Physical Activity Policy Implementation and Impact: A Multi-Sectoral Review

Jamie F. Chriqui, PhD, MHS

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Studying Implementation and Impact of PA Policies: Key Sectors of Influence

- Public health
- Health care
- Education
- Transportation, Land Use, and Community Design
- Parks, Recreation, Fitness and Sports
- Business and Industry (Worksites)
- Voluntary and Non-Profit Organizations
- Mass Media
What this presentation is about

• A *rapid* review of the peer-reviewed scientific literature
  • Including key research syntheses and reviews from groups such as Active Living Research
  • NOT a systematic review

• Intended to provide an “overview” of some key findings relative to what we know about the implementation and/or impact of several “big P” PA-related policies at the state, local, or school district levels
The Punch Line

- There is some good news when it comes to PA policy....

- And, there is some challenging news
  - Thing to remember, policy making is mainly incremental
  - PA policies are often self-enforcing and little compliance monitoring and enforcement occurs
PA Policy in Health Care Settings

- Unable to identify studies of public policy related to PA involving the health care sector.

- Systematic review found that written Rx for exercise + Dr support for PA → increased patient PA (Müller-Riemenschneider et al., 2008)
  - Could be a possible strategy to consider in licensing standards for physicians (which are a state-level function)

“Doctor Consults with Patient” by Bill Branson [Public domain or Public domain], via Wikimedia Commons, commons.wikimedia.org; http://commons.wikimedia.org/wiki/File:Doctor_consults_with_patient_(7).jpg
PA Policy in the Education Sector: Focus on Physical Education

- Systematic review: On average, mandatory PE associated with 1-metabolic equivalent-hour-per-day increase in PA (Basset et al., 2013)

- State **PE time mandates (requirements) are associated with increased amounts of time spent in PE** in elementary and middle schools (Slater et al., 2012; Chriqui et al., 2013; Perna et al., 2013; Taber et al., 2013)

**Strong PE laws matter—particularly for girls’ participation in PE** (Taber et al., 2013)

<table>
<thead>
<tr>
<th>Gender</th>
<th>State law</th>
<th>3 + days per week</th>
<th>95% CI</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>Average difference</td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>None</td>
<td>52.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Weak</td>
<td>63.2</td>
<td>11.1</td>
<td>-6.4, 28.6</td>
</tr>
<tr>
<td></td>
<td>Strong</td>
<td>74.1</td>
<td>22.0</td>
<td>2.1, 42.0</td>
</tr>
<tr>
<td>Boys</td>
<td>None</td>
<td>57.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Weak</td>
<td>66.6</td>
<td>9.1</td>
<td>-6.6, 24.8</td>
</tr>
<tr>
<td></td>
<td>Strong</td>
<td>70.8</td>
<td>13.2</td>
<td>-5.6, 32.0</td>
</tr>
</tbody>
</table>
PA Policy in the Education Sector: Focus on Physical Education

- Challenges remain with implementation
  - PE time is consistently addressed in state law but the amount of time varies greatly
  - More importantly, **most states do not address the amount of time spent doing PA in PE**—particularly moderate-to-vigorous PA—and monitoring, implementation, and enforcement of such provisions is lacking (Carlson et al., 2013)
PA Policy in the Education Sector: Recess Policies

- Elementary schools more likely to offer 20+ minutes of recess daily (OR: 1.8, 95% CI: 1.2, 2.8) if state law encourages daily recess (Slater et al., 2012)

- Problem: Policies often substitute recess for PE and vice versa and, as a result, schools offer one or the other but often do not offer both at nationally-recommended levels (Slater et al., 2012)

Source: www.playworks.org

http://www.playworks.org/sites/default/files/styles/bento_main/public/bento/playworks_kids-playing-recess-games.jpg?itok=e0fMzYER
PA Policy in the Education Sector: PA Requirements

- Systematic review: State policies that require a minimum number of PA minutes per student per day → **Increased PA** and health, reduced obesity *(Ward, 2011).*
  - NC state policy requiring 30 minutes of MVPA/day for all elementary school children associated with increased PA, better focus in the classroom, improved student behavior, higher levels of enjoyment of PA and “awareness of healthy habits” *(Evenson et al, 2009; Trost, 2009)*

