



Evaluating Children's Physical Activity in School-Based Programs

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Acknowledgements

- The Boston Foundation
- BPS Health and Wellness
- Participating programs
 - BOKS
 - Community Rowing, Inc.
 - Playworks
 - Sportsmen's Tennis and Enrichment Center
- Collaborators at ChildObesity180

Agenda

- Background: youth physical activity and COVID-19
- Select evaluation components
 - ✓ Program leader surveys
 - ✓ Secondary data analysis
 - ✓ Program staff surveys
 - ✓ Key informant interviews
- Strengths, limitations, key findings, and opportunities

Background: Physical Activity and COVID-19

- Physical activity (PA) confers benefits for physical health, cognition, academic performance, and social-emotional health
- Most US children fall short of recommendations
- Children of color tend to have less access to PA opportunities outside school, but school-based programs can help lower inequities
- The pandemic appears to have had an adverse impact on PA levels (one study: 10-min decline in MVPA), particularly for children with socioeconomic disadvantage
- Limited understanding of how the pandemic has affected school-based PA programs



Physical Activity Program Leader Survey

Overview

- 12-item survey focused on program reach, staffing, and dose, both before and during the pandemic
- All four PA programs represented

Data Analysis: Key Questions

- What number of schools, students, and staff did the program have per year on average from 2015-2020?
- What number of schools, students, and staff did the program have in Fall 2019 versus Fall 2020?
- What was program duration, number of days offered, and session length on average prior to the pandemic?

Table 1. Mean annual number of BPS sites and students served and paid program staff, 2015-2020

2015-2020	
Mean # of BPS sites served	34
Mean # of BPS students served	5,663
Mean # of paid staff	43

Table 2. Program Duration, Days Offered, and Length of Sessions in a Typical School-Based Program, 2015-2019

Mean weeks of program duration per school year	27
Mean days per week program offered	3.9
Mean length of program session (minutes)	98

Secondary Data Analysis

Data Sources

- Combined two data sources for all Boston Public Schools:
 1. BPS Profiles: PA-related school practices and programs, reported by PE teachers and administrators
 2. DESE: building-level demographic data

Data Analysis: Questions

- What kinds of buildings are these four TBF-funded programs reaching?
 - Student demographics
 - Overall level of PA support (composite PA support score)

Table 3. Building-Level Student Demographics in Boston Public Schools and TBF-Funded Physical Activity Programs

	BOKS			CRI			Sportsmen's			Playworks		
	Yes (n=44)	No (n=72)	P	Yes (n=33)	No (n=82)	P	Yes (n=16)	No (n=99)	P	Yes (n=25)	No (n=90)	P
Mean % students with economic disadvantage	65.8	67.4	0.58	64.1	67.8	0.28	64.3	67.2	0.48	66.5	66.8	0.94
Mean % students of color	86.2	86.8	0.82	85.7	86.9	0.71	82.5	87.2	0.31	84.6	87.1	0.46
Mean % students whose first language is not English	46.5	48.2	0.62	46.9	47.7	0.83	39.0	48.9	0.03	46.5	47.8	0.76

Source: BPS Profiles, DESE

Table 4. Number of Boston Foundation (TBF)-Funded Physical Activity (PA) Programs and Supportive Physical Activity (PA) Environment Score

	Number of TBF Programs				
	0 (n=54)	1 (n=25)	2 (n=19)	3+ (n=17)	P
Supportive PA Environment Score¹	9.4	11.1	12.4	12.9	0.0005

Source: BPS Profiles

¹Composite score for the overall extent to which the school supports student PA. This modified version of the PASS Score includes points for number of physical education (PE) minutes required, licensure for PE teachers, minutes of recess provided, provision of playground supervisors, opportunities for PA before/after school and in class, presence of a transportation liaison to promote active transport, policies prohibiting withholding PA as punishment, and presence of indoor and outdoor PA facilities/spaces. Range: 0-20, with higher scores denoting more supportive environments.

A woman with blonde hair, wearing a white face mask and a green t-shirt, stands with her arms crossed in a gymnasium. The background consists of blue padded walls and a wooden floor. The text "Physical Activity Program Staff Survey" is overlaid in white on the left side of the image.

Physical Activity Program Staff Survey

Overview

- 22-item survey focused on program reach, programming dose, and impact of the pandemic on implementation
- 42 staff recruited to participate; 62% (n=26) responded

Data Analysis: Questions

- From pre- to post-pandemic, how did programming change in terms of:
 - Coach-reported gender composition?
 - Amount of PA programming provided?
- During the pandemic how did coaches perceive program implementation and effectiveness?

