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Examining the Feasibility of Partnering with Cooperative Extension to Advance Statewide Physical Education Policies in Oregon

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Optimizing physical education (PE) is a proven approach to increase children's physical activity. Oregon law requires elementary schools to provide PE for \geq 150 minutes/week. One strategy to meet the required minutes is for classroom teachers to deliver PE, which is permissible using curricula aligned to national PE standards. Be Physically Active 2Day (BEPA 2.0) is a unique classroombased physical activity brain break curriculum aligned to PE standards. We evaluated the effectiveness of training school faculty to use BEPA 2.0 via a unique partnership with Cooperative Extension. Extension trainers (ET) were trained by a BEPA 2.0 Master Trainer (MT). School faculty were subsequently trained by ET (n = 94) and MT (n = 58). Participants completed post-training surveys to assess confidence, comprehension, and self-efficacy to implement BEPA 2.0. Survey scores were compared between MT and ET groups using the Wilcoxon-Mann-Whitney test. There were no differences between MT and ET training groups in perceived confidence, comprehension, or self-efficacy to implement BEPA 2.0 after training. ET were as effective as MT, indicating the train-the-trainer approach is a promising strategy to enhance BEPA 2.0 dissemination. Cooperative Extension partnerships may be an overlooked mechanism to enhance physical activity promotion efforts.

Keywords: physical activity promotion, school-based physical activity, physical education, Cooperative Extension, youth K-5

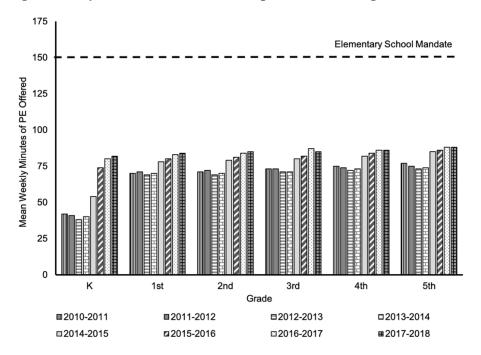
Introduction

The importance of physical activity in combating childhood obesity is well documented, yet only 24% of children and adolescents meet the recommended levels of daily physical activity (National Physical Activity Plan Alliance [NPAPA], 2018). This problem is more pronounced for low-income youth, as the costs associated with physical activity programs can create barriers to participation (Finkelstein et al., 2017). To increase physical activity levels among children and adolescents, easily accessible programs that reach high proportions of youth are needed (NPAPA, 2018). Schools are an ideal setting for physical activity promotion as large numbers of youth

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attend school for an average of 6.7 hours per day for 180 days each year (National Center for Education Statistics, 2007). Ample data support that providing physical activity through a variety of school-based opportunities is a best practice with proven effectiveness (Centers for Disease Control and Prevention [CDC], 2013). Specifically, providing classroom-based physical activity breaks, requiring daily recess, and optimizing physical education (PE) by increasing minutes and using curricula aligned to national standards are effective ways to increase children's physical activity levels during school hours (CDC, 2013; Society of Health and Physical Educators [SHAPE America], 2015). A school-based approach is particularly important for low-income youth who may not be able to engage in physical activity spaces or participate in organized physical activity such as sports teams (U.S. Department of Health and Human Services [HHS], 2014).

Oregon adopted this evidence-informed, school-based approach to promoting physical activity in 2007 through legislative actions requiring elementary schools to provide \geq 150 minutes/week of PE using curricula aligned to state PE standards (House Bill [HB] 3141, 2007; Senate Bill [SB] 4, 2017). Under this legislation, elementary schools must deliver the required minutes by 2021 (Oregon Department of Education [ODE], n.d.). Schools must report details of PE delivery to ODE annually, and schools not meeting the requirements by 2021 are vulnerable to penalties, sanctions, and/or reductions in funding (SB 4, 2017). Despite potential penalties, there has been little change in the amount of PE offered in the past ten years (ODE, 2019). See Figure 1.





Note. Figure 1 presents the mean minutes of PE offered per week to students in grades K-5 reported to the Oregon Department of Education by school districts from 2010-2018 (ODE, 2019). Data are compared to the required PE minute mandate of 150 minutes per week (SB 4, 2017).

