.78</td>
<td>0.99</td>
<td>0.96</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>Chance for 30 min of physical activity for every 3 h time block</td>
<td>71.7</td>
<td>0.79</td>
<td>1.46</td>
<td>0.64</td>
<td>0.83</td>
</tr>
<tr>
<td>National Afterschool Association</td>
<td>Chance for 30 min of physical activity for every 3 h time block</td>
<td>93.3</td>
<td>0.77</td>
<td>0.60</td>
<td>0.99</td>
<td>0.83</td>
</tr>
</tbody>
</table>

Abbreviation: ASP = afterschool program; OR = Odds Ratio; 95%CI = 95% confidence interval; MVPA is moderate-to-vigorous physical activity; NA= not enough observations to estimate logistic model.

a Sex comparison boys vs. girls. Reference group is girls.

b Race comparison includes African Americans (38%) and Asian, Hispanic, and other (4%) vs. White non-Hispanics (57%, reference group).

c Weight status comparison between age-sex-specific BMI percentiles of ≥85th percentile vs. <85th percentile. Reference group is <85th percentile.

d Total number of observations 711 from 253 kids across an average of 2.8 days each (range 1–4 days).

Statistical analysis.

The prevalence rates of meeting a policy benchmark were calculated for each policy by dichotomizing a child’s PA level based on the policy (see Table 1). Random intercept logistic models, measurement occasions (days) nested in each child, were calculated. Child demographics sex (1 = boys), age, race (1 = African American and non-White Hispanic), and BMI ≥85th-centile were included in the models. A second series of models were estimated on children who met a given policy benchmark on each day of attendance (i.e., 100% of the observed days for any given child). All estimates were adjusted using the length of time in attendance as a time varying covariate. All analyses were conducted using Stata (v.10, College Station, TX).

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The prevalence of meeting one of the four policies is presented in Table 1. Children (n=253) meeting the policies daily ranged from 0.0% (California-60 min) to 48.2% (National Afterschool Association, NAA). Reinterpretation of these two policies ranged from 0.0% to 85.4%. When examined by the percentage of total observations (n=711), the prevalence of meeting a policy on any given day ranged from 0.1% (California-60 min) to 71.7% (NAA) and for the reinterpreted policies from 3.4% to 93.3%.
Boys were more likely to meet a policy in comparison to girls (odds ratio [OR] range 1.99 to 14.20) and children from an ethnic/minority background (OR range 1.87 to 5.47) more likely than White non-Hispanic children to meet a policy. Both age and overweight/obese status were not consistently associated with meeting a policy.

**Discussion**

This study found that the typical PA levels of children attending ASPs fall short of policy benchmarks. The findings were consistent across interpretations of the policies. It is notable that children from ethnic/minority backgrounds were more likely to meet policy benchmarks in comparison to their White non-Hispanic peers, while the classification of overweight/obese status was mostly unrelated. This suggests that ASPs can be beneficial setting for children from a minority background to engage in PA. It is recognized the low levels of PA may be a product of the cutpoints employed; however, there is no consensus as to which cutpoints are the most appropriate for youth.

A main issue with these policies is the absence of ASP-based evidence on which they were developed. Although policy documents in a systematic review (Beets et al., 2010) indicated developing the benchmarks from research, no empirical evidence from the ASP-setting related to PA was used in their development. Based on the current findings and the inconsistencies among policies a recommendation on the “best” policy for organizations and frontline practitioners to adopt cannot be made.

In conclusion, public health policies for PA in the ASP-setting are essential to providing children with maximum opportunities for PA. In their current form existing policies lack the evidence-base to justify their promulgation. Additional research is needed to help build a stronger foundation upon which decisions related to PA promotion and the language used to describe benchmarks of success can firmly rest. An evidence-based framework informing policy for promoting PA in the ASP-setting will ultimately enable ASPs to be catalysts for changing the inactive lifestyles of children.

**Conflict of interest statement**

The authors declare that there are no conflicts of interest.

**References**


