

A STATEWIDE EVALUATION OF OREGON DISTRICT
SCHOOL WELLNESS POLICIES

by

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A THESIS

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Physical inactivity and unhealthy eating among U.S. adolescents increase their risk for chronic diseases and many types of cancer. Schools have been identified as effective settings to promote adolescents' healthy behaviors. This promotion starts with the development of local school wellness policies (LSWP). LSWP are written documents designed to guide a school's effort in promoting health and well-being. Studies show that the quality of LSWP matter, for example, LSWP quality predicts policy implementation in schools, and in turn, healthier student behaviors. The quality of Oregon's LSWP is unknown. Also, unknown are the high school-level social and environmental factors associated with the quality of the LSWP. Thus, the aims of the project include describing the quality of a statewide sample of Oregon LSWP, identifying ways to improve the LSWP, as well as determining social and environmental factors (i.e., racial/ethnic makeup of the school, percent receiving free/reduced-price lunch at the school, rurality of school setting, walkability of area surrounding school) associated with the quality of LSWP. These research questions are answered through the evaluation of each LSWP using the Wellness School Assessment

Tool (WellSAT: 2.0). The tool assesses how each policy addresses 78 policy items across six categories. The overall assessment shows the strength of language and comprehensiveness of content of each LSWP in creating school environments that promote students' health. Based on the evaluation, this study found that the Physical Education & Physical Activity and Wellness Promotion & Marketing categories of LSWP across Oregon need the most improvement. Also, this study found a positive, weak correlation between the strength scores for the Nutrition Standards for Competitive & Other Food/Beverages and Physical Education & Physical Activity LSWP categories, and the percent of students eligible for free or reduced-price lunch. The findings can guide state leaders and school districts on next steps in improving their LSWP in order to ultimately improve the health of Oregon students.

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Background

Schools have been identified as an effective setting to address childhood obesity and consequent diseases. Specifically, school-based interventions focused on improving diet and physical activity levels lead to a decreased occurrence of chronic disease in students. Schools, particularly, have been identified as ideal settings for nutrition education, as they reach almost all adolescents. In fact, over 50% of U.S. children eat one of their daily meals at school, and 10% of children eat two of their daily meals at school.¹ Schools are much of the shared environment that affects the health behaviors of children and can therefore play a part in changing their habits.

Research indicates that regulating nutrition education for school-age adolescents can prevent the development of obesity and chronic disease later in life, as some physiological mechanisms or symptoms of nutrition-related disease occur in childhood. For instance, atherosclerosis, the build-up of fats and plaque on the arterial wall, can begin in youth and is related to blood cholesterol levels (heavily influenced by diet).² The unhealthy behaviors that contribute to diseases like atherosclerosis are established early on and are maintained throughout life. Beyond an improved diet, regular physical activity in childhood is important for lifelong health. For instance, regular movements can improve cardiovascular health, build strong bones, and reduce risk for chronic disease.³ To receive these benefits, school-aged children should get at least 60 minutes

¹ “Guidelines for School Health Programs to Promote Lifelong Healthy Eating.” *Journal of School Health*, (1997): 9–26.

² Ibid, 9-26.

³ “Physical Activity Facts.” *Centers for Disease Control and Prevention*.

of exercise a day.⁴ For students to develop (and maintain) healthy lifestyles, it is vital to establish regular physical activity and healthy eating habits at a young age.

To help students develop the necessary skills to make healthy choices, Congress passed Public Law 108-265 in 2004, requiring all school to establish a local school wellness policy (LSWP). This law also reinstated federal programs including the National School Lunch Program, School Breakfast Program and Special Milk Program. By the Oregon Department of Education (ODE), these wellness policies must include:

1. “Goals for nutrition education, physical activity and other school-based activities designed to promote student wellness in a manner that the local educational agency determines appropriate;
2. Nutrition guidelines for all foods available on the school campus during the school day;
3. An assurance that guidelines for school meals are not less restrictive than those set by the U.S. Secretary of Agriculture;
4. A plan for measuring implementation of the local wellness policy; and
5. Involvement of parents, students and representatives of the “school food authority” (i.e. school nutrition program), the school board, school administration and the public in development of the local wellness policy.”⁵

Following the passing of Public Law 108-265, the ODE developed model wellness policy guidelines for Oregon schools. To ensure these guidelines were met, the ODE worked closely with the Oregon School Boards Association (OSBA) to develop an example policy that met federal requirements. Each sample policy is a written document meant to serve as a guide for individual districts to draft their own policy and to design

⁴ “American Heart Association Recommendations for Physical Activity in Adults and Kids.” *American Heart Association*.

⁵ “Oregon Local Wellness Policy Sample Statements.” *Oregon Department of Education*.

an approach to establish a healthier school environment for students. Studies show that the quality of LSWP matter, for example, LSWP quality predicts policy implementation in schools, and in turn, healthier student behaviors. The quality of these policies has not yet been examined, so it is not obvious how well each district meets federal guidelines or how effectively each policy communicates the school's guidelines.

Research Question

This study will describe the quality (comprehensiveness of content and strength of language) of the district school wellness policies across Oregon and examine how social and environmental factors are associated with quality of the LSWP.

Specifically, this project addresses the following questions:

1. What is the quality of Oregon's LSWP?
2. Is there an association between social/environmental factors (i.e., racial/ethnic makeup of the school, percent receiving free/reduced-price lunch at the school, walkability of area surrounding school) and the strength of district school wellness policies across the state?