Developing the BE Physically Active 2Day Program

To help elementary schools achieve the required minutes of PE, we revised the Balanced-Energy Physical Activity Toolkit [BEPA] originally designed to integrate brief bouts of physical activity into Supplemental Nutrition Assistance Program (SNAP-Ed) education sessions and provide classroom teachers with an easy-to-implement classroom-based physical activity resource (Brody & Gunter, 2018; Gunter et al., 2017). The revised program, BE Physically Active 2Day (BEPA 2.0), incorporated updated pedagogy and alignment to K-5 national health and PE standards along with the 2018 Physical Activity Guidelines for Americans, enabling schools in Oregon to count time using BEPA 2.0 towards required PE minutes (HHS, 2018; Oregon State University Extension Services, n.d.). The PE curriculum component incorporates nonlinear theories of motor skill learning and social cognitive theory to promote the adoption of foundational motor skills and opportunities for practice and mastery (Hulteen et al., 2019; Rudd et al., 2018). BEPA 2.0 can also be used without the PE component to promote physical activity in the classroom setting or as an accompaniment to SNAP-Ed nutrition education programming. Our aim was to provide a school-based physical activity program that could also help Oregon schools address the gap in meeting state PE requirements.

To accomplish this, we sought to disseminate BEPA 2.0 through a train-the-trainer approach in partnership with Cooperative Extension. The train-the-trainer approach, where a Master Trainer (MT) trains Extension personnel, who in turn train school personnel in their local communities, has been used effectively to disseminate the original BEPA program (Gunter et al., 2017). To evaluate the efficacy of this approach with BEPA 2.0, training outcomes were compared between participants trained by the BEPA 2.0 MT and participants who were trained by Extension Trainers (ET). We also present the overall training evaluation results, including the perceived barriers and supports related to BEPA 2.0 implementation.

Methods

The MT was the BEPA 2.0 developer (Gunter), while ET were faculty and staff with the Extension SNAP-Ed program. The three-hour train-the-trainer events for ET were delivered at Oregon State University (OSU) or OSU regional Extension offices. The BEPA 2.0 MT trained twenty-five ET between June and August 2018. Nearly half of the ET had been exposed to the original BEPA, but this was the first BEPA 2.0 training for all ET. Two-hundred forty-four teachers were trained in seven Oregon Counties between June 2018 and February 2019. Separate trainings were conducted by the MT and ET. Assignment to MT or ET group was by convenience as two opportunities to train teachers presented themselves a few weeks before the train-the-trainer events were scheduled. Trainers presented research supporting school- and classroom-based physical activity, information about BEPA 2.0, and steps to implement the program. Experiential learning occurred through BEPA 2.0 activity simulations and barrier-busting brainstorm sessions designed to elicit problem-solving strategies from teachers. The sample activities were used to familiarize participants with the program and demonstrate the ease

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of use. The barrier-busting activity occurred after participants learned about the program, evidence base for classroom-based physical activity (CBPA), and activity simulation. Participants worked in small groups to answer the question: Can I find a way to spend 5-10 minutes a day including physical activity in my classroom? They were asked to write down perceived barriers with no prompting from the trainers and then encouraged to brainstorm and record solutions to each barrier, all of which were discussed as a whole group. Participants completed post-training surveys, and the responses from the brainstorming activity were collected from each training and transcribed for qualitative analysis.

Measures

Researcher-developed surveys were used to evaluate the overall training; assess participants' self-efficacy, confidence, and comprehension related to BEPA 2.0 implementation; and enable participant feedback. Survey questions were developed by the research team and based on training content. For example, after participants were shown BEPA 2.0 materials and engaged in activity simulations, participants were asked if "After participating in the BEPA 2.0 training..." they felt confident demonstrating BEPA 2.0 activities to students, problem-solving barriers to implementation, and confident in their ability to implement at least five minutes of physical activity during the school day. Each item was scored using a Likert Scale ranging from 1 = strongly disagree to 4 = strongly agree. Survey items related to confidence (n = 5), comprehension (n = 5) and self-efficacy (n = 2) were then aggregated to assess each factor. Higher scores indicated a more positive response to the training. For example, a score of five for confidence means that the participant either agreed or strongly agreed with all five questions related to confidence in implementing BEPA 2.0. The survey has not yet been validated.

