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Quality of local school wellness policies for physical activity and resultant implementation in Pennsylvania schools

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Abstract

Background—In 2006, United States public schools participating in federal school meal programs were required to adopt school wellness policies. The effect of these policies on school nutrition environments is well documented; however, evaluation of physical activity policies has received less investigation. We aimed to evaluate how district wellness policies aligned to practice for physical activity implementation in 40 schools with high obesity rates (>24%).

Methods—Wellness policies were evaluated using the validated Wellness School Assessment Tool (WellSAT). Concurrently, schools completed the validated Alliance for a Healthier Generation's Healthy Schools Program (HSP) self-assessment to evaluate physical activity practices. Overall, 13 of 20 physical activity measures from WellSAT and 12 of 13 physical activity measures from HSP were aligned to match policy with practice.

Results—Most policy items scored 0 or 1, indicating either 'no mention in the policy' or 'containing weak or vague language'. Corresponding HSP results indicated that school physical activity practices are 'not in place' or 'under development'. A strong, positive, correlation ($r = 0.92$, $P < 0.001$) indicated that a significant relationship exists between policy and implementation.

Conclusions—Results indicate that most districts currently have weak policies regarding physical activity, limiting the potential to positively influence school-based physical activity.

Keywords

educational settings; obesity; physical activity

Background

Today's youth are projected to live shorter lives than their parents. With an estimated one out of three children overweight or obese,[1] the health of our youngest generation is at risk. To address the growing prevalence of obesity in children, a priority of Healthy People 2020 is to

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increase physical activity in children and adolescents.[2] The health benefits of physical activity in children and adolescents have been well documented; regular physical activity has been positively associated with improved health and behavioral outcomes, including reduced risk of chronic diseases, improved academic performance, weight control and improved cognition.[3,4]

In an average academic year, a child spends up to half of his or her waking hours in school,[5] spurring recommendations to utilize these hours as a means to meet daily physical activity goals, especially in communities with greatest needs, as recess and physical education are sometimes the sole opportunities for children to engage in physical activity. However, the 2013 Youth Behavioral Risk Factor Survey indicated that only 27% of public high school students met the national recommendation of performing at least 60 min of physical activity per day.[6]

As part of the Child Nutrition and Women, Infants, and Children Reauthorization Act of 2004, all public school districts that participated in school meal programs were required to adopt local wellness policies by June 2006.[7] Local wellness policies are designed to serve as a standard that the school and community can use when making decisions about school wellness practices and programming, with the intent to increase opportunities for healthy eating and physical activity for students. Research regarding the effect of these policies is mixed, concluding that, while wellness policies may meet the federal requirements, a majority contain language that is weak and vague.[8–10] This is a concern for the effectiveness of the policies, as it is established that policy language quality is the strongest predictor of school-level implementation.[11] Since the adoption of the Healthy Hunger Free Kids Act of 2010,[12] the wellness policy mandate was reauthorized to include several new nutrition requirements. The effect of these nutrition standards, and subsequent changes to the local wellness policy, on school nutrition environments is well known. For example, school food menus are well documented, resources regarding nutrition standards are widely available, and funding is contingent on compliance with policies. However, other than a requirement of districts to assemble a broader team of community members to assist in local wellness policy maintenance, no further guidance was offered to improve the quality of physical activity in school settings.

In addition to concerns about the quality of these written policies, schools are struggling to facilitate change in school practice.[13–15] Probart *et a1.*[16] surveyed 499 superintendents in Pennsylvania school districts and discovered that only 25% reported an improvement in physical activity opportunities in their schools, a stark contrast to the 58% of respondents that reported improvements in the nutrition environment since the federal wellness policy mandate. The purpose of this study is to describe the physical activity policy and implementation landscape of schools in Pennsylvania with high obesity rates. We hypothesized that weak policy wording, as evidenced through both individual item scores and comprehensiveness and strength, results in sub-par implementation of school physical activity initiatives.