Existing Literature

The success of regulated school-based interventions has been analyzed by several researchers. In 2008, TJ Brown conducted a systematic review of interventions that focused on changing dietary intake and physical activity levels. Thirty-eight studies were included; 3 studies focused on dietary intake, 15 studies focused on physical activity levels, and 20 studies focused on both dietary intake and physical activity levels. Overall, 33% of diet studies, 33% of physical activity studies, and 45% of combine diet and physical activity studies showed significance in the relationship between intervention and improved student health. While the conclusions are mixed, these early findings suggest that combined diet and physical activity interventions may improve student health in the long-term.⁶

In 2009, Mary Story published, “Schools and Obesity Prevention: Creating School Environments and Policies to Promote Healthy Eating and Physical Activity,” which reviewed the influence of schools on obesity prevention. Story examined current school practices involving food and physical activity, as well as the policies regulating these practices. The article found that snacks sold outside the lunch (competitive foods) period were easily accessible in schools, especially secondary schools. Similar studies have related the accessibility of these competitive foods to students’ high intake of calories and lower intake of fruits and vegetables. As a result, Story investigated the effect of implementing Farm-to-School programs or school gardens, rather than vending

⁶ TJ Brown and C Summerbell, “Systematic Review of School-Based Interventions That focus on Changing Dietary Intake and Physical Activity levels to Prevent Childhood Obesity: An Update to the Obesity Guidance Produced by the National Institute for Health and Clinical Excellence,” *The Authors Journal Compilation* (2008): 110.

machines. The findings implied potential in the “increased number of school salad bars, increased school meal participation, improved students' attitudes and behaviors in consuming health foods, and increased fruit and vegetable intake.”⁷ Overall, the results showed progress in addressing student health behaviors at school.

Similarly, in 2017, Jennifer Mansfield published, “Effect of school wellness policies and the Healthy, Hunger-Free Kids Act on food-consumption behaviors of students, 2006–2016: a systematic review,” which examined the improvement of student dietary outcomes when access to healthy foods was increased. This study included wellness interventions implemented from 2006 to 2016, which identified and reviewed food waste, intake, selection, and purchase patterns. Mansfield concluded that 14 of 19 interventions reported “improved food-consumption behaviors (selection, intake, and sales of healthy foods increased, while food waste decreased).”⁸ Together, both studies indicate the effectiveness of school-based interventions focused on improving student nutrition, therefore supporting the need for strong and purposeful wellness policies.

Although previous literature has demonstrated a link between school interventions and health-related outcomes, limited research exists that evaluates the quality of district wellness policies and their ability to inflict change. In 2011, Gail Hoxie-Setterstrom and Barbara Hoglund, developed a study analyzing nine school district policies in Minnesota, specifically assessing how compliant, comprehensive,

⁷ Mary Story, “Schools and Obesity Prevention: Creating School Environments and Policies to Promote Healthy Eating and Physical Activity,” *Milbank Quarterly* (2009): 71-74.

⁸ Jennifer L. Mansfield and Dennis A. Savaiano, “Effect of School Wellness Policies and the Healthy, Hunger-Free Kids Act on Food-Consumption Behaviors of Students, 2006-2016: A Systematic Review,” *Nutrition Reviews* (2017): 533-540.

and strong each policy is. Overall, only one of the nine policies met all federal requirements, though no district met all components of the coding system. The other eight policies met five of the six federal mandates, though vague and nonspecific language was common.⁹

Similarly, Erin Smith examined the effects of standard school wellness policies in Virginia. The study found that only 17% of Virginia's school wellness policies met federal requirements, and as a result, schools lacked specific strategies to address student health. Instead, limited or vague statements were included, putting students at a disadvantage compared to students at other schools with more developed policies.¹⁰ This suggests the need to evaluate school wellness policies, in order to give school-based interventions an opportunity to improve student health. Both of these studies are especially relevant to this project, as they focus on the quality of the policy and calls for policies to be improved in order to support the health of students. While this project only examines the quality of the policies not the implementation of the policies or the effects of the policies, studies like this one indicate that the policy matters because it guides implementation, which is the next step.

⁹ Gail Hoxie-Setterstrom and Barbara Hoglund, "School Wellness Policies: Opportunities for Change," *The Journal of School Nursing*, (2011): 330-339.

¹⁰ Erin Smith, "School Wellness Policies: Effects of Using Standard Templates," *American Journal of Preventative Medicine*, (2012): 304-308.

Methodology

A master list of Oregon schools and their respective districts was created. From this list, the schools were narrowed down to public, non-alternative high schools. Before collecting a copy of each school wellness policy, the following demographics were obtained for Oregon high schools within each district:

The *percentage of students receiving free/reduced-price lunch* and *percentage of students identifying as non-white* were collected for each high school using data from the U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Public Elementary/Secondary School Universe Survey", from 2014-15¹¹. There were three high schools for which the percentage of students receiving free/reduced-price lunch was not available within the survey data. In these cases, alternative sources were used, and in one case the percentage of students receiving free/reduced-price lunch at the closest elementary school to the high school was used as an estimate.

Walk scores were gathered by entering the physical address of each high school into the Walk Score website.¹² This website uses a system to analyze the nearby community for any given address, specifically looking at walking routes to nearby amenities. Walk scores are generated using a point system. The closer an amenity, the more points given. Maximum points are given to amenities located within 5-minutes of walking. If an amenity requires more than a 30-minute walk, no points are given. The overall scores also accounts for pedestrian friendliness by examining the surrounding

¹¹ "Public Elementary/Secondary School Universe Survey Data," *National Center for Education Statistics*.