Data Analysis

Overall, 244 participants were trained, and 152 responded to the survey, for a 62.3% response rate. Survey responses were dichotomized to agree or disagree to assess the proportion of participants agreeing or disagreeing with survey statements. The Wilcoxon-Mann-Whitney test was used to determine if there were differences in confidence, comprehension, and self-efficacy scores reported by participants attending trainings led by the MT (n = 58) compared to scores of those attending trainings conducted by ET (n = 94). All analyses were conducted using SAS (SAS Software, Version 8).

Transcriptions from the barrier-busting activities were assessed qualitatively to evaluate teachers' perceptions of barriers and supports to implementing 5-10 minutes of physical activity using BEPA 2.0. Descriptive and value codes were informed by current literature on school-based physical activity programs and developed by reading through the barrier-busting activity transcripts (Saldaña, 2013). Codes were applied and organized into themes representing teachers' perceptions of CBPA. The development of codes, coding, and reliability checks were conducted by two research team members and confirmed by a third. Any discrepancies or differences in

coding were discussed and resolved during team meetings. Analytic memos were written throughout the coding process to keep track of coding considerations and emergent themes.

Results

Of the survey responders, 50% identified as classroom teachers or teacher's aides, 1.3% identified as administrators, 36% identified as other school personnel who support wellness activities (PE teachers, food service, classified staff), and 13.8% did not identify. The mean number of years teaching among survey responders was 8.4 ± 9.8 years. Table 1 presents the pooled survey results from all training participants for all survey items. Overall, participants reported high confidence, comprehension, and self-efficacy related to implementing BEPA 2.0 and the benefits of CBPA breaks. Most survey responders (98%) agreed with statements indicating they felt confident in their ability to provide CBPA breaks for students, 94% agreed they understood how to use BEPA 2.0 to add PE minutes for students in the classroom, and 97% agreed they felt efficacious in their ability to deliver CBPA to their students. We found no relationship between years of teaching and survey items (p > .05). Although most surveys were fully completed, a few incomplete surveys were returned (n = 14). The question with the largest missingness (n = 9) asks participants if they "feel confident including ≥ 5 minutes of CBPA breaks daily in classroom."

Survey Statement	% Agreed ^a (N)
Confidence	
Feel confident communicating benefits of physical activity to students	99.33% (150)
Feel confident in ability to provide CBPA ^b breaks for students	97.99% (149)
Feel confident demonstrating BEPA 2.0 activities for students	98.68% (151)
Feel confident including \geq 5 minutes of CBPA breaks daily in classroom	95.10% (143)
Feel confident to problem-solve barriers to providing CBPA breaks for students	96.55% (145)
Comprehension	
Understand the benefits of daily CBPA breaks for students	98.68% (151)
Understand how CBPA breaks can aid academic performance	97.35% (151)
Understand physical activity guidelines for children	99.33% (149)
Understand how BEPA 2.0 aligns with PE standards	97.32% (149)
Understand how to use BEPA 2.0 to add PE minutes for students in the classroom	93.92% (148)
Self-efficacy	
I have the knowledge and skills to use BEPA 2.0 in the classroom	97.30% (148)
I feel better equipped to teach children about physical activity concepts using BEPA 2.0	97.35% (151)

Table 1. BEPA 2.0 Post-Training Survey Results for Participants Trained by ET and MT

^a% Agreed is based on a 4-category scale, where total percent (%) is the sum of "Agree" and "Strongly Agree"

^bCBPA = classroom-based physical activity

To evaluate the train-the-trainer approach, we compared survey scores of participants trained by the ET (n = 94) to the scores of participants trained by MT (n = 58) and found no differences between ET and MT groups for comprehension (p = 0.08), confidence (p = 0.12), and self-efficacy (p = 0.18) to implement BEPA 2.0. See Table 2 for complete results.

