



Measuring the School Nutrition and Physical Activity (SNPA) Environment A Case for Assessing School Resources and Readiness for Changing the Context to Address Child Obesity

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The goal of the GROW Healthy Kids and Communities project is to prevent obesity in rural children.



College of Public Health and Human Sciences

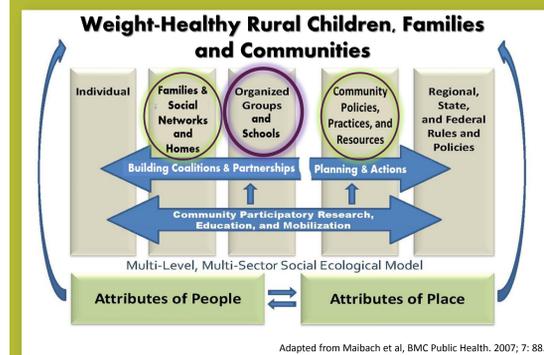
Extension Family and Community Health

BACKGROUND

Elementary schools are key sites for delivering nutrition and physical activity education and promoting healthy behaviors. Most school-based programs model outcomes at the level of the individual and evaluate impacts at the level of changes in students' knowledge, abilities and behaviors. A public health approach to promoting healthy habits focuses efforts on changing the context of the behavioral environment to make healthy options the default choice.

GROW Healthy Kids and Communities

OBESITY PREVENTION STUDY FRAMEWORK



OBESITY PREVENTION STUDY AIM

To plan, implement, and evaluate a multi-level intervention in Oregon targeting home, school, and community behavioral contexts to promote healthful eating and increase physical activity, and thus improve body mass index among rural children.

OBESITY PREVENTION STUDY OBJECTIVES

Objective: Evaluate the impact of a 3-year, comprehensive multi-level, environmentally-based intervention to promote healthful eating and increase physical activity on overweight and obesity (change in BMI) among rural kindergarten through 6th grade children.

Objective: Evaluate the effects of intervention strategies on changes in home, school, and community nutrition and physical activity environments.



TARGET AUDIENCES

- Rural elementary-aged children, their family caregivers and the home environment
- Students, grades K-6, enrolled in SNAP-Ed eligible rural public schools, and the school environment and school decision-makers
- Youth and families, and adult residents of rural communities, the community environment and community decision-makers

SNPA PURPOSE

School Nutrition and Physical Activity Assessment of the Environment (SNPA)

The SNPA tool was developed to fill a gap in our understanding of the interplay between characteristics of students and schools, and that effect on students' nutrition and physical activity (PA) behaviors as well as health (whole school BMI) as