Table 6. Characteristics of staff who responded to the coach survey (N=26)

	N	%
Program		
BOKS	12	46
Community Rowing, Inc.	3	12
Playworks	10	38
Sportsmen's Tennis and Enrichment Center	1	4
Time Coaching the Program		
1 year	8	31
2 years	6	23
3 years	5	19
4+ years	7	27
Role Relative to Program		
Program staff member	18	69
Physical education teacher	3	12
Other school staff	3	12
Other roles	2	8

Table 7. Changes from Fall 2019 (pre-pandemic) to Fall 2020 (during pandemic) in coach-reported gender composition of participants and dose of PA provided (n=17)

Aspect of programming	Fall 2019 Mean (SD)	Fall 2020 Mean (SD)
Participant gender		
% girls	41.1 (12.6)	38.6 (17.6)
Amount of physical activity		
Weeks of programming	12.4 (5.2)	9.3 (6.2)
Days per week	3.5 (1.4)	2.5 (1.9)
Average minutes/session (n=16)	43.8 (11.3)	33.2 (21.0)
Minutes active (n=16)	30.7 (11.8)	22.8 (15.8)
Total dose (weeks*days*active minutes) (n=16)	1,479 (793.5)	661.9 (605.4)

Decrease in total dose persisted across all four programs when examined individually

Table 8. Changes from Fall 2019 (pre-pandemic) to Fall 2020 (during pandemic) in spaces/channels used for program delivery (N=17)

Space/Channel	Fall 2019 %	Fall 2020 %
Gymnasium	65%	11%
Multipurpose room/cafeteria	53%	11%
Blacktop area	47%	17%
Grassy field	18%	0%
Playground	65%	28%
Classroom	35%	11%
Trailers/mobile building	6%	0%
Community center	6%	6%
Live remote delivery platform (e.g., Zoom, Google hangouts)	12%	72%
Recorded video	0%	22%
Other	12%	11%

Table 7. Coach perceptions of the impact of the COVID-19 pandemic on physical activity program delivery in Boston public schools (N=26)

Statement	% Agree or Strongly Agree
During the pandemic, programming is as effective at getting kids physically active as it would have been without the pandemic.	19
During the pandemic, our participants had the physical space and equipment (e.g., technology) to engage with activities or lessons remotely.	31
During the pandemic, I am able to deliver program activities or lessons as they were intended to be delivered.	42
During the pandemic, program is able to reach as many children as it would have been without the pandemic.	23
The pandemic makes me feel uncertain about how I will be delivering programming in the coming months.	58
During the pandemic, I have been able to successfully deliver program activities or lessons remotely.	81



Key Informant Interviews

Overview

- Two senior leaders from all four participating programs recruited; 100% (N=8) participated in 45-minute interviews on topics including program reach, effectiveness, and the pandemic's impact
- All interviews transcribed and themes identified by consensus by three researchers; transcriptions coded using NVivo
- Representative themes: program implementation, staffing/budget, and effectiveness/impact

Key Themes: Program Implementation

- Remote delivery did not fully replicate the experience of in-person programming
- Participants reported various program innovations, including:
 - remote delivery
 - take-home kits
 - equipment-free activities
 - new methods for engaging families
- These innovations are likely to persist into the future
- Participants expressed overall confidence in their ability to rebound from the pandemic and implement programming successfully
- After the pandemic, programs may have a particular need to train staff in trauma-informed delivery

Representative Quotation: Innovation

“Our biggest win in terms of future implementation is the fact that we’ve created all these resources that remove barriers, they remove equipment, they removed time constraints, and so I think they’ll be much easier for all schools to implement moving forward.”

Key Themes: Staffing and Budget

- During the pandemic, programs experienced budgetary decreases due to reduced dollars from funders and from other revenue sources
- Flexible funding was essential to sustain organizational health through the pandemic
- Programs experienced decreases in the number of staff due to budget cuts and other COVID-related issues

Representative Quotation: Flexible Funding

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“The best thing has been for us the funders who have said, as long as you can keep serving the mission, you can be flexible. If you need to spend it on the electric bill, spend it on the electric bill. So that has helped us tremendously.”