Methods

Participants

Through collaboration between the Pennsylvania Department of Health and Penn State PRO Wellness, 15 school districts with high rates of childhood obesity were targeted for a 2-year enrollment period in a 5-year grant program to implement sustainable school-based wellness programs and policy changes. Seven districts were enrolled (out of seven invited to participate) at the time of this publication. Each school district included elementary, middle and high school buildings. Funding was provided through the Centers for Disease Control (CDC) and was used to develop a school-based grant program, designed to create supportive nutrition environments and increase quality of physical education and physical activity through comprehensive school programs.[17,18] School districts were randomly selected from the highest quartile of obesity rates from 2010 to 2011 Pennsylvania Growth Screening/ BMI-for-age percentiles annually reported by school districts. The obesity percentages in this quartile ranged from 24.0 to 43.6%. Other criteria considered for selection of districts included: U.S. Census low-income tracts, School Performance Profile data, participation in Pennsylvania Department of Education's Promoting Adolescent Health grant, and proximity to planned activities for the Healthy Corner Store Initiative and early child care centers.

Instrumentation

Three data sources contributed to this study: (i) district wellness policies, coded using the Wellness School Assessment Tool 2.0 (WellSAT);[19] (ii) school practices, assessed via selfreport utilizing the Healthy Schools Programs framework through the Alliance for a Healthier Generation;[20] and (iii) district demographic data, obtained from public sources.

WellSAT 2.0: wellness policy review—The WellSAT is a standardized assessment tool for rating the strength and comprehensiveness of local wellness policies. Wellness policies for each district were downloaded from the school district webpage, and verified to be the most current version by the administration. WellSAT provides a subjective, online system for evaluating school wellness policies in six categories: Nutrition Education, Standards for USDA School Meals, Nutrition Standards, Physical Education and Physical Activity, Wellness Promotion and Marketing, and Evaluation. The tool contains 50 items, each with examples of language from existing policies to assist in the scoring process. Each item is scored on a scale from 0 to 2, where 0 represents no mention of the item in the wellness policy, one represents weak or vague language and two represents solid and specific written policy. For example, regarding recess for students, 'Elementary schools should provide students with opportunities for play when weather permits.' is an example of weak or vague policy language. 'All schools are required to schedule 20 min of recess daily for every class in the school master schedule.' is an example of specific language. For analysis, we included the 20 items that focused on physical activity.

WellSAT 2.0 comprehensiveness and strength scoring—Comprehensiveness for each category was calculated by counting the number of items that scored a 1 or 2, dividing by the number of policy items in the section, and multiplying by 100 (for a possible score of 0–100). Comprehensiveness score for each category reflects the extent to which

recommended content areas are covered in the policy. Strength for each section (scored from 0 to 100) was calculated by counting the number of items that scored a 2, dividing this number by the number of policy items in the section and multiplying this number by 100. Strength describes how strongly the content is stated in the policy. Both comprehensiveness and strength were tabulated overall, by simply averaging the values for each section (adding the scores of all six sections and dividing by six).

Self-assessment—The Alliance for a Healthier Generation's Healthy Schools Program (HSP)[21] provides a free validated assessment tool for school districts to rate the strength of school policies and programs for promoting health and safety. The assessment is designed to be completed by each building in a district to provide an overview of schools' performance in eight areas: School Health, Safety Policies and Environment; Health Education; Physical Education and Physical Activity Programs; Nutrition Services; School Health Services; School Counseling, Psychological, and Social Services; Health Promotion for Staff; and Family and Community Involvement. Due to the breadth of the assessment, school districts were encouraged to involve school personnel based upon expertise (food service, administration, health and physical education teachers) to complete their respective sections to ensure accuracy of responses. Depending on participant response, each item was scored on a scale from 0 to 3, where 0 indicates 'not in place', 1 indicates 'under development', 2 indicates 'partially in place' and 3 indicates 'fully in place.'

