School Physical Activity Policy Assessment

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Kathryn A. Holt

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• Numerous U.S. health agencies and organizations recognize the potential of schools to promote and provide PA

• Few students receive daily PE
  3.8% of elementary schools
  7.9% of middle schools
  2.1% of high schools

• Most consistent opportunities for PA come from recess
  – 20% of elementary schools in the United States have reduced recess
    (American Association for the Child’s Right to Play)
Policies

• Integral to the structure and function of what happens in schools
  – little known about how specific policies relate to program minutes or actual PA

• Enacted at different levels (e.g., state, district, school)

• Policy characteristics
  – Language strength
  – Implementation
Multi-Level Ecological Model of School PA Policy

- State level policies
  - Degree of implementation
- District level policies
  - Degree of implementation
- School level policies
  - Degree of implementation
- School environment
  - Degree of implementation

Individual PA behaviors
Purpose

1. Develop a valid and reliable instrument to assess
   • school and district PA policy adoption
   • school environmental variables that provide indications of the degree of policy implementation

2. Use the newly developed instrument to
   • Assess the relations of PA policy and PA opportunity minutes
Methods

Item Development

• Relevant literature

• Analyzed related instruments
  • School Health Index, School Health Program Policy, and Physical Education Curriculum Assessment Tool, National Association Sport and Physical Education’s Checklist for Quality Physical Education

• Consultation with PE policy stakeholders and researchers

Content Validity

• Several rounds of feedback and revision
  • educational policy makers, PE teachers, school PA researchers
Test Retest Reliabilities

- 31 elementary school physical education teachers
- Two occasions, 14 days apart

Reliability of PE and recess items had fair to substantial levels of agreement (Kappas=0.31-0.81)

Other before/during/after school PA programs had fair to perfect agreement (Kappas=0.31–1.00).
Description of S-PAPA

• The School Physical Activity Policy Assessment (S-PAPA) uses open-ended, dichotomous, multichotomous, and checklist formatting.

• S-PAPA respondents are instructed to seek accurate answers from appropriate sources.

• PE teacher is likely the best S-PAPA respondent.
S-PAPA

Three distinct sections
- Physical Education (47 items)
- Recess (27 items)
- Other Before, During, and After School Programs (15 items)

Administration time approximately 30 minutes


S-PAPA is available on the ALR web site
School Physical Activity Policy Implementation
-Fidelity Index-

• Provides policy implementation indicators for policies assessed in S-PAPA
• Check list format; completed by researchers
• Recommends multiple data sources specific to each policy
  – actual written policy, completed S-PAPA, direct observation data, and school records
• S-PAPA policy indicators were based on results from relevant literature and existing instrumentation, and critically reviewed by
  – PE policy researchers, a school superintendent, a school board member, an elementary school principal, elementary PE teachers, and representatives from school wellness professional organizations
• Inter-rater reliability was .89 (20%)
Methods (2)

• 65 elementary schools; 27 school districts in 9 states
  – PE teacher completed the S-PAPA
  – Two classroom teachers (one primary and one intermediate) completed PARC (Physical Activity Record for Classes) – a two week log of class daily minutes in PE and recess

• Analyses
  – descriptive statistics to describe PA program minutes and policies
  – correlation to assess relationships
  – logistic regression to identify policy and environmental variables that predicted higher PA program minutes
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Schools (N=65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students eligible for FRMP(^a) (%)</td>
<td>Mean=52.1%; Range= 2-98%</td>
</tr>
<tr>
<td>Student enrollment (#)</td>
<td>Mean=605; Range=177-1050</td>
</tr>
<tr>
<td>PE Specialists (#)</td>
<td>Median=1</td>
</tr>
<tr>
<td>PE days per week (#)</td>
<td>Mean=1.7; Range=1-5</td>
</tr>
<tr>
<td>Typical class size (#)</td>
<td>Mean=26.5; Range=18-63</td>
</tr>
<tr>
<td>Annual budget for PE ($)</td>
<td>Mean=225; Median=389; Range=0-2000</td>
</tr>
<tr>
<td>100% of PE taught by a PE specialist</td>
<td>88%</td>
</tr>
<tr>
<td>Days of PE</td>
<td>Median = 2</td>
</tr>
<tr>
<td>1 day = 38.5%; 2 days = 54%</td>
<td>1 day = 38.5%; 2 days = 54%</td>
</tr>
<tr>
<td>PE Minutes (#) (150 \text{ minutes/week recommended})</td>
<td>Mean = 63; SD = 30.</td>
</tr>
<tr>
<td>Recess Minutes (#) (20 \text{ minutes per day recommended})</td>
<td>Mean = 146; SD = 49</td>
</tr>
<tr>
<td>PARC (#)</td>
<td>Mean = 209; SD = 59</td>
</tr>
</tbody>
</table>
### Prevalence of District PE Policies