Key Themes: Program Effectiveness

- Program leaders believe that their programs:
 - increase children's physical activity both now and into the future
 - confer benefits for school attendance and academic performance
 - confer social-emotional benefits and interpersonal connection, which may be especially important during the pandemic

Representative Quotations: Program Effectiveness

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“At [Program] schools, we actually see an increase in attendance rate because I think there’s that joy of play and that kids are feeling safe and included.”



Strengths, Limitations, and Takeaways

Strengths

- Mixed-methods design encompassing a range of perspectives
- Feasible study design despite school closures and restrictions on human subjects research
- Novel and timely research questions
- Variety of useful findings for TBF, programs, BPS, and scientific publications

Limitations

- Reliance on self-report; potential for bias
- Small sample sizes for original surveys and interviews (but sufficient for small number of programs)
- Cross-sectional design limits potential for causal inference

Key Findings

- ✓ Programs achieved wide adoption in Boston Public Schools (average: 34 schools, > 5,600 children/year), with equitable reach by building-level demographics
- ✓ PA programs show some tendency to cluster, particularly in schools with more supportive PA environments
- ✓ In general, programs provide a meaningful amount of programming dose, averaging about 27 weeks/year, 4 sessions/week, and 1.5 hours/session
- ✓ Program leaders report that benefits of programming extend beyond PA and physical health and into social-emotional wellbeing and academic success

Key Findings (continued)

- ✓ The pandemic led to funding losses and staff cuts and, for varied reasons, substantially decreased both reach and dose of programming
- ✓ Programs innovated to allow some programming to continue through the pandemic; many of those innovations may persist into the future
- ✓ Flexible funding was particularly critical to programs' organizational health through the pandemic
- ✓ Program leaders are generally optimistic about their programs' potential to rebound

Opportunities

- Reaching a wider range of schools, including those with less supportive PA environments
- Helping programs restore their breadth of reach
- Supporting trauma-informed program delivery
- More equitably engaging girls
- Building on pandemic-inspired innovations, like remote delivery and take-home kits
- Securing long-term, flexible funding that enables innovation and supports organizational health



Thank you!

Feel free to reach me at Daniel.Hatfield@tufts.edu

Key Takeaways

- ✓ On average, programs achieved broad reach and provided a substantial dose of PA programming
- ✓ There was substantial drop-off in capacity and reach from pre- to post-pandemic

Key Takeaways

- ✓ There is no evidence that the schools reached by TBF-funded programs were meaningfully different from BPS as a whole in terms of building-level student socio-demographics
- ✓ There is some clustering of programming, especially in buildings that had environments that were more supportive of PA

Key Takeaways

- ✓ Programs largely pivoted from in-person to remote delivery models
- ✓ Perceived gender composition relatively unaffected by the pandemic, though girls are generally somewhat under-represented
- ✓ Coach-reported amount of programming provided (weeks of program, number of sessions/week, minutes/session) decreased substantially during the pandemic
- ✓ Coach-reported percentage of time active during programming that was provided remained fairly constant from before to during the pandemic
- ✓ Coaches generally believed that the pandemic decreased program reach and effectiveness but were relatively positive about success of remote delivery

Table 5. Association between Schools Having a Boston Foundation-Funded Physical Activity (PA) Program and Supportive Physical Activity (PA) Environment Score and Minutes of School PA Provided, 2017-2018

	BOKS			CRI			Sportsmen's			Playworks		
	Yes (n=44)	No (n=72)	P	Yes (n=33)	No (n=82)	P	Yes (n=16)	No (n=99)	P	Yes (n=25)	No (n=90)	P
Supportive PA Environment Score¹	12.4	9.8	0.0001	12.4	10.2	0.001	12.4	10.5	0.02	12.4	10.4	0.004
Min. of School PA Provided (Weekly)²	212.0	193.7	0.47	184.1	207.2	0.34	173.1	205.2	0.26	197.7	201.4	0.88

Source: BPS Profiles

¹Composite score for the overall extent to which the school supports student PA. This modified version of the PASS Score includes points for number of physical education (PE) minutes required, licensure for PE teachers, minutes of recess provided, provision of playground supervisors, opportunities for PA before/after school and in class, presence of a transportation liaison to promote active transport, policies prohibiting withholding PA as punishment, and presence of indoor and outdoor PA facilities/spaces. Range: 0-20, with higher scores denoting more supportive environments.

²Sum total of self-reported minutes provided for recess, classroom movement breaks, active classroom lessons, and PA-based promotional activities. Minutes were reported by grade level; values here are the mean across grade levels.

References: Background Slide

First bullet:

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Fourth bullet:

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