District demographics

For each school district, demographic data were collected from government sources. The demographic variables included: country, region, number of students, obesity rates, percentage of students who receive free or reduced lunch (a proxy for household income), number of schools in the district and urban–rural classification. Demographic characteristics of the seven enrolled school districts are shown in Table 1.

Procedure

During the 2014/15 and 2015/16 school years, each of the seven school districts' wellness policies were analyzed using the WellSAT 2.0 by two project staff members separately. In the event of a discrepancy in scoring, project staff discussed the verbiage and consulted examples in the WellSAT tool until consensus was met. Final scores were recorded in the WellSAT online system. To help facilitate school districts' completion of the HSP self-assessment, the project team spent a minimum of 1 h with each school district's wellness council to familiarize school staff with the HSP self-assessment tool and process through provided tutorials on how to register, add schools, manage participants and complete the assessment. District administrators, health and physical education teachers, food service personnel and school nurses were among those who helped to complete the HSP. All seven school districts (40 schools) completed the self-assessment, although some individual elementary schools opted out if their answers could be generalized across other elementary schools in the district. For example, school district C (Table 1) has six elementary schools. Due to similarities across these school buildings in terms of food service, health and physical activity curriculum and other school health services, the assessment was only

completed for one elementary school, but responses were applied to the other five elementary school buildings.

The focus of this particular study was on physical activity/education policy and implementation in school districts. The WellSAT policy review contains 20 questions related to physical activity and education and the HSP self-assessment contains 13 mandatory physical activity questions. Questions were aligned from each tool, and for the purposes of this study, nine questions from the WellSAT tool and eight questions from the HSP tool were included due to their similarities (Table 2). This approach allows for observation of how policy may influence practice. Question 303 from the HSP tool was used twice, to align with both Physical Education and Physical Activity (PEPA) items PEPA1 and PEPA2.

Data analysis

Descriptive statistics were performed across measures. Mean scores for each district were calculated for each of the nine WellSAT and HSP measures selected. Spearman correlation was used to identify the relationship between policy (WellSAT) and implementation/practice (HSP).

Results

School district results

Mean WellSAT scores for the physical activity and physical education items were tabulated for each school district, ranging from 0 to 2. Overall, the highest scores were observed for qualifications of physical education teachers (1.71) and policies regarding physical education curriculum (1.29). Lowest scores were policy items that address physical activity breaks (0.57), family and community engagement (0.57), and professional development opportunities for teachers (0.71), indicating that these items are either not addressed in the policy, or contain weak or vague language. None of the seven districts' policies addressed the amount of time per week students spend in physical education instruction. Mean comprehensiveness and strength scores for the physical activity and physical education section (including all 20 items), measured on a scale of 0–100, were low (47.14 and 19.29, respectively).

Because the HSP was completed by individual schools, the mean score was tabulated across 40 schools, ranging from 0 to 3. Highest scores observed were for qualifications of physical education teachers (2.93) and physical education curriculum (2.45). Lowest scores were found for school practices that address physical activity breaks (0.89), family and community engagement (1.13), professional development opportunities for teachers (1.0), and amount of time spent in physical education classes (0.59).

Predicting school wellness policy quality

Overall, districts do not provide strong policy language or full implementation regarding physical education training for teachers, physical activity breaks for students, family and community engagement in physical activity opportunities at schools, and staff involvement

in physical activity (Table 2). The schools included in this analysis did not report providing the recommended 150 min/week of physical education.

Spearman correlation was performed to determine the relationship between WellSAT items and HSP items. There was a strong, positive correlation, which was statistically significant ($r = 0.92$, $P < 0.001$). This indicates that a higher score on a policy item (WellSAT) is associated with a higher score for the corresponding implementation item (HSP); however, this alone may not imply causation (Table 2 and Fig. 1).

Discussion

Main finding of this study

Overall, physical activity policy comprehensiveness and strength were low in this study of 40 schools with a high need for intervention. Understanding how policy language impacts physical activity practice in schools with high rates of obesity (>24%) is critical to determining how best to assist schools with successful implementation. Of even greater concern, in a comparison of means, low scores on individual policy items align with low scores on individual practice questions, suggesting that weak and vague policy language results in sub-par implementation.