¹² "Walk Score Methodology," *Walk Score*.

population and road metrics. Overall, walk scores range from 0-100. Higher walk scores are given to addresses located in areas that are more pedestrian friendly, whereas lower scores are given to addresses located in areas that are less pedestrian friendly (i.e., may require a car to get to nearby amenities).¹³

Walk Score®	Description
90-100	Walker's Paradise Daily errands do not require a car.
70-89	Very Walkable Most errands can be accomplished on foot.
50-69	Somewhat Walkable Some errands can be accomplished on foot.
25-49	Car-Dependent Most errands require a car.
0-24	Car-Dependent Almost all errands require a car.

Figure 1: Walk Scores Measuring Pedestrian Friendliness¹⁴

Once demographics were recorded, each individual district policy was obtained through combing each district's website. It is assumed that the policies were up to date at the time this study began, September 2017. Initially, this project intended to include data for 146 school districts. The wellness policies for 129 Oregon school districts, covering 1081 schools, were obtained, while 17 were unable to be found. The unfound policies required additional follow-up with the school district via email and/or phone. Altogether, 161 policies were obtained and evaluated.

To determine the quality of each wellness policy, each document was evaluated by three researchers: two undergraduate students and a graduate student using the

¹³ Ibid.

¹⁴ Ibid.

Wellness School Assessment Tool (WellSAT: 2.0). The WellSAT 2.0 assesses how each policy addresses 78 policy items based on federal law or best practices. The WellSAT is an abbreviated version of the original 96-item Comprehensive Coding System to Measure the Quality of School Wellness Policies.¹⁵ Each policy item is divided into six categories including; (1) Nutrition Education, (2) Standards for USDA Child Nutrition Programs, (3) Nutrition Standards for Competitive & Other Food/Beverages, (4) Physical Education & Activity, (5) Wellness Promotion & Marketing, and (6) Implementation, Evaluation, & Communication.

An average inter-rater reliability of 84% was calculated between the three raters (Table 1). This reliability was based on the analysis of two wellness policies completed by all three raters. For complete inter-rater reliability, see Table 1.

Raters	Inter-rater Reliability
Christine / Connor	88%
Christine / Xiao	85%
Xiao / Connor	79%
Christine / Xiao / Connor	84%

Table 1. Inter-rater Reliability

¹⁵ “WellSAT: 3.0 – Wellness School Assessment Tool,” Rudd Center for Food Policy & Obesity.

Categories	Examples of 78-Items
Nutrition Education (NEPE)	<ul style="list-style-type: none"> • Addresses standards-based nutrition curriculum • Links nutrition education to school environment
Standards for USDA Child Nutrition (SM)	<ul style="list-style-type: none"> • Teaching skills that are behavior-focused • Addresses compliance with USDA nutrition standards • Discusses strategies to increase participation in school meal programs • Ensures annual training for food and nutrition services staff
Nutrition Standards for Competitive and Other Foods and Beverages (NS)	<ul style="list-style-type: none"> • Addresses food served during the extended day • Regulates food served at class parties or fundraisers • Includes a full description of Smart Snack standards
Physical Education and Physical Activity (PEPA)	<ul style="list-style-type: none"> • Specifies time per week of physical education instruction • Addresses qualifications of physical education teachers
Wellness Promotion and Marketing (WPM)	<ul style="list-style-type: none"> • Addresses waiver requirements • Encourages staff to model healthy behaviors • Address physical activity not being used as or withheld as a punishment
Implementation, Evaluation, and Communication (IEC)	<ul style="list-style-type: none"> • Specifies ways to promote activity • Establishes a district wellness committee • Guidelines for a progress report on compliance • Addresses a plan for updating policy

Table 2. Examples of the 78-Items from the WellSAT 2.0.

The WellSAT provides a method for the assessing of the comprehensiveness and strength of school wellness policies. This table contains 18 of the 78 items assessed.¹⁶

For each item, the policy was given a score of “0”, “1”, or “2”, identifying whether the policy item was not mentioned, included a weak statement, or met/exceeded expectations. Using these scores, the WellSAT provided an analysis of both the comprehensiveness and strength of each area of assessment. The

¹⁶ Ibid.

comprehensiveness score reflects the extent to which the recommended content was covered in each policy and is represented by the total number of 1's or 2's per category. The strength score describes how clearly the content was expressed and is represented by the total number of 2's per category.

Following the rating of each policy, a descriptive analysis of each policy category was conducted including mean, standard deviation, and mode. Further, a bivariate statistical analysis was run in SPSS, version 24. Pearson's correlations (r) were used for testing associations between the percent of non-white students, the percent of students eligible for free or reduced lunch, the school walkability score, and the strength scores of each policy category. Strength score, rather than comprehensive score, was used because for this analysis as it represents the number of items that clearly met or exceeded expectations. A weak correlation was interpreted as $r = 0.10$ to 0.29 ; a medium correlation was interpreted as $r = 0.30$ to 0.49 ; and a strong correlation was interpreted as $r = 0.50$ to 1.0 . Significance levels were set at $p < 0.05$.