- **Challenge:** Wording of state laws (and district policies) is often such that PA is defined broadly to include a laundry list of ways to meet the requirement including activity breaks, recess, and/or PA so students often get far less than nationally recommended standards for PE and recess
PA Policy in the Education Sector: After-School PA

- Beets et al. (2010) found that definitive policy requirements for PA time in after-school programs are rarely followed
  - Policies that encourage PA in after-school programming have higher compliance rates
- Systematic review (Beets, 2012): Many after school PA policies lack clearly defined benchmarks and are difficult to measure making it difficult to measure compliance and impact.
  - Significant differences in staffing and physical resources which should be considered when developing and refining policies and standards governing after school PA time (Beets, 2012)
Community and Education Sectors: Shared Use Policies

• Shared use policies are associated with modest increases in children’s PA and may provide new opportunities for adult PA (Slater et al., 2014; Spengler, 2012)
  • Really may be best considered as awareness raising because many give priority to/focus on school-affiliated groups, do not allow evening/weekend/holiday access

• Shared use policies are lacking in low-income communities (Spengler, 2012)

Source: www.ci.snoqualmie.wa.us
http://www.ci.snoqualmie.wa.us/Portsals/0/Parks/Park%20Pictures%202010/Community%20bball%20with%20players%202010.jpg
PA Policy and the Transportation Sector: Active Travel to School

- Safe Routes to School laws and related policies increase active transportation to school (Chriqui et al., 2012; Turner et al., 2013).
  - State laws specifically requiring infrastructure such as sidewalks, crossing guards, speed zones on school route are associated with increased active travel to school (Chriqui et al., 2012)

- Barriers to SRTS implementation in rural communities include limited resources, challenges demonstrating connection between social and economic policy and PA/health outcomes (Barnridge et al., 2013)
Transportation Policies: Light Rail Projects

• 5 studies currently funded by NIH examining the implementation and impact light rail natural experiments in 5 jurisdictions in the U.S.

• Results are emerging
  • Need to wait for completion of the studies and to understand each study’s local context, methodological differences, and confounders
Zoning and Land Use Policy: Association with Adult Biking (BRFSS, 2011)

<table>
<thead>
<tr>
<th>Zoning Measure</th>
<th>BIKING</th>
<th>VIGOROUS BIKING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td>Code reform</td>
<td>1.34*</td>
<td>1.02 - 1.77</td>
</tr>
<tr>
<td>Bike lanes</td>
<td>1.30</td>
<td>0.91 - 1.86</td>
</tr>
<tr>
<td>Bike parking/street furniture</td>
<td>1.85***</td>
<td>1.38 - 2.48</td>
</tr>
<tr>
<td>Bike-ped trails/paths</td>
<td>1.59***</td>
<td>1.22 - 2.06</td>
</tr>
<tr>
<td>Mixed use</td>
<td>1.57*</td>
<td>1.10 - 2.24</td>
</tr>
<tr>
<td>Active rec.</td>
<td>1.43*</td>
<td>1.03 - 1.98</td>
</tr>
<tr>
<td>Passive rec.</td>
<td>1.57*</td>
<td>1.10 - 2.26</td>
</tr>
</tbody>
</table>

Results for zoning requirements for sidewalks, crosswalks, bike-ped connectivity, street connectivity. Other walkability not presented for space reasons—for the most part they were not statistically associated with the outcomes.

Source: Chriqui et al., under review

Data from largest 96 counties in the U.S.
## Zoning and Land Use Policy: Association with Adult Walking and Jogging/Running (BRFSS, 2011)

<table>
<thead>
<tr>
<th>Zoning Measure</th>
<th>WALKING</th>
<th>RUN/JOG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td>Code reform</td>
<td>1.04</td>
<td>0.93 - 1.16</td>
</tr>
<tr>
<td>Bike lanes</td>
<td>1.24***</td>
<td>1.09 - 1.40</td>
</tr>
<tr>
<td>Bike parking/street furn.</td>
<td>1.19***</td>
<td>1.07 - 1.31</td>
</tr>
<tr>
<td>Bike-ped trails/paths</td>
<td>1.06</td>
<td>0.93 - 1.20</td>
</tr>
<tr>
<td>Mixed use</td>
<td>1.16**</td>
<td>1.04 - 1.29</td>
</tr>
<tr>
<td>Active rec.</td>
<td>1.14**</td>
<td>1.04 - 1.24</td>
</tr>
<tr>
<td>Passive rec.</td>
<td>1.12*</td>
<td>1.02 - 1.23</td>
</tr>
</tbody>
</table>

Results for zoning requirements for sidewalks, crosswalks, bike-ped connectivity, street connectivity. Other walkability not presented for space reasons—for the most part they were not statistically associated with the outcomes.