What is already known on this topic

While the Healthy Hunger Free Kids Act of 2010 included several new requirements related to nutrition guidelines in local wellness policies, no guidance was offered to improve the quality of physical activity in school settings, limiting the potential for school districts to make improvements in physical activity implementation. Schwartz and colleagues[11] determined that stronger district wellness policies were predictive of implementation of school-level policies through their evaluation and survey of school principals in Connecticut ($n = 151$). They found that the strongest predictor of having such practices in place was having strong wellness policies. However, it is difficult to generalize study findings due to location-specific mandates surrounding policy on physical activity. Despite great potential opportunities for schools to enact large-scale, policy-based interventions to increase physical activity in children and adolescents, many barriers prevent this from occurring. For example, limited funding is provided to establish and implement policies. A study investigating the implementation of physical activity and physical education policies in eight high schools in Tennessee and Mississippi found significant barriers including the prioritization of standardized testing and varsity sport provision, lack of resources including personnel and budget, and policy overload.[22] Further, policies that are vaguely worded are at the discretion of current school staff to interpret and implement. Without regulation or financial assistance, school districts struggle to make improvements not only in policies, but the practices that represent them.

What this study adds

Studies to date have evaluated local school wellness policy and practice separately with an attempt to relate them. Our study contributes to the existing literature by using validated instruments to measure policy and practice, suggesting policies written with strong language

are more likely to be fully implemented than those written with weak language. Using comprehensive and validated measures to evaluate policy and practice, and aligning similar question items, our findings indicate that weak and vague policy language results in sub-par implementation of physical activity policies. While schools may be motivated to write their wellness policies based upon what they are doing well and omitting language in areas they need to improve upon, this further confirms that strong policy leading to successful implementation will help local agencies, designed to provide technical assistance, determine how best to assist school districts with creating clear, strong policies and enhance related programming. The findings of this study and others[11,16,23–25] indicate districts' need for assistance in developing and implementing strong policy. Given the current obesity epidemic and Healthy People 2020 objective to increase physical activity, a system to monitor the strength of school wellness policies, similar to measures of other areas of school performance should be considered. If school physical activity and physical education were more highly regarded as is the case for varsity sports and scholastic performance tied to standardized testing, this could create a positive atmosphere that would contribute to students valuing an active lifestyle, extending the benefits into adulthood. A multi-level approach involving community, school and public health resources would help schools to determine purposeful and enjoyable physical activity and quality physical education instruction.

Limitations of this study

This study has several limitations that should be considered. The sample size is small, with data from 40 schools in Pennsylvania with similar school demographics who all agreed to participate in a grant program to implement sustainable school-based wellness programs and policy changes. Though the schools are a mixture of rural and urban classification, all had high levels of obesity reported and similar indicators of low socioeconomic status. Data on a comparison group (i.e. schools with lower levels of need) are not currently available for consideration. In addition, as the data are derived from a single state in the United States, findings may not be generalizable to other states in the United States or globally. Furthermore, though the self-assessment was comprehensive, implementation practices were self-reported by school staff; it is possible that social desirability bias may have resulted in exaggerated responses. Conducting qualitative interviews with teachers and students or observing classroom-based physical activity and physical education classes in schools could further enhance the researchers' understanding of current practices, including factors (revision frequency, areas the school needs to improve upon) that may contribute to the relationship between written policy language and implementation. Lastly, the comparison between the HSP and WellSAT tools, although each individually validated, was determined by the study team and instruments were not originally created with this intention.

Despite these limitations, this study uncovers several areas for future investigation. First, the researchers plan to continue this work, securing a larger sample size that may further underline the statistical significance of results outlined in this article. In addition, the development of a comparison group, comprised of schools with lower levels of obesity, academic or socioeconomic need, may provide guidance on where best to target approaches

for increasing physical education and physical activity support, particularly for Pennsylvania schools.