Societal Contribution

The findings of this study provide insight into the quality of current Oregon LSWPs, showing how well each policy does in addressing the nutritional and physical needs of Oregon students. The findings can guide state leaders and school districts on next steps in improving their LSWP in order to ultimately improve the health of Oregon students. Further, combined with the demographics of each district, these results indicate if an association exists with the services provided for student's nutritional and physical health and attempts to prevent obesity.

Results

Descriptive Results

Of the 161 policies, no district complied with all 78 policy-items. An average of 26.95 items met or exceeded expectations. In terms of each individual category, the strength differed between policies.

Category & Score Type	Mean	Standard Deviation	Mode	Points Possible
NEPE Comprehensive Score	6.48	1.189	7	7
NEPE Strength Score	4.55	1.725	4	7
SM Comprehensive Score	9.02	3.558	12	13
SM Strength Score	4.06	1.566	5	13
NS Comprehensive Score	17.01	5.931	17	25
NS Strength Score	9.46	8.112	0	25
PEPA Comprehensive Score	6.81	2.946	7	20
PEPA Strength Score	2.07	2.749	0	20
WPM Comprehensive Score	5.7	3.313	6	15
WPM Strength Score	3.61	2.862	4	15
IEC Comprehensive Score	5.23	2.879	4	11
IEC Strength Score	3.20	2.366	2	11

Table 3: Comprehensive & Strength Scores for All Six WellSAT Categories

The comprehensiveness score reflects the extent in which the nutrition education was covered in each policy by the totaling the number of 1's or 2's per category. The strength score describes how clearly nutrition education was expressed by the total number of 2's per category. NEPE: Nutrition Education; SM: Standards for USDA Child Nutrition Programs; NS: Nutrition Standards for Competitive & Other Food/Beverages; PEPA: Physical Education and Physical Activity; WPM: Wellness Promotion & Marketing; IEC: Implementation, Evaluation, and Communication¹⁷

Nutrition education was well represented within the school wellness policies.

Overall, the policy's comprehensiveness and strength differed greatly between school districts. The average comprehensive score was 6.48, while the average strength score was 4.55 (Table 3). Collectively, 114 of the 161 wellness policies received either a 1 or a 2 for all seven categories. However, only 29 of the 161 wellness policies received a 2 for all seven categories. This score indicates that on average, almost all items were addressed in each policy, though some were vague in language. On average, 65% of items were clearly addressed.

While none of the policies had a perfect comprehensive score in standards for competitive foods/beverage, 64 of the 161 had a score of 12 (indicating one missing item). The other 97 policies varied considerably. Overall, the average comprehensive score was 9.02, while the average strength score was 4.06 (Table 3). The comprehensive score indicates that on average, approximately half of the required items were addressed in each policy, though a majority were vague in language. On average, only 31% of items were clearly addressed.

¹⁷ Ibid.

The standards for competitive food/beverage contained several items, often distinguishing between elementary, middle, and high school standards. Overall, the average comprehensive score was 17.01, while the average strength score was 9.46 (Table 3). The comprehensive score indicates that on average, 68% of items were addressed in each policy, though a majority were vague in language. On average, only 38% of items were clearly addressed.

Items within the PEPA Policy Category	N (%)
PEPA 1: Written physical education curriculum for grades K-12	
0	21 (13.0)
1	82 (50.9)
2	58 (36.0)
PEPA 2: Written physical education curriculum is aligned with national and/or state physical education standards.	
0	90 (55.9)
1	10 (6.1)
2	61 (37.9)
PEPA 3: Addresses time per week of physical education for elementary students	
0	106 (65.8)
1	13 (8.1)
2	42 (26.1)
PEPA 4: Addresses time per week of physical education instruction for all middle school students	
0	107 (66.5)
1	13 (8.1)
2	41 (25.5)
PEPA 5: Addresses time per week of physical education instruction for all high school students	
0	137 (85.1)
1	18 (11.2)
2	6 (3.7)
PEPA 6: Addresses teacher-student ratio for physical education classes	
0	161 (100)
1	0 (0)
2	0 (0)
PEPA 7: Addresses qualifications for physical education teachers for grades K-12.	
0	48 (29.8)
1	88 (54.7)
2	25 (15.5)
PEPA 8: District provides physical education training for physical education teachers	
0	117 (72.7)
1	27 (16.8)

2	17 (10.6)
PEPA 9: Addresses physical education waiver requirements for K-12 students	
0	72 (44.7)
1	79 (49.1)
2	10 (6.2)
PEPA 10: Addresses physical education exemptions for K-12 students.	
0	160 (99.4)
1	0 (0)
2	1 (0.6)
PEPA 11: Addresses physical education substitution requirements for K-12 students	
0	142 (88.2)
1	16 (9.9)
2	3 (1.9)
PEPA 12: District addresses the development of a comprehensive school physical activity program plan at each school	
0	78 (48.4)
1	71 (44.1)
2	12 (7.5)
PEPA 13: District addresses active transport for all K-12 students	
0	137 (85.4)
1	13 (8.1)
2	11 (6.8)
PEPA 14: District addresses before and after school physical activity for all K-12 students	
0	128 (79.5)
1	12 (7.5)
2	21 (13.0)
PEPA 15: District addresses recess for elementary school students	
0	23 (14.3)
1	124 (77.0)
2	14 (8.7)
PEPA 16: Addresses physical activity breaks for all K-12 students	
0	126 (78.3)
1	30 (18.6)
2	5 (3.1)
PEPA 17: Addresses staff involvement in physical activity opportunities at all schools	
0	93 (57.8)
1	66 (41.0)
2	2 (1.2)
PEPA 18: Addresses family and community engagement in physical activity opportunities at all schools.	
0	63 (39.1)
1	94 (58.4)
2	4 (2.5)
PEPA 19: District provides physical activity training for all teachers	
0	157 (97.5)
1	4 (2.5)
2	0 (0)
PEPA 20: Joint or shared-use agreements for physical activity participation at all schools	
0	156 (96.9)
1	2 (1.2)

