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June 23rd, 2022 | Weighing In

Joey Lightner, PhD, MPH

Disclosure

No personal financial interest to disclose.

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Housekeeping

- Let's have a conversation
- Goal: How do we make real change (equity, PA, health)?
- The process matters – how do we copy processes that work for other activities?
- This is hard work – we can't do it without a great team!

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Partners

KANSAS CITY PUBLIC SCHOOLS

TMC TRUMAN MEDICAL CENTERS | university health

TRILOGY SPORTS & FITNESS

MATTIE RHODES CENTER

KC Parks WHERE KC plays

Center for Children's Healthy Lifestyles & Nutrition

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Overview

- Story of MMGM
- Physical activity and nutrition outcomes
- Physical literacy
- Body image
- Social integration
- Lessons learned
- Next steps

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Background

- Less than 25% of youth 6-17 meet physical activity (PA) recommendations (i.e. 60 min/day)
- PA is essential for:
  - Physical health and growth
  - Cognitive performance (e.g. learning)
  - Emotional health (e.g. classroom behavior, school performance, etc)

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Background

- Schools are ideal locations to increase PA for youth
- Youth are more active while in school than at home
- PA in schools seem to be even more important for racial/ethnic minority youth than White youth

Background

Public health agenda setting organizations (CDC, NIH) consistently suggest:

- Scale-able interventions
- Moving away from individual-level to organizational/community
- Understanding how to implement interventions (especially in underserved communities)
- Realistic, real-world approaches to increasing PA

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Move More, Get More

Move More, Get More

Goals:

1. Increase physical activity
    a. CBPR sports sampling, after school program
2. Improve nutrition
    a. UH Mobile Market produce delivery
3. Improve equity
    a. Focus on underserved youth in KC

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~~Youth Engagement in Sports~~ Move More, Get More

Youth want:

- Something fun, with their friends, competition (for some),and incentives
- Fresh fruits and vegetables, easy to make, convenient

Youth reported some barriers:

- Time, social discomfort of PA
- Dislike of vegetables, lack of convenience, time to prepare

JMIR FORMATIVE RESEARCH Grimes et al

Original Paper

Designing an Adaptive Adolescent Physical Activity and Nutrition Intervention for COVID-19–Related Health Challenges: Formative Research Study

Amanda Grimes[1], PhD; Joseph S Lightner[1], MPH, PhD; Kimberly Pina[2], MPH; Evelyn S Donis de Miranda[2], BHS; Emily Meissen-Sebelius[3], MSW; Robin P Shook[3,4], PhD; Emily A Hurley[2,4,5], MPH, PhD

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Abstract

Background: With rates of childhood obesity continually increasing, effective physical activity and nutrition interventions are needed. Formative research is used to tailor interventions to different cultural and geographic contexts and can be vital in adapting intervention strategies in the face of significant disruptive circumstances (like COVID-19).

Objective: We conducted formative research via in-person and web-based focus groups among middle schoolers and parents to better understand the facilitators and barriers to physical activity and fruit and vegetable consumption and to inform the design of a large intervention for a low-income, urban setting in the US Midwest.

Methods: We conducted 2 phases of qualitative focus groups with parents (n=20) and 6th-9th grade middle schoolers (n=23). Phase 1 was conducted prior to the COVID-19 pandemic in late 2019, and phase 2 was conducted during the COVID-19 pandemic in the summer of 2020. Focus groups were transcribed and thematically coded using the Dedoose software.

Results: The main facilitators of physical activity prior to the pandemic included the opportunity to have fun, peer influence, competition (for some), and incentives, while the main barriers to physical activity were time constraints and social discomfort. The main facilitators of eating fruits and vegetables included parental influence, preparation technique, and convenience, while barriers included dislike of vegetables, time constraints, and preparation or freshness. During the pandemic, facilitators of physical activity remained the same, while additional barriers to physical activity such as lack of motivation and limited time spent outside of the home were reported. For fruit and vegetable consumption, both facilitators and barriers remained the same for both time periods. Additionally, for some participants, the pandemic offered an opportunity to offer more fruits and vegetables to middle schoolers throughout the day.

