



Impact of trained champions of comprehensive school physical activity programs on school physical activity offerings, youth physical activity and sedentary behaviors



Russell L. Carson^{a,*}, Darla M. Castelli^b, Ann C. Pulling Kuhn^a, Justin B. Moore^c, Michael W. Beets^d, Aaron Beighle^e, Rahma Aija^d, Hannah G. Calvert^b, Elizabeth M. Glowacki^b

^a Louisiana State University, School of Kinesiology, 112 Long Fieldhouse, Baton Rouge, LA 70803, USA

^b University of Texas at Austin, Department of Kinesiology and Health Education, 2109 San Jacinto Blvd., Austin, TX 78712, USA

^c University of South Carolina, Arnold School of Public Health, Department of Health Promotion, Education, & Behavior and Office of Practice & Community Engagement, 915 Greene Street, Columbia, SC 29208, USA

^d University of South Carolina, Arnold School of Public Health, Department of Exercise Science, 921 Assembly Street, Columbia, SC 29208, USA

^e University of Kentucky, Department of Kinesiology and Health Promotion, Lexington, KY 40506, USA

ARTICLE INFO

Available online 23 August 2014

Keywords:

Physical activity
Children
Schools
Whole-of-school approach
Coordinated school health

ABSTRACT

Objective. A quasi-experimental cluster-controlled design was used to test the impact of comprehensive school physical activity program (CSPAP) professional development on changes in school physical activity (PA) offerings, moderate-to-vigorous physical activity (MVPA) and sedentary behaviors of 9–14 year-old children during school.

Methods. Two groups of Louisiana elementary and middle school physical education teachers ($N = 129$) attended a CSPAP summer workshop (95 in 2012 = intervention, 34 in 2013 = control) and were assessed on school PA offerings (teacher-reported; pre, mid, and post). During the 2012–2013 school year, intervention teachers received CSPAP support while implementing new school PA programs. MVPA and sedentary behaviors were assessed (accelerometry; baseline and post) on a sample of 231 intervention, 120 control students from 16 different schools.

Results. Multivariate analysis of covariance indicated that intervention teachers reported significantly more PA offerings during school (3.35 vs. 2.37) and that involve staff (1.43 vs. 0.90). Three-level, mixed model regressions (stratified by sex) indicated that students overall spent less time in MVPA and more time being sedentary during school, but the effects were significantly blunted among intervention students, especially boys.

Conclusions. This study provides preliminary evidence for CSPAP professional development programs to influence school-level PA offerings and offset student-level declines in MVPA and increases in sedentary behavior.

Published by Elsevier Inc.

Introduction

A whole-of-school approach, such as the Comprehensive School Physical Activity Program (CSPAP), is recognized as a promising way for children to accumulate daily physical activity (PA) via five integral components: (a) physical education (PE), (b) PA during school, (c) PA before/after school, (d) staff involvement and (e) family/community engagement (American Alliance for Health, Physical Education, Recreation and Dance [AAHPERD], 2013; Institute of Medicine, 2013; Physical activity guidelines for American Midcourse Report Subcommittee of

the President's Council on Fitness, Sports and Nutrition, 2012). In 2010, the National Association for Sport and Physical Education [NASPE]¹ commissioned a task force to create a professional development (PD) program designed to equip PE teachers with the knowledge, skills and confidence to become a PA champion who facilitates the implementation of at least one new school PA program beyond the CSPAP component of PE (Carson, 2012). As similar teacher training efforts are unveiled nationwide (Society of Health and Physical Educators [SHAPE] America, 2014),

* Corresponding author at: University of Northern Colorado, School of Sport and Exercise Science, 2640 Gunter Hall, Greeley, CO 80639, USA.
E-mail address: Russell.Carson@unco.edu (R.L. Carson).

¹ Until April 2013, the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) was composed of five national associations, including the National Association for Sport and Physical Education (NASPE). In 2013, AAHPERD members voted to dissolve the five national associations and unify under the AAHPERD name. Since then, AAHPERD has renamed itself SHAPE America—Society of Health and Physical Educators.

it is critical and timely to understand the effectiveness of CSPAP PD on preparing a PA champion to promote greater opportunities for school PA that increase the PA among the youth they serve.

Schools have been identified as a logical place to provide PA opportunities for children (Naylor and McKay, 2009; Pate et al., 2006), given that the majority of children spend most of their waking hours in and around schools (Synder and Dillow, 2011). In recent years, a proliferation of systematic reviews of large-scale studies have been performed on the effectiveness of school-based interventions on children's PA (De Bourdeaudhuij et al., 2011; Demetriou and Höner, 2012; Dobbins et al., 2013; Kriemler et al., 2011; Metcalf et al., 2012). Consistent findings across these reviews were: (a) school-based interventions generally produce positive effects on children's total PA across both self-report and objective measures, (b) effect sizes, when reported, are small (e.g., $r_s = 0.10$ – 0.17), indicating modest gains in moderate-to-vigorous PA (MVPA) per day (e.g., 4 min), and (c) there is growing support for multicomponent school-based interventions increasing children's in-school PA over the isolated ones that mainly emphasize PA-focused curricular change (e.g., active lessons) or educational materials (e.g., behavior management skills). As a result, an important and urgent area of inquiry is the examination of the teacher-directed, multicomponent school-based intervention model currently being advocated and widely disseminated (i.e., CSPAP; SHAPE, 2014). The continued PD of PE teachers is a scalable and sustainable teacher-directed strategy for implementing multicomponent school-based PA (Castelli et al., 2013), yet few studies have examined the utility of PD to impact children's objectively measured PA (Middle School Physical Activity and Nutrition [M-SPAN], McKenzie et al., 2004; Trial of Activity for Adolescent Girls [TAGG], Webber et al., 2008). Therefore, the current study, which evaluates the impact of yearlong PE teacher PD and support in CSPAP implementation on school PA offerings and children's MVPA and sedentary behaviors during school, is warranted.