2	1 (0.6)
Average Comprehensive Score	6.81 (N/A)
Standard Deviation	2.95 (N/A)
Average Strength Score	2.07 (N/A)
Standard Deviation	2.75 (N/A)

Table 4. Evaluation of Physical Education & Physical Activity

A score of 0 indicates the item was missing; a score of 1 indicates a weak or vague statement; a score of 2 indicates a strong statement that met or exceeded expectations. The comprehensiveness score reflects the extent in which wellness promotion and marketing was covered in each policy by the totaling the number of 1's or 2's per category. The strength score describes how clearly wellness promotion and marketing was expressed by the total number of 2's per category. PEPA is the WellSAT abbreviation for "Physical Education & Physical Activity".

Physical education and physical activity were addressed the least within school wellness policies. Overall, the average comprehensive score was 6.81, while the average strength score was 2.07 (Table 4). The comprehensive score indicates that on average, 34% of necessary items were addressed in each policy, though a majority were vague in language. On average, only 10% of items were clearly addressed or included.

Items within the WPM Policy Category	N (%)
WPM 1: Encourages staff to model healthy eating/drinking behaviors	
0	35 (21.7)
1	80 (49.7)
2	46 (28.6)
WPM 2: Addresses staff not modeling unhealthy eating/drinking behaviors	
0	136 (84.5)
1	25 (15.5)
2	0 (0)
WPM 3: Encourages staff to model physical activity behaviors	
0	128 (79.5)
1	28 (17.4)
2	5 (3.1)
WPM 4: Addresses food not being used as a reward	
0	87 (54.0)
1	67 (41.6)
2	7 (4.3)
WPM 5: Addresses using physical activity as a reward	
0	108 (67.1)
1	3 (1.9)

2	50 (31.1)
WPM 6: Addresses physical activity not being used as a punishment	
0	85 (52.8)
1	1 (0.6)
2	75 (46.6)
WPM 7: Addresses physical activity not being withheld as a punishment	
0	137 (85.1)
1	4 (2.5)
2	20 (12.4)
WPM 8: Specifies marketing/ways to promote healthy food and beverage choices	
0	37 (23.0)
1	20 (12.4)
2	104 (64.6)
WPM 9: Specifies ways to promote physical activity	
0	55 (34.2)
1	36 (22.4)
2	70 (43.5)
WPM 10: Specifies that family wellness activities will be planned and will include nutrition and physical activity components	
0	22 (13.7)
1	45 (28.0)
2	94 (58.4)
WPM 11: On signs, scoreboards, sports equipment	
0	133 (82.6)
1	11 (6.8)
2	17 (10.6)
WPM 12: In curricula, textbooks, websites used for educational purposes, or other educational materials	
0	131 (81.4)
1	6 (3.7)
2	24 (14.9)
WPM 13: On exteriors of vending machines, food or beverage cups or containers, food display racks, coolers, trash and recycling containers, etc	
0	131 (81.4)
1	6 (3.7)
2	24 (14.9)
WPM 14: On advertisements in school publications, on school radio stations, in-school television, computer screen savers and/or school-sponsored Internet sites, or announcements on the public announcement system	
0	132 (82.0)
1	6 (3.7)
2	23 (14.3)
WPM 15: On fundraisers and corporate-sponsored programs that encourage students and their families to sell, purchase or consume products and/or provide funds to schools in exchange for consumer purchases of those products	
0	136 (84.5)
1	2 (1.2)
2	23 (14.3)
Average Comprehensive Score	5.73 (N/A)
Standard Deviation	3.31 (N/A)

Average Strength Score	3.61 (N/A)
Standard Deviation	2.86 (N/A)

Table 5. Evaluation of Wellness Promotion & Marketing

The comprehensiveness score reflects the extent to which wellness promotion and marketing was covered in each policy by the totaling the number of 1's or 2's per category. The strength score describes how clearly wellness promotion and marketing was expressed by the total number of 2's per category. WPM is the WellSAT abbreviation for "Wellness Promotion & Marketing".

Items within wellness promotion and marketing were also among the least addressed. Overall, the average comprehensive score was 5.73, while the average strength score was 3.61 (Table 5). The comprehensive score indicates that on average, 38% of all items were addressed in each policy, though a majority of items were vague in language. On average, only 24% of items were clearly addressed.

The specific guidelines for the implementation, evaluation, and communication of policies varied considerably. Overall, the average comprehensive score was 5.23, while the average strength score was 3.20. The comprehensive score indicates that on average, almost half of the essential items were addressed in each policy, though some of the items were vague in language. On average, only 29% of items were clearly addressed or included.