 Table 2. Results of Wilcoxon-Mann-Whitney Two-Sample Test Comparing ET and MT

 Trained Participants

Extension-Trained M		Extension-Trained Master-Trained			Total	p-value*
п	Mean (SD)	n	Mean (SD)	N	Mean (SD)	
90	4.82 (0.53)	48	4.96 (0.20)	138	4.87 (0.45)	0.12
91	4.82 (0.53)	57	4.93 (0.37)	148	4.86 (0.48)	0.08
91	1.92 (0.31)	57	1.98 (0.13)	148	1.95 (0.26)	0.18
	<i>n</i> 90 91	n Mean (SD) 90 4.82 (0.53) 91 4.82 (0.53)	n Mean (SD) n 90 4.82 (0.53) 48 91 4.82 (0.53) 57 91 1.92 (0.31) 57	nMean (SD)nMean (SD)904.82 (0.53)484.96 (0.20)914.82 (0.53)574.93 (0.37)911.92 (0.31)571.98 (0.13)	nMean (SD)nMean (SD)N904.82 (0.53)484.96 (0.20)138914.82 (0.53)574.93 (0.37)148911.92 (0.31)571.98 (0.13)148	nMean (SD)nMean (SD)NMean (SD)904.82 (0.53)484.96 (0.20)1384.87 (0.45)914.82 (0.53)574.93 (0.37)1484.86 (0.48)911.92 (0.31)571.98 (0.13)1481.95 (0.26)

*Two-sided significance at p <.05

Results from the qualitative analysis of the barrier-busting activity highlighted four primary implementation barriers identified by participants. These included (a) time constraints, (b) space constraints, (c) classroom interruptions or distractions, and (d) limited school support. All identified barriers were related to BEPA 2.0 implementation. Interestingly, many of the implementation barriers were also reframed as supports that could be utilized to improve BEPA 2.0 implementation. For example, under the theme of time constraints, while some participants felt that there was not enough time in the day to use BEPA 2.0, other participants felt that implementing physical activity breaks could help provide structure to the classroom schedule.

Additionally, although some participants cited that physical activity breaks could be distracting to students and potentially encourage disruptive behaviors, other participants felt that using BEPA 2.0 could reduce disruptive behavior by allowing children to move around in the classroom. Space constraints and limited school support were also framed both positively and negatively. Some participants felt that there was not enough space for activity in the classroom, while others felt that BEPA 2.0 allowed for limited space to be used effectively. Participants also felt that administrative or school support was integral to the adoption of BEPA 2.0, highlighting the importance of school administrators taking an active role. This could include providing and participating in trainings, allowing or requiring time during the school schedule to implement activity breaks, and advocating for a school environment that maximizes opportunities for children to be active during the school day in a structured and systematic way.

Discussion

BEPA 2.0 trainings are aimed at supporting teachers in implementing BEPA 2.0 for the dual purposes of providing more physical activity opportunities for students and helping schools meet PE policy requirements. Overall, survey results indicated that participants were satisfied with the BEPA 2.0 training and understand how BEPA 2.0 aligns with PE standards and can be used to meet the PE minute requirements (Table 1). Importantly, most participants reported high confidence, comprehension, and self-efficacy whether they were trained by the BEPA 2.0 Master

Trainer or by an Extension Trainer, indicating that the train-the-trainer partnership with Cooperative Extension is an effective component of the BEPA 2.0 dissemination process.

The mission of the Cooperative Extension System is, in part, to advance human health and wellbeing through the provision of evidence-based education and outreach programs (U.S. Department of Agriculture, 2019). Thus, applying Extension's unique skillset to advance statewide physical activity policy aligns with Extension's mission through an innovative application to a current public health problem.

Ample data support the finding that teachers who participate in CBPA training report higher selfefficacy to implement CBPA after the training than before (Abi Nader et al., 2019; Bartholomew & Jowers, 2011; Goh et al., 2019; Naylor et al., 2006). In a previous study examining teachers' use of the BEPA program, we found that training participation and implementation self-efficacy were also associated with an increased likelihood that teachers would provide activity breaks for students (Abi Nader et al., 2019). Thus, it is likely that a high-quality BEPA 2.0 training experience will promote teacher self-efficacy and BEPA 2.0 implementation.