The current study was conducted in elementary and middle schools serving primarily low-income, non-white student populations with two specific aims. Study aim one was to determine the differences in teacher-reported school PA offerings across pre, mid, and post assessments between teachers receiving yearlong CSPAP PD and support in implementing new PA programs (intervention) and those waitlisted (control). We hypothesized that intervention teachers would deliver significantly more PA offerings over time than control teachers. Study aim two was to determine if students' school MVPA levels and sedentary behavior changes from baseline to post assessment when exposed to the increased number of PA offerings and the newly implemented PA programs by intervention teachers versus control teachers. We hypothesized that students of intervention teachers would spend significantly more school time in MVPA and significantly less school time being sedentary overtime (baseline to post assessment) versus students of control teachers.

Materials

Study design and setting

A quasi-experimental, cluster-controlled design was conducted with 129 certified full-time PE teachers from 96 elementary and middle schools across 22 parishes (i.e., districts) in Louisiana between May 2012 and May 2013. Teacher participants were from an average of 4 schools per parish (maximum 18) with an average of one teacher per school (maximum 5). A total of 779 public schools located in 39 parishes with a demographic composition exceeding the 2010–2011 statewide averages in both (a) student poverty level - eligibility for the free or reduced-priced lunch program (>67%), and (b) minority (non-white) student population (>53%) were targeted for participation (Louisiana Department of Education, 2014), of which 225 high schools were excluded for not meeting grade level criteria (serving 9–14 year old students).

Recruitment and allocation procedures

The study was approved by the Institutional Review Board at Louisiana State University. Refer to Fig. 1 for the participant flow diagram.

Teachers

Certified, full-time elementary and middle school PE teachers teaching 9–14 year-old students within the remaining 554 eligible schools were invited to participate in this study via email invitations distributed by parish health and PE coordinators per the request of the Louisiana Department of Education. This process was initiated in spring 2012 and repeated throughout summer 2012, along with several follow-up efforts resulting in an overall total of 174 registered PE teachers. From this sample, 129 PE teachers (74% of the registered teachers) attended one regional CSPAP training workshop. Independent *t* tests indicated that the 45 registered PE teachers who did not attend the workshops were comparable to the 129 who attended the workshops in both targeted parish level criteria (student eligibility for free/reduced lunch, $p = .21$; student minority population, $p = .08$), and Pearson χ^2 ($1, N = 120$) confirmed the distribution of elementary and middle school levels ($p = .29$) and teachers' sex ($p = .26$) did not differ across groups.

Based on summer availability, 95 PE teachers who attended a regional workshop in summer 2012 were allocated to the intervention group, and 34 PE teachers who attended a regional workshop in 2013 were allocated to a waitlisted control group. The workshops were free to teachers (\$100 value²) and qualified for continuing education units. The subsequent 12-month follow-up of the PD program, including online support, mentorship and consultation, was also available to workshop attendees free of charge (an additional \$200 value²). A total of 110 PE teachers (77 intervention, 33 control) initiated the 12-month follow-up by completing a CSPAP pre-assessment. Using equivalence *t* tests and χ^2 analyses, these 110 PE teachers did not significantly vary from the 19 PE teachers who opted out of the 12-month follow-up in either parish level criteria (student eligibility for free/reduced lunch, $p = .26$; student minority population, $p = .26$) or school level distribution ($p = .09$), but did include comparably more female teachers than expected (71% pre-assessment females vs. 42% no pre-assessment females, $p < .05$). The pre-assessment intervention teachers, when compared to the pre-assessment control teachers, taught in parishes with a higher percentage of student eligibility for the free/reduced lunch program (71% intervention vs. 61% control, $p < .01$) and a higher minority student population (63% intervention vs. 50% control, $p < .01$), but both groups were comparable in the representation of school levels ($p = .67$) and teachers' sex ($p = .35$). Reasons teacher opted out of the 12-month follow-up ranged from perceived workload to technological challenges (Carson et al., 2014b).

A sample of 16 PE teachers from separate schools (8 = elementary, 8 = middle) within 9 high poverty ($M = 73\%$ free/reduced lunch) and minority school districts ($M = 64\%$ nonwhite students) were participants for study aim two (11 intervention, 5 control). Equivalence analyses indicated that both groups were comparable, consisting of mostly female teachers (64% intervention, 80% control, $p = .50$) with similar mean years of teaching experience (16.8 intervention vs. 17.1 control, $p = .97$), who taught in parishes with significantly similar levels of student poverty (74% intervention, 71% control, $p = .48$) and student minority population (67% intervention, 57% control, $p = .30$). The majority of middle school teachers were in the intervention group ($n = 7$), but this count was in alignment with the expected distribution, likelihood ratio χ^2 ($1, N = 16$) = .45, $p = .50$.

Students

All 129 PE teacher workshop attendees were invited via email to be participants for study aim two until a recruitment goal of 10% consented from each group (11/95 = intervention, 5/34 = control). These 16 PE teachers were instructed to recruit from 1 to 2 intact homeroom classes or ~10% of their 9–14 year old student rosters. This enrollment process estimated 24.1 students per teacher for a total of 386 consenting students who provided written parental permission and child assent prior to participation. The 9–14 year old age range was purposely chosen because of its key period of development when reductions in PA begin, particularly in minority populations (Gordon-Larsen et al., 2004).

² Prices for the PD workshop and 12-month follow-up were pre-set by NASPE.

Download English Version:

<https://daneshyari.com/en/article/3100440>

Download Persian Version:

<https://daneshyari.com/article/3100440>

[Daneshyari.com](https://daneshyari.com)