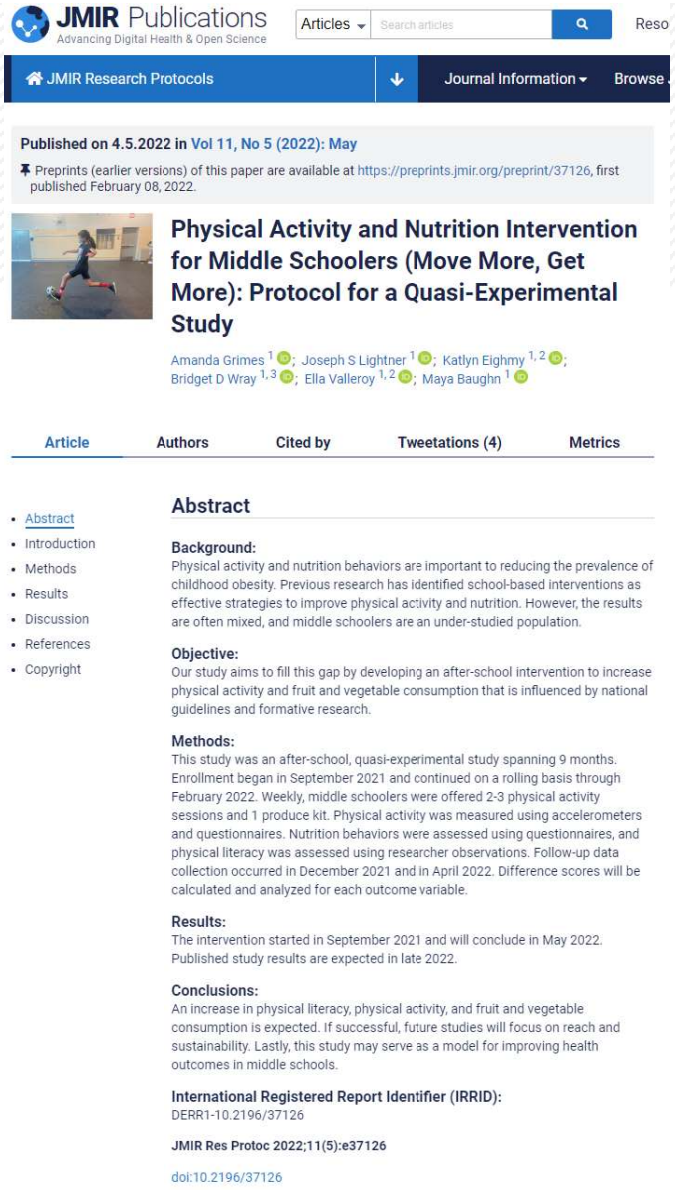
Conclusions: Some themes identified were common to those reported in previous studies, such as peer influence on physical activity and parental influence on fruit and vegetable consumption. Novel themes such as lack of motivation to be active and limited time outside the home helped improve intervention adaptation, specifically during the COVID-19 pandemic. The continuity of formative research after a major unexpected change in the intervention context can be essential in targeting areas of an intervention that can be retained and those that need to be adjusted.

(JMIR Form Res 2022;6(1):e33322) doi: 10.2196/33322

Move More, Get More

Design:

- Quasi-experimental, no attention control
- 3 intervention schools (Central, Northeast, Lincoln)
- 1 control school (Hogan Prep)



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Preprints (earlier versions) of this paper are available at https://preprints.jmir.org/preprint/37126, first published February 08, 2022.

Physical Activity and Nutrition Intervention for Middle Schoolers (Move More, Get More): Protocol for a Quasi-Experimental Study

Amanda Grimes [1]; Joseph S Lightner [1]; Katlyn Eighmy [1,2]; Bridget D Wray [1,3]; Ella Valleroy [1,2]; Maya Baughn [1]

Article | Authors | Cited by | Tweetations (4) | Metrics

- Abstract
- Introduction
- Methods
- Results
- Discussion
- References
- Copyright

Abstract

Background:
Physical activity and nutrition behaviors are important to reducing the prevalence of childhood obesity. Previous research has identified school-based interventions as effective strategies to improve physical activity and nutrition. However, the results are often mixed, and middle schoolers are an under-studied population.