Source: Chriqui et al., under review

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**p<.001   **p<.01  *p<.05  +p<.10

Data from largest 96 counties in the U.S.
Association between % county population exposed to active living-oriented zoning and % adults taking PUBLIC TRANSIT to work, ACS 2009-2013 (N=315 largest counties nationwide)

<table>
<thead>
<tr>
<th>Zoning Measure</th>
<th>Zoning provision addressed</th>
<th>Any zoning required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coef</td>
<td>95% CI</td>
</tr>
<tr>
<td>Code reform</td>
<td>1.62+</td>
<td>-0.01, 3.25</td>
</tr>
<tr>
<td>Complete streets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sidewalks</td>
<td>4.63**</td>
<td>1.61, 7.66</td>
</tr>
<tr>
<td>Crosswalks</td>
<td>3.10*</td>
<td>0.75, 5.45</td>
</tr>
<tr>
<td>Bike-ped connectivity</td>
<td>1.77</td>
<td>-0.56, 4.10</td>
</tr>
<tr>
<td>Street connectivity</td>
<td>0.85</td>
<td>-0.54, 2.24</td>
</tr>
<tr>
<td>Bike lanes</td>
<td>0.62</td>
<td>-0.61, 1.84</td>
</tr>
<tr>
<td>Bike parking (street furniture)</td>
<td>3.58***</td>
<td>1.79, 5.46</td>
</tr>
<tr>
<td>Bike-ped trails/paths</td>
<td>0.83</td>
<td>-0.87, 2.53</td>
</tr>
<tr>
<td>Other walkability</td>
<td>4.02**</td>
<td>1.43, 6.60</td>
</tr>
<tr>
<td>Mixed use</td>
<td>3.54**</td>
<td>1.00, 6.08</td>
</tr>
<tr>
<td>Zoning walkability scale</td>
<td>0.52**</td>
<td>0.19, 0.85</td>
</tr>
</tbody>
</table>

In one example, on average, public transit use for commuting at the county level was 4.58% across 315 counties studied. For a 1-point increase in the proportion of the county population exposed to zoning for mixed use, public transit use would increase by 3.54 percentage points from an average of 4.58% to over 8% of the county population.

All models controlled for county-level variables

***p<.001  **p<.01  *p<.05  *p<.10
Complete Streets Policies and Active Travel to Work

• Complete streets policies diffusing nationally but studies of their impact are needed

• New analyses found that the percentage of commuters walking to work is 1.5% higher (95% CI: .52-2.57) and public transit use is 2.7% higher (95% CI: 1.11-4.33) in jurisdictions with complete streets policies that are required (Chriqui et al., in development)
PA Policies regarding Parks and Open Space

• Literature exists on the relationship between park access, availability, safety, renovations, and maintenance and park utilization and PA

  ➢ Reviews recommend policies that invest in maintenance, improvements to amenities and recreational programming in existing parks, and focus on safety (Babey, 2005; Global Policy Solutions, 2012).

  ➢ A number of local-level natural experiments occurring (e.g., Chicago park renovation initiative) that are facing implementation challenges and need to be studied.
Worksite PA Policies

• Worksite promotion policies are associated with higher levels of PA and less sedentary behavior (Matson-Koffman et al., 2005; Dodson et al., 2008; Crespo et al., 2011)

• Worksite transit benefit programs associated with increased walking/active travel to work (Lachapelle and Frank, 2009)

Source: Auro University
Summary

• A wide range of PA policies have been studied in terms of implementation and impact
  ➢ Existing studies primarily limited to cross-sectional analyses—need longitudinal studies over time to truly understand impact

• Studies heavily focused on the education sector
  ➢ More research needed in the health care, worksite, parks/open space, transportation, planning and land use sectors
References Reviewed

References

References

References


• Spengler JO. Promoting Physical Activity through the Shared Use of School and Community Recreational Resources. Princeton, NJ: Active Living Research, a National Program of the Robert Wood Johnson Foundation; 2012 Apr.


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