The results of the barrier-busting activity provide additional insight into potential barriers and facilitators to program dissemination. The barriers to implementing physical activity, in general, were unsurprising (e.g., time, space, support). Of interest is that BEPA 2.0 trainers were able to facilitate discussions leading to participants reframing barriers as facilitators. They did this by sharing the research evidence and collaboratively problem-solving to each unique school setting. For example, trainers shared research showing that acute bouts of physical activity promote better attention and time on task, contradicting some participants' misperception that physical activity causes disruptive behavior (Brusseau & Hannon, 2015). Trainers then engaged participants in brief bouts of activity to demonstrate ease of implementation. Another example included helping teachers problem-solve the barrier of time limitations with ideas such as using BEPA 2.0 activities during school-day transitions or integrating activities with other subjects. Trainers then demonstrated how to use BEPA 2.0 activities to promote smooth transitions or integrate physical activity into other subject areas during the school day. Reframing common barriers as facilitators gives trainers the opportunity to promote physical activity and encourage utilization of BEPA 2.0 while still listening to and addressing participants' concerns.

Study results also show how invaluable the Cooperative Extension partnership is for BEPA 2.0 implementation and dissemination and highlights Extension's potential to play a significant role in physical activity promotion more generally. Extension can provide trainings to schools at low or no cost depending on the Extension model of individual states. As BEPA 2.0 is aligned to Oregon's and national standards, the potential for its dissemination in other states in partnership with Extension is far-reaching. Administrative support is integral to the adoption of BEPA 2.0 into the school setting, and Extension educators can leverage their deep and trusted community partnerships to support school districts and administrators in providing support for teachers.

Although the need for institutional support emerged as a barrier to BEPA 2.0 implementation, anecdotal feedback from administrators suggests that the alignment with education standards makes BEPA 2.0 more desirable than other programs. We hypothesize that because BEPA 2.0 is aligned with PE standards, institutions may be more likely to adopt BEPA 2.0 in support of school faculty implementing physical activity breaks that can count towards mandated PE minutes. Furthermore, data show that trainings, resources, and institutional support could encourage a shift in behavior, if not beliefs, around the importance of childhood physical activity (Brusseau & Hannon, 2015).

Limitations and Conclusion

Strengths of this study include the evaluation of an innovative train-the-trainer partnership with Cooperative Extension to promote physical activity and support schools' capacity to meet new statewide physical education requirements. Further, we were able to document the value of the train-the-trainer approach by comparing training outcomes between participants trained by the Master Trainer versus Extension Trainers.

Limitations included the lack of specific data about participant characteristics, such as personal value for physical activity or previous physical activity teaching experience, which may influence individuals' perceptions of the training. Although the survey was not validated and a post-survey design has limitations, questions were constructed to ask participants to consider the knowledge, skills, and confidence gained as a result of participating in the training event. Further, we observed a consistently high proportion of participants who agreed they understood concepts, felt confident implementing, and felt they had the skills to problem-solve barriers. As BEPA 2.0 is available in schools where some but not all teachers were trained, a recent follow-up study evaluated implementation between trained and untrained teachers. Results show 82.8% of trained and 53.3% of untrained teachers (p = 0.006) reported using BEPA 2.0 three to six months post-training, supporting the validity of the survey scores reported here (Packebush et al., 2020).

BEPA 2.0 fills a unique gap that helps educators provide physical activity in brief bouts throughout the day while reinforcing PE competencies, thereby serving as both a physical activity break and PE resource. BEPA 2.0 takes an ecological approach to promoting physical activity and supporting healthy behaviors in the individual and embedding those behaviors in a school context. Our results showed that the train-the-trainer approach is a promising strategy to enhance BEPA 2.0 dissemination and that Cooperative Extension partnerships may be an overlooked mechanism to enhance physical activity promotion efforts in school settings. To date, over 1,400 educators have been trained throughout Oregon, and more than 54,000 elementary students have been exposed to new physical activity opportunities at school (Oregon State University Extension Services, 2019). BEPA 2.0 is included in the national SNAP-Ed Toolkit as a research-tested, school-based physical activity intervention program (University of North

Carolina Center for Health Promotion and Disease Prevention, 2020). Future studies will evaluate how BEPA 2.0 is being used in the school setting and the associated impacts on PE time and children's physical activity at school.

The BEPA 2.0 program costs vary by volume and components purchased (e.g., curriculum only, complete kit, kits plus training, etc.). To obtain the BEPA 2.0 program or inquire about trainings or program costs, visit <u>https://extension.oregonstate.edu/bepa</u>.

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