<table>
<thead>
<tr>
<th>Policy</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow specific PE standards or guidelines (e.g. NASPE)</td>
<td>86.7%</td>
</tr>
<tr>
<td>Assigning grades for PE</td>
<td>85.3%</td>
</tr>
<tr>
<td>Specific number of PE minutes per week or days</td>
<td>68.3%</td>
</tr>
<tr>
<td>Fitness testing in PE</td>
<td>33.3%</td>
</tr>
<tr>
<td>Maximum student-to-teacher ratio</td>
<td>24.0%</td>
</tr>
<tr>
<td>Annual PE program evaluation</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

### Prevalence of School PE Policies

<table>
<thead>
<tr>
<th>Policy</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assigning grades for PE</td>
<td>76.6%</td>
</tr>
<tr>
<td>Specific number of PE minutes per week or days</td>
<td>55.6%</td>
</tr>
<tr>
<td>Follow specific PE standards or guidelines (e.g. NASPE)</td>
<td>47.5%</td>
</tr>
<tr>
<td>Fitness testing in PE</td>
<td>21.5%</td>
</tr>
<tr>
<td>Annual PE program evaluation</td>
<td>3.6%</td>
</tr>
</tbody>
</table>
# Relationship between PE Policies and PE and Recess Minutes

<table>
<thead>
<tr>
<th>District Policies</th>
<th>PE Minutes</th>
<th>Recess Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow specific PE standards or guidelines (e.g. NASPE)</td>
<td>0.035</td>
<td>0.101</td>
</tr>
<tr>
<td>Specific number of PE minutes per week or days</td>
<td>-0.116</td>
<td>0.378**</td>
</tr>
<tr>
<td>Maximum student-to-teacher ratio</td>
<td>-0.180</td>
<td>-0.138</td>
</tr>
<tr>
<td>Annual PE program evaluation</td>
<td>0.245</td>
<td>-0.062</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School Policies</th>
<th>PE Minutes</th>
<th>Recess Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow specific PE standards or guidelines (e.g. NASPE)</td>
<td>0.150</td>
<td>0.269*</td>
</tr>
<tr>
<td>Specific number of PE minutes per week or days</td>
<td>-0.134</td>
<td>0.210</td>
</tr>
<tr>
<td>Maximum student-to-teacher ratio</td>
<td>-0.154</td>
<td>-0.121</td>
</tr>
<tr>
<td>Annual PE program evaluation</td>
<td>0.560***</td>
<td>-0.181</td>
</tr>
</tbody>
</table>

***p<.001; **p<.01; p<.05
Smaller Class Sizes and PE Specialists

• 88% of schools had 100% of PE taught by a specialist

• Only 2 schools had class sizes that exceeded 30 students

• Negatively associated with being in schools that provided more minutes of PE
  — Having smaller/similar class size as other classes ($\beta = -2.26$, $p < .01$, OR = .105)
  — Having 100% of PE taught by PE teacher ($\beta = -2.63$, $p < .01$, OR = 0.72)
Importance of Policy for Annual PE Evaluation

• District
  – District policy maximum student to teacher ratio ($r = .30$)
  – District policy to test fitness ($r = .28$)
  – School policy for annual PE evaluation ($r = .47$)
  – School policy for PE standards ($r = .30$)

• School
  – Gym ($r = .29$)
  – PE grading same as other subjects ($r = .28$)
  – PE classes per week ($r = .32$)
  – PE class length ($r = .35$)
  – Reported minutes of student MVPA ($r = .29$)
PARC Minutes

• Variables most related to PARC minutes were:
  – percentage eligible for free/reduced meals ($r = -0.31$, $p<0.05$)
  – having a school policy for PE standards/guidelines ($r=0.32$, $p<0.05$)
  – requiring specific number of minutes per week of PE ($r=0.26$, $p<0.05$).

• School-based policy of minutes/days of PE increased the odds of being in the top 40% of PARC minutes when contrasted with the lowest 40% of PARC minutes (OR=4.43, 95% CI=1.28 - 15.35).

  – Compared to schools and schools in districts without this policy, schools that at least partially implemented it had more PARC Minutes
    • School level policy had 36 more PARC minutes ($\beta = 35.6$, $p<0.05$)
    • District level policy had 50 more PARC minutes ($\beta =50.1$, $p<0.01$)
Recess

• Greatest contribution to school PARC (70%)

• Few policies were in place to govern it

• Even when present, policies were rarely highly or fully implemented
  – 54% of schools had a recess policy specifying minutes per day, but only 24% were high or full implementers of the policy
Conclusions

• Few significant associations between PE policies and PE and Recess program minutes

• Some PE policies were positively associated with recess minutes, while negatively associated with PE minutes

• Smaller class sizes and having lessons delivered by a certified PE teacher were negatively associated with higher PE minutes
  – Investigate creative scheduling and optimal instructional format strategies
Thank you!