Bivariate Results

Category	Pearson Correlation (r)	P-Value
NEPE Strength Score		
% Non-White	-0.025	0.757
% Eligible for Free or Reduced-Price Lunch	0.84	0.292
Walkability Score	0.108	0.173
SM Strength Score		
% Non-White	-0.006	0.941
% Eligible for Free or	0.043	0.589

Reduced-Price Lunch Walkability Score	0.091	0.254
NS Strength Score		
% Non-White	0.088	0.269
% Eligible for Free or Reduced-Price Lunch Walkability Score	0.174*	0.027
PEPA Strength Score		
% Non-White	-0.061	0.440
% Eligible for Free or Reduced-Price Lunch Walkability Score	0.174*	0.027
WPM Strength Score		
% Non-White	0.032	0.684
% Eligible for Free or Reduced-Price Lunch Walkability Score	0.068	0.394
IEC Strength Score		
% Non-White	-0.011	0.891
% Eligible for Free or Reduced-Price Lunch Walkability Score	0.071	0.374
	0.052	0.512

Table 6. Correlation between % Non-White, % Eligible for Free Lunch, Walkability Score, and Strength Score

The correlation values (r) were interpreted using $r = 0.10$ to 0.29 as small; $r = 0.30$ to 0.49 as medium; and $r = 0.50$ to 1.0 as large (Cohen, 1988). A star (*) indicates correlation is significant at $p < 0.05$ level (2-tailed). NEPE = Nutrition Education, SM = Standards for USDA Child Nutrition, NS = Nutrition Standards, PEPA = Physical Education & Physical Activity, WPM = Wellness Promotion & Marketing, and IEC = Implementation, Evaluation, and Communication.

Pearson's correlation was used to determine the relationship between strength score and percentage of non-white students, percentage of students eligible for free or reduced-price lunch, and walkability score. The findings are summarized in Table 6. A positive, weak correlation exists between Nutrition Standards strength score and percentage of students eligible for free or reduced-price lunch ($r = 0.174$), as well as between the Physical Education & Physical Activity strength score and percentage of

students eligible for free or reduced-price lunch ($r = 0.174$). Additionally, a large/strong correlation appears to exist between NEPA strength score and percent eligible for free or reduced-price lunch, however, this result is not significant ($p = 0.292$). The percentage of non-white students and the walkability score were not significantly associated with the strength scores for any of the policy categories.

Discussion

The study assessed the quality of wellness policies and the associations between policy strength and percent non-white, percent eligible for free lunch, and walkability score. The average comprehension score was 64% (49.64 of 78 items), while the average strength score was 35% (26.95 of 78 items). These scores show that more than half of the recommended policy items were included in the wellness policies and that over a quarter of items addressed were clearly stated.

The strongest category of the policies was nutrition education, which requires school wellness policies to set goals and promote student's wellness through district determined activities. Of the policies evaluated, almost all included a standard-based nutrition curriculum, health education curriculum, or other curriculum that included nutrition. As the policies were compared to the items in the related subscale, half of the policies included a vague statement addressing the occurrence of nutrition education at each grade level, while the other half clearly stated that nutrition education occurred at each grade level. In general, the most commonly missed item was Nutrition Education #5, outlined as follows:

NEPE5: Links nutrition education with the school food environment

0: Not mentioned

1: Vague and/or suggested

Example: "The entire school environment, not just the classroom, shall be aligned with healthy school goals to positively influence a student's understanding, beliefs, and habits as they relate to good nutrition and regular physical activity."

2: Requires that nutrition education be integrated into the larger school environment in concrete ways.

Examples:

"The nutrition education program shall work with the school meal program to develop school gardens and use the cafeteria as a learning lab."

“Field trips: Children will have an opportunity to visit local farms where produce is purchased for school meals.”

While most policies offered examples of local food pantries, community gardens, or nutritional workshops, 28 of the 161 policies failed to link nutrition education to the school food environment, while an additional 31 provided some sort of link without specifying the content.

Almost all 161 policies addressed access to the USDA School Breakfast Program and compliance with USDA nutrition standards for reimbursable meals. However, only 17 policies met standards that are more stringent than those required by the USDA. Additionally, none of the policies addressed students leaving school during lunch periods. As a result, none of the policies had a comprehensive score of 13, though, 64 of the 161 had a comprehensive score of 12. The other 97 policies varied considerably. The most commonly missed items included Standards for USDA Child Nutrition #8 and #13, as outlined as follows:

SM8: Ensures adequate time to eat.

0: Not mentioned

1: Vague and/or suggests a specific amount of time

Examples:

"Schools are encouraged to permit all full-day students a daily lunch period of not less than 20 minutes."

"Personnel will schedule enough time so students do not have to spend too much time waiting in line."

2: Requires meal periods to include at least 20 minutes of “seat time” for lunch and/or at least 10 minutes of “seat time” for breakfast.

Examples: "After obtaining food, students will have at least 20 minutes to eat lunch."

SM13: Recess (when offered) is scheduled before lunch in elementary schools

0: Not mentioned

1: Recommended or weakened by principal discretion

Example: “Schools will be encouraged to schedule recess before

the lunch period”

2: Required

Example: “All children will participate in daily recess which will be scheduled prior to the lunch period.”

A majority of policies included vague statements suggesting students would receive “adequate time” or “participate in recess.” However, these ideas are important to include, as often kids are calmer after they’ve first had recess and do not feel rushed to eat their lunch. Most policies focused on addressing federal meal guidelines rather than specific school requirements.