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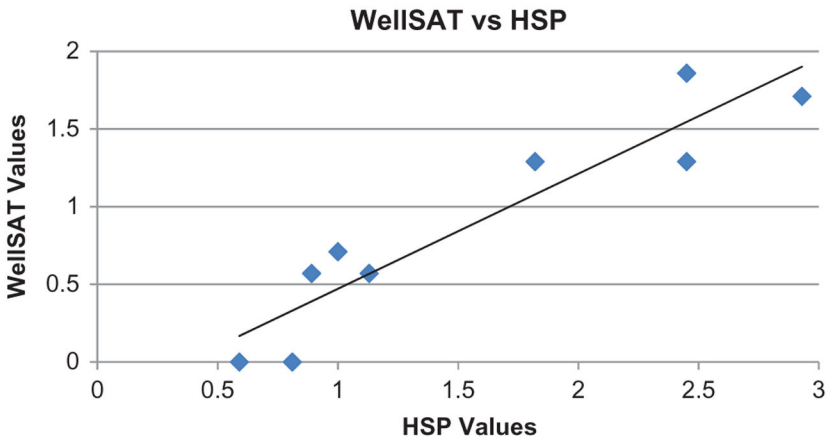

Fig. 1.
Association of WellSAT 2.0 values and self-assessment (HSP) values. $r = 0.92$, $P < 0.001$.

Table 1

District demographics

District	Region	Obese % (%)	Total students	Free and reduced lunch % (13/14)	# Of schools in district	Classification
A	Northcentral	24.6	1694	39.24	5	Rural
B	Northeast	24.4	3024	41.35	5	Rural
C	Northeast	25.7	8939	44.36	10	Urban
D	Northwest	24.5	1186	45.45	3	Rural
E	Southcentral	24.4	1353	80.3	2	Urban
F	Southcentral	25.7	1096	58.3	5	Rural
G	Southeast	31.9	5176	78.47	10	Urban
Mean		25.9	3210	55.35		

Data were obtained from 2011/12 school report.

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Table 2

Mean scores for aligned WellSAT 2.0 and self-assessment (HSP) items

WellSAT	Score	Item description	HSP	Score	Item description
PEPA2	1.86	The written physical education curriculum is aligned with national and/or state physical education standards.	303	2.45	Do all teachers of physical education use an age-appropriate, sequential physical education curriculum that is consistent with national or state standards for physical education?
PEPA7	1.71	Addresses qualifications for physical education teachers for grades K-12.	312	2.93	Are all PE classes taught by licensed teachers who are certified or endorsed to teach PE?
PEPA1	1.29	There is a written physical education curriculum for grades K-12.	303	2.45	Do all teachers of physical education use an age-appropriate, sequential physical education curriculum that is consistent with national or state standards for physical education?
PEPA14	1.29	District addresses before and after school physical activity for all K-12 students.	308	1.82	Does your school offer opportunities for students to participate in PA before and after the school day?
PEPA8	0.71	District provides physical education training for physical education teachers.	311	1.00	Are teachers of physical education required to participate at least once a year in professional development in physical education?
PEPA16	0.57	Addresses physical activity breaks for all K-12 students.	309	0.89	Are all students provided opportunities to participate in physical activity breaks in classrooms, outside of physical education, recess and class transition periods?
PEPA18	0.57	Addresses family and community engagement in physical activity opportunities at all schools.	307	1.13	Does your school promote or support walking and bicycling to school?
PEPA 3-5	0.00	Address time per week of physical education instruction for all elementary school students.	301	0.59	Do all students in each grade receive physical education for at least 150 min per week throughout the school year?
PEPA17	0.00	Addresses staff involvement in physical activity opportunities at all schools.	702	0.81	Does the school or district offer staff members accessible and free or low-cost physical activity/ fitness programs?

Individual scores for WellSAT range from 0 to 2. Individual scores for HSP range from 0 to 3 and are calculated by taking the mean for each district.