Objective:
Our study aims to fill this gap by developing an after-school intervention to increase physical activity and fruit and vegetable consumption that is influenced by national guidelines and formative research.

Methods:
This study was an after-school, quasi-experimental study spanning 9 months. Enrollment began in September 2021 and continued on a rolling basis through February 2022. Weekly, middle schoolers were offered 2-3 physical activity sessions and 1 produce kit. Physical activity was measured using accelerometers and questionnaires. Nutrition behaviors were assessed using questionnaires, and physical literacy was assessed using researcher observations. Follow-up data collection occurred in December 2021 and in April 2022. Difference scores will be calculated and analyzed for each outcome variable.

Results:
The intervention started in September 2021 and will conclude in May 2022. Published study results are expected in late 2022.

Conclusions:
An increase in physical literacy, physical activity, and fruit and vegetable consumption is expected. If successful, future studies will focus on reach and sustainability. Lastly, this study may serve as a model for improving health outcomes in middle schools.

International Registered Report Identifier (IRRID):
DERR1-10.2196/37126

JMIR Res Protoc 2022;11(5):e37126

doi:10.2196/37126

Move More, Get More

Core Components:

1. 2-3 PA sessions/week (at least 60 minutes)
2. 20# of produce/week
3. Fun, inclusive environment
4. Culturally-appropriate, biweekly, sports sampling

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Move More, Get More

Measures:

Physical Activity

- Accelerometry (Garmin VivoFit 4)
- IPAQ

Physical Literacy (play.physicalliteracy.ca)

- PLAYself, PLAYbasic

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Nutrition

- Modified 2019 Youth Risk Behavior Survey

BMI

- Objective and subjective height and weight

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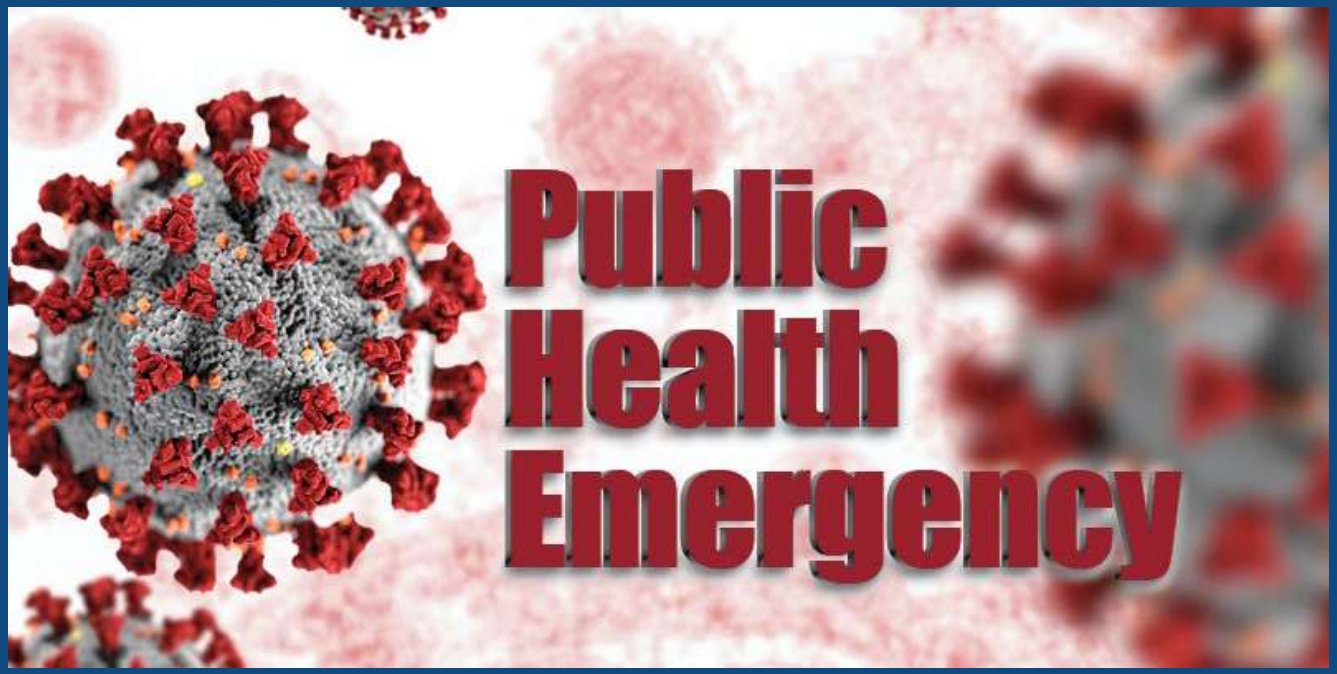

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COVID and PA for youth

- MVPA decreased by 42.5% during the school closure

JMIR FORMATIVE RESEARCH Grimes et al

Original Paper

Decreased Physical Activity Among Youth Resulting From COVID-19 Pandemic–Related School Closures: Natural Experimental Study

Amanda Grimes[1], PhD; Joseph S Lightner[1], MPH, PhD; Katlyn Eighmy[1,2], BSPH; Chelsea Steel[3], MPH; Robin P Shook[3], PhD; Jordan Carlson[3], PhD

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Abstract

Background: The COVID-19 pandemic has resulted in the closure of schools and may have inadvertently resulted in decreased physical activity for youth. Emerging evidence suggests that school closures due to the COVID-19 pandemic could have hastened the inactivity of youth, possibly due to a lack of structure outside of school and increased access to sedentary activities.

Objective: The purpose of this study was to assess changes in physical activity from pre–school closure (before the pandemic) to post–school closure (during the pandemic) among youth in spring 2020.

Methods: This study used a natural experimental design; youth were enrolled in a physical activity study prior to the lockdown, which was enforced due to the pandemic. The number of device-assessed steps per day and moderate-to-vigorous physical activity minutes per week were measured by using a Garmin Vivofit 4 (Garmin Ltd) accelerometer over 8 weeks. Mixed effects models were used to compare physical activity variables, which were measured before and during the COVID-19 pandemic.

Results: Youth were primarily Hispanic or Latinx (8/17, 47%) and female (10/17, 59%). The number of daily steps decreased by 45.4% during the school closure, from a pre–school closure mean of 8003 steps per day to a post–school closure mean of 4366 steps per day. Daily moderate-to-vigorous physical activity decreased by 42.5%, from a pre–school closure mean of 80.18 minutes per week to a post–school closure mean of 46.13 minutes per week.

Conclusions: Youth are engaging in roughly half as much physical activity during the school closure as they were prior to the school closure. If additional evidence supports these claims, interventions are needed to support youths' engagement in physical activity in the Midwest.

(JMIR Form Res 2022;6(4):e35854) doi: 10.2196/35854

COVID and PA for youth

FOCUS GROUP FINDINGS

A recent set of focus groups was conducted by the CMH team to identify facilitators and barriers to getting PA during virtual learning.

Youth noted:

- Being inside a lot
- Lacking motivation
- More video gaming

Parents noted:

- Physical activity slowed down
- Don't play the way they used to
- Play with family rather than friends
- Girls are at a stage where they want to quit activities
- Being an only child especially hard

Original Paper

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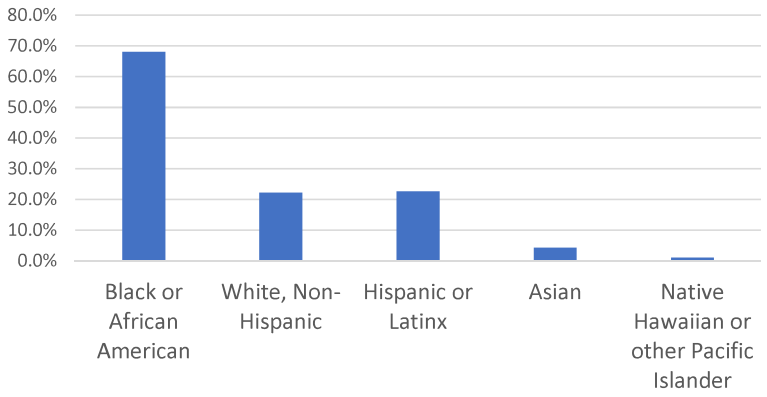
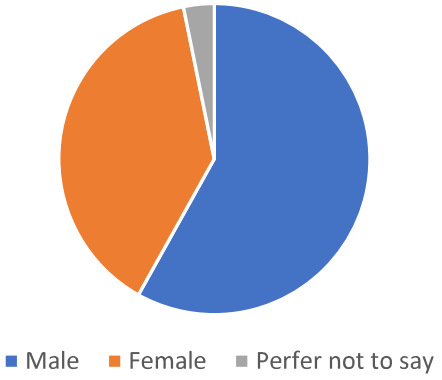
Participants

Year 1: 87 youth (shifted online after 2 weeks of enrollment)

Year 2: 82 youth (100% online)

Year 3: 228 youth (100% in-person)





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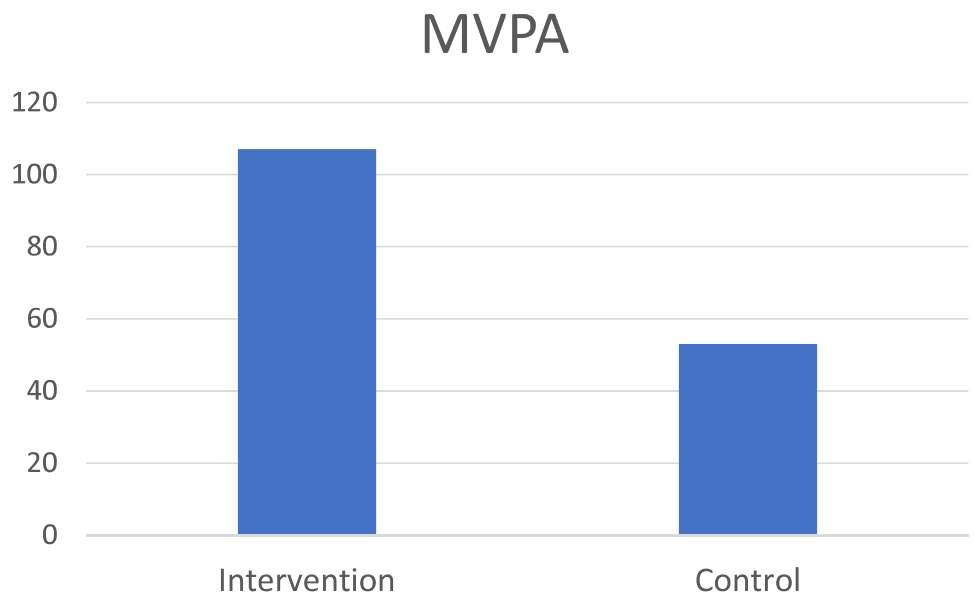
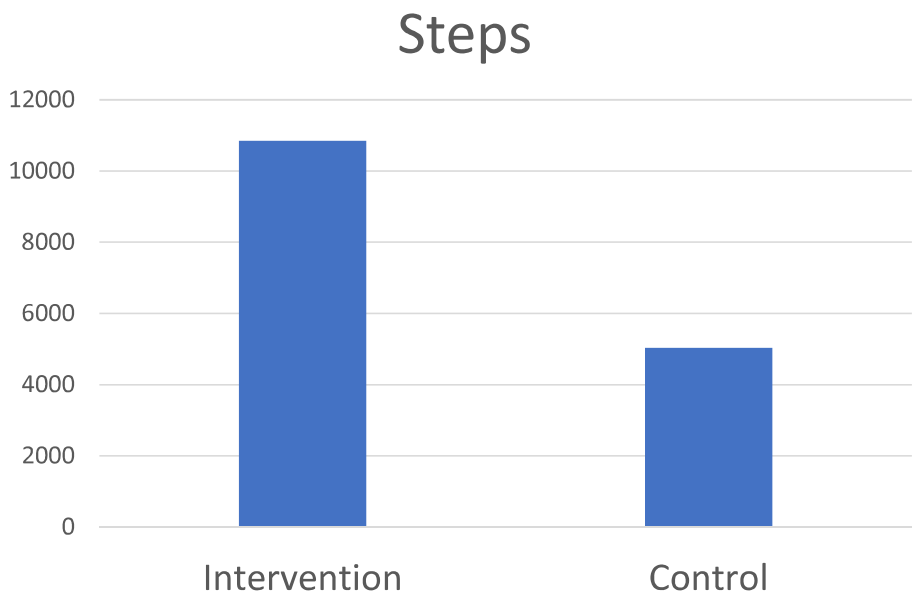
Results

Physical Activity Outcomes





*Note: PA measured by accelerometry.

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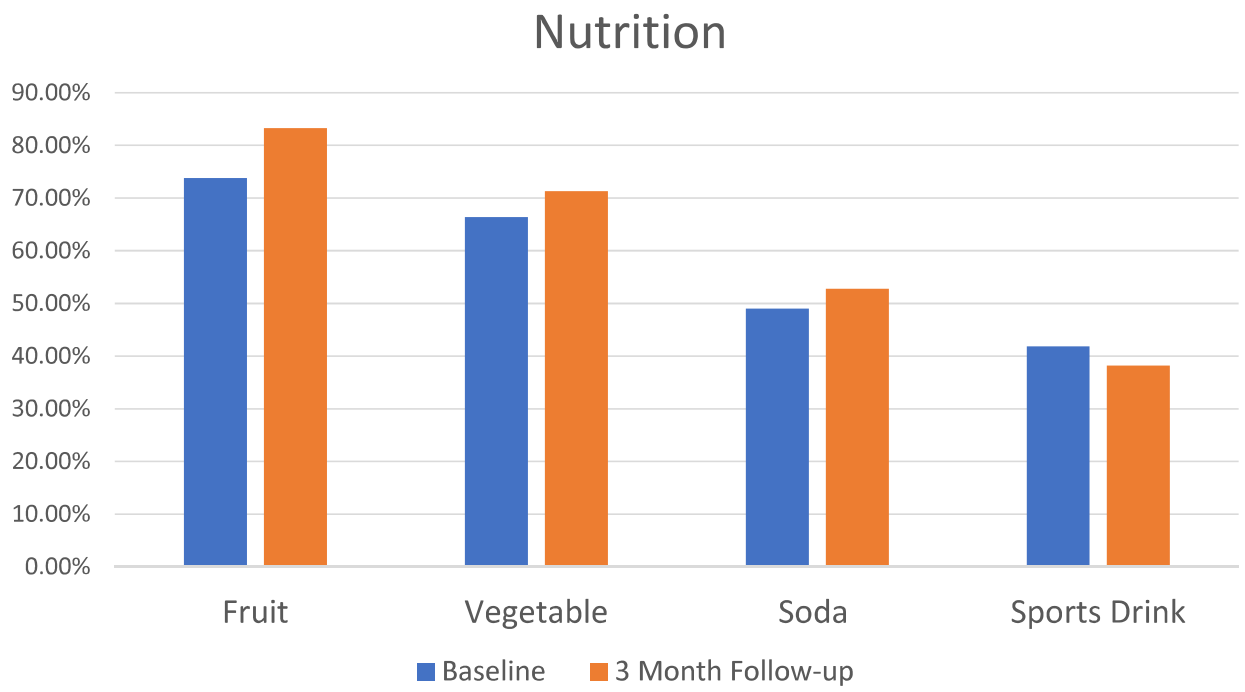
Nutrition Outcomes



Physical Literacy

Pediatric Exercise Science, (Ahead of Print)
https://doi.org/10.1123/pes.2021-0075

First Published Online: Mar. 12, 2022

Human Kinetics
ORIGINAL RESEARCH

Physical Literacy of Marginalized Middle School Adolescents in Kansas City Public Schools

Katlyn E. Eighmy
University of Missouri-Kansas City and
University of Kansas Medical Center

Joseph S. Lightner and Amanda R. Grimes
University of Missouri-Kansas City

Teesha Miller
University of Missouri-Kansas City and Youth Ambassadors

Purpose: Physical inactivity among adolescents in the United States continues to be a pervasive and growing problem, especially among low income and adolescents of color. Physical literacy is important for adolescents to engage in physical activity. However, few studies have assessed physical literacy among marginalized populations. The purpose of this study is to describe levels of physical literacy among marginalized adolescents in a Midwest City. ***Methods:*** Data were collected from 169 participants (85 adolescents and 84 parents). Adolescents included in the study were from 4 Kansas City (Missouri) public schools. Univariate statistics were calculated for 3 physical literacy domains (PLAY*inventory*, PLAY*self*, and PLAY*parent*). To assess for differences among groups, the authors conducted a single-factor analysis of variance (1-way analysis of variance). ***Results:*** The sample (N = 169) was primarily Hispanic (48.2% adolescents and 42.9% parents). Sedentary behaviors were self-reported as the highest overall activities adolescents participated in within the past 12 months. The mean physical literacy score for this sample was 71.9 among adolescent reported and 72.7 among parent reported. Analysis of variance of racial and ethnic groups for PLAY*self* and PLAY*parent* assessments showed no significant difference in values. Compared with other subscales of both the PLAY*parent* and PLAY*self* instrument, parents and adolescents showed a lack of confidence in adolescent's ability to be active in the 4 environments (land, water, ice, and snow). ***Conclusion:*** Physical literacy is shown to be important in maintaining physical activity throughout life; given this, it is important to understand how to increase confidence of seasonal specific skills in marginalized adolescents.

Keywords: physical activity, physically literate, school children

Supplemental Material (available online) presents self-reported activities. Among all students, the highest reported activity (83.5%) was watching TV or movies, followed by doing homework (81.2%), house chores (75.3%), walking (72.9%), reading (65.9%), playing video games (62.4%), running (58.8%), using Facebook or the internet (56.5%), jogging (47.1%), and playing a musical instrument (42.5%). For race/ethnicity groups, Hispanic adolescents reported doing homework (80.0%) as the most common activity, while African American/Black adolescents reported watching TV or movies (86.75%). The least reported activities included wakeboarding, kiteboarding, synchronized swimming, curling, snowshoeing, snowboarding, downhill skiing, mountain climbing, spin classes, fencing, baton twirling, squash, archery, and sailing.

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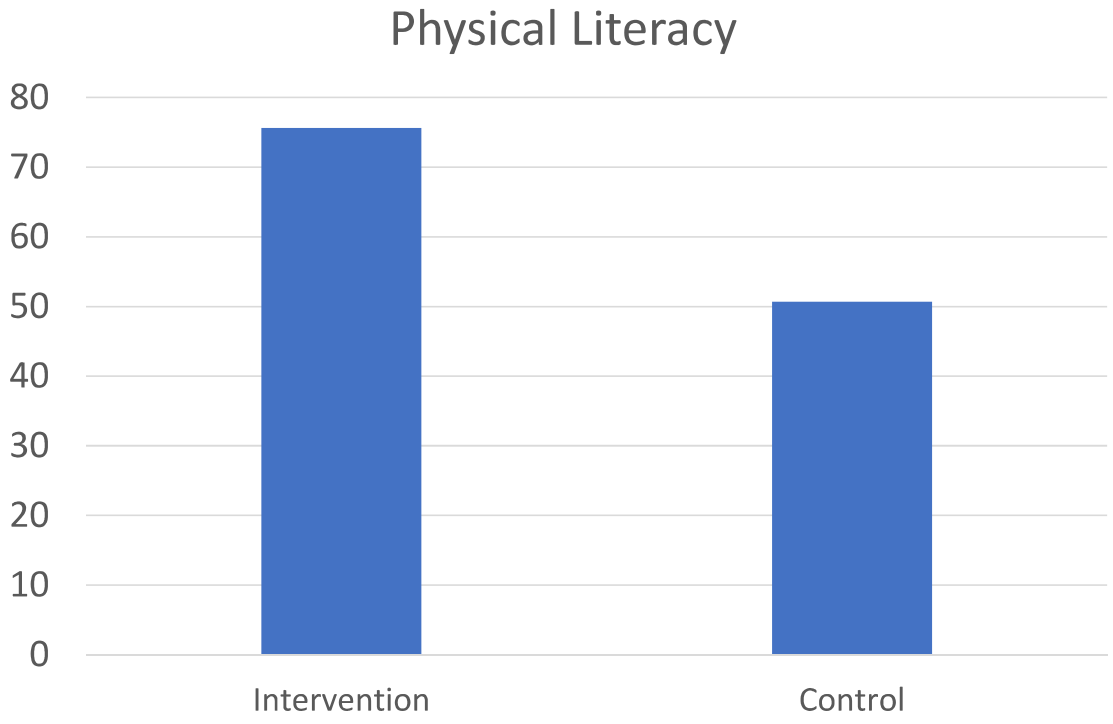
Physical Literacy



Social Integration

Table 3. Associations between Social Integration and Physical Activity.

Variable	ß	Std. Error	95% CI	P
Moderate-Intensity PA				
Time with Family	0.01	19.33	[-37.27, 40.32]	0.94
Time with Friends	0.22	19.89	[-7.85, 72.00]	0.11
Vigorous-Intensity PA				
Time with Family	0.02	25.11	[-46.75, 54.13]	0.88
Time with Friends	**0.34**	**24.96**	**[14.09, 114.37]**	**0.01**

Note: CI = Confidence Interval, PA = Physical Activity

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Social Integration

Table 2. Associations among Social Integration, Dietary, and Sleep Behaviors.

		Consumed		Did Not Consume			
Variable		M	SD	M	SD	t-test	P
Fruit							
	Time with Family	**4.44**	**1.03**	**4.00**	**1.41**	**1.38**	**0.005**
	Time with Friend	2.34	1.25	1.57	0.84	2.61	0.084
Vegetable							
	Time with Family	**4.49**	**1.07**	**3.87**	**1.39**	**1.96**	**0.012**
	Time with Friend	2.12	1.17	1.91	1.08	0.67	0.675
Soda							
	Time with Family	4.07	1.39	4.33	1.18	-0.71	0.121
	Time with Friend	2.00	1.04	2.05	1.16	-0.13	0.809
Sports Drink							
	Time with Family	4.30	1.25	4.27	1.22	0.06	0.948
	Time with Friend	2.20	1.03	2.07	1.16	0.34	0.926
		No Persistent Sleep Issues		Persistent Sleep Issues			
		M	SD	M	SD		
Sleep							
	Time with Family	4.21	1.27	4.31	1.18	0.33	0.537
	Time with Friend	2.13	1.17	1.90	1.08	-0.81	0.763

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Lessons Learned

- Measure PA with accelerometry, not self-report
- School environment and safety
- Space and conflicting activities
- Family factors and responsibilities
- Weather
- Behavior

Facilitators of Success

- Marketing for recruitment
- School transportation services
- Multiple methods of community with participants
- Rapport with students
- Strong school partnerships
- Engagement with families
- Alternative activities

Next Steps

- Sustainability of programming
- Scale-up to other schools
- Cost-effectiveness
- Academic attainment and social behavior
- Other determinants of PA: body image, social networks, minority stress, etc

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Thank you.

Discussion and Questions

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