Almost all policies specified meeting nutrition standards for competitive foods at the elementary, middle, and high school level, though some failed to show specific standards. Only eight policies did not mention compliance. This statistic is important, as the nutrition standards for competitive and other food/beverages serve to ensure that federal mandates are followed regarding food sold to students while at school (though outside the school meal time). The most commonly missed items included Nutrition Standards #7, #8, and #10, as outlined below:

NS7 Addresses foods and beverages containing non-nutritive sweeteners

0: Not mentioned

1: Recommends or suggests schools not sell foods and beverages with non-nutritive sweeteners

Example: “Schools are encouraged to limit the sale of beverages to water, 100% juice and milk.”

2: Prohibits the sale of foods and/or beverages containing non-nutritive sweeteners during the school day

Example: “No beverages with non-nutritive sweeteners (artificial or natural), such as diet iced tea, diet soda, etc. will be sold to students during the school day”

NS8 Addresses foods and beverages containing caffeine at the high school level

*As of 2014, USDA Smart Snacks standards prohibit the sale of foods and beverages containing caffeine in elementary and

middle schools.

0: Not mentioned

1: Recommends or suggests high schools not sell foods and/or beverages with caffeine

“High school principals are encouraged to limit the sale of beverages to those that meet USDA Smart Snack standards for middle schools.”

2: Either of the following:

- Prohibits the sale of foods and/or beverages containing caffeine (with the exception of trace amounts of naturally occurring caffeine) at all grade levels, during the school day
- Requires high schools to follow the stricter Smart Snack beverage standards for middle schools

Examples:

“USDA Smart Snack standards for beverages sold in elementary and middle schools shall also be applied in high schools.”

“Beverages containing caffeine will not be sold on the high school campus.”

NS10 Addresses availability of free drinking water throughout the school day

0: Not mentioned or only mentions water availability where meals are served.

1: Availability of free water is suggested or encouraged

Examples:

"Water shall be accessible during hours of school operation through choices such as drinking fountains or vending machines."

"Schools are encouraged to provide drinking fountains throughout the school campus."

“Students are allowed to bring in bottled water from home.”

2: Free water is always available

Example:

"Students and staff will have access to free, safe, and fresh drinking water throughout the school day."

"Drinking water fountains will be made available to students and staff throughout the school building."

"Students will be provided access to drinking water throughout the day."

The first two regulations refer to Smart Snacks, food and beverages sold outside of meal-time, often from a school-store or vending machine. Schools are encouraged to limit food and beverages with added sugar and caffeine, while increasing access to

water. During the evaluation of policies, it was found that schools had varying practices regarding Smart Snacks, largely due to vague policy.

The weakest policy category was physical education and physical activity. Physical activity is required to be incorporated into the school day, however, only 34% of policy items were included in most policies. For those that discussed physical education, most districts included vague guidelines for physical activity for students. Overall, 55.9% of policies failed to mention whether the outlined curriculum met national and/or state physical education standards. Some of the most commonly missed items included Physical Education & Physical Activity #5, #6, #10, and #13, as outlined below:

PEPA5: Addresses time per week of physical education instruction for all high school students

0: Not mentioned

1: Vague and/or suggested: Suggests but does not require 225 minutes/week of physical education instruction for all high school students.

Example: "High schools should provide 225 minutes per week of physical education instruction."

2: Required. Clear that school district requires 225 minutes/week of physical education instruction for all high school students through the entire school year.

Example: "All high school students shall receive 225 minutes per week of physical education instruction throughout the school year."

PEPA6: Addresses teacher-student ratio for physical education classes

0: Not mentioned

1: Vague and/or suggested: Suggests that physical education classes will have student/teacher ratios similar to those used in other classes.

Example: "Schools are encouraged to maintain student/teacher ratios for physical education classes, similar to those used in other classes."

2. Required. Clear that school district requires that physical education classes will have student/teacher ratios similar to those

used in other classes.

Example: "Physical education classes will have the same student/teacher ratios used in other classes."

PEPA10: Addresses physical education exemptions for K-12 students.

0: Not mentioned

1: Vague and/or suggested: School district discourages students from applying for an exemption from physical education class time or credit.

Example: "Exemptions from physical education class time or credit are allowed but discouraged."

2 Required. Clear that school district does not allow any student to receive an exemption from physical education class time or credit.

Example: "Schools will not allow students to be exempted from required physical education."

PEPA13: District addresses active transport for all K-12 students

0: Not mentioned

1: Vague and/or suggested

Example: "Schools should promote walking and biking to school."

2. Required. Clear that school district requires school to develop an active transport program.

Example: "Each school shall partner with local government and community-based agencies to support active transport to school to implement a comprehensive active transport program (i.e. Safe Routes to School Program)."

Only 15% of policies mentioned physical activity for high school students, compared to the 34% that mentioned physical activity for elementary and middle school students.

Currently, Oregon law does not require a specific amount of time for high school students to be active, though it is required for graduation.¹⁸ This discrepancy opens up the opportunity for the revision of Oregon legislation and the PEPA category within the school wellness policy, creating clearer guidelines for physical activity at high schools.

¹⁸ "Shape of the Nation State Profile: Oregon." *Shape America*

Another weak category included the wellness promotion and marketing, which intends to address the factors that may influence healthy behaviors. Specifically, the guidelines look to specify ways to plan family activities, address physical activity as a reward/punishment, and regulate advertisements seen around the school. On average, only 38% of items were addressed. Very few policies addressed encouraging staff to model physical activity behaviors. Some of the most commonly missed items included Wellness Promotion & Marketing #3, #7, and #15, as outlined below:

WPM3: Encourages staff to model physical activity behaviors

0: Not mentioned

1: Suggests that staff is encouraged to model physical activity

Example: "To the extent feasible, staff should model healthy behaviors for students, including healthy eating and physical activity"

2: Staff model physical activity in concrete ways

Examples:

"Teachers model physical activity by participating in exercise breaks during class time with their students."

"Teachers share their positive experiences with physical activity with their students."

WPM7: Addresses physical activity not being withheld as a punishment

0: Not mentioned

1: Discourages withholding PA as a punishment

Example:

"The administration believes that recess and other opportunities for physical activity are an essential part of the school day. Teachers are encouraged to find alternatives to withholding recess or other physical activities as a punishment."

2: Prohibits withholding PA as a punishment

Example:

"Recess or other physical activities shall not be withheld from students as a consequence of poor behavior or punishment for any reason."

WPM15: On fundraisers and corporate-sponsored programs that encourage students and their families to sell, purchase or consume products and/or provide funds to schools in exchange for consumer purchases of those products

0: Not mentioned

1: Restrictions are vague/suggested or weakened by exceptions such as time, location, or principal's discretion.

Example: "It is recommended that schools avoid participation in fundraising or corporate incentive programs that promote a message inconsistent with our goals for a healthy school community."

2: Prohibits ALL advertising of food and beverages that cannot be sold to students during the school day/do not meet Smart Snack nutrition standards OR prohibits school participation in fundraising programs promoting brands or food and beverage companies.

Example: "Given concerns about student exposure to marketing, district schools will no longer participate in incentive programs that promote brands or provide children with free or discounted foods or beverages. PTA's will be asked to research new fundraising opportunities to replace programs such as McTeacher's night and Box Tops for Education."

These factors are important as they may influence a student's perception of health. In addition to fundraisers and corporate-sponsored programs, 82% of policies failed to address advertisements on signs and scoreboards, in textbooks or curricula, on vending machines or food displays racks, and on school radio or public announcements. In fact, only 25 of 161 policies mentioned advertisements at all.

The implementation, evaluation, and communication category was more often addressed than the two previous categories, though on average, only half of the items could be found. This category meant to measure a district's ability to reform their policy and communicate it with the public, as districts are required to establish an ongoing wellness committee and designate an official to ensure compliance. Of all the policies, very few wellness committees included community-wide representation. Roughly 60.9% failed to mention the committee altogether. Both Implementation, Evaluation, and Communication #2 and #10 were the most commonly missed items, as outlined below:

IEC2. District wellness committee has community-wide representation

0: Not mentioned

1: Mentions that membership is open to the community

Example: “Students, parents, staff and/or community members are welcome to join the committee.”

2: States a plan to actively recruit some or all of the following: parents, students, PE teachers, school food authority representatives, school health professionals, SNAP Ed coordinators, school board members, administrators, members of community-based organizations and members of the general public.

Example: “A letter will be sent to the school community via email, and will be posted in a central area in all school buildings inviting members of the community to join the wellness committee. Teachers, student, parents, administrators and allied health professionals are encouraged to attend.”

IEC10. Addresses methods for communicating with the public

0: Not mentioned

1: Communication with the public is mentioned, but no specifics are provided about the methods, frequency or expected content of the communications

Example: “The wellness committee will determine how best to share wellness policy information with the school and general community.”

2: There is a clear plan for communication that includes specific communication methods

Example: “The SWP and annual progress reports will be shared with the public via any or all of the following: the district website, direct mailings to families, presentations to the PTA, press release to local news media.”

The Healthy, Hunger Free Kids Act¹⁹ requires a school wellness policy to address the designation of a school official to assure policies are implemented, to contain input from school stakeholders in reviewing and revising policy, and to communicate policy progress to school stakeholders. Often, the designation of a school official was the only item addressed.

¹⁹ “Child Nutrition.” National Education Association

Initially, it was thought that the strengths of each category would correlate to the percent of non-white students, the percent of students eligible for free or reduced lunch, and the walkability surrounding the school. It was found that only a small correlation existed between NS strength score and percent eligible for free or reduced-price lunch, as well as between PEPA score and percent eligible for free or reduced-price lunch. This suggests that schools with a higher percent of students eligible for free or reduced-price lunch may influence the standards of nutritional and physical activity at schools.

Limitations

Most of the district's wellness policies included two documents, while some only included one. The overall evaluation was based on both documents, therefore, those with only one document were at a disadvantage. This decreases the strength of the policy for that particular district (as it will not contain the same extent of information as others with two documents). Further, since we began evaluating the LSWPs a new WellSAT came out, WellSAT3.0, with some improvements to the tool. This study is unfortunately evaluated with the old tool. Finally, this study just looked at quality of the policies and does not measure implementation of the policy content. This would be a good follow up step. It's possible that schools are doing things that are not reflected in the policy or the reverse, things are in their policy that they're not doing.

Conclusion

In order to improve the overall health of students, more weight should be placed on the quality of LSWP in order to guide strong school wellness environments that promote healthy eating and physical activity of high school students. Many of the

policies assessed developed their policy based off the same template, which included only the basic minimum requirements with vague language. This study demonstrated that while there is room for improvement in each of the six LSWP categories, more efforts should go to improving the quality of the Physical Education & Physical Activity and Wellness Promotion & Marketing LSWP categories. It is promising to see that the strength of LSWP language in the Nutrition Standards for Competitive & Other Food/Beverages and Physical Education & Physical Activity categories was found to be positively associated with schools with more students eligible for free or reduced lunch as these communities have an increased risk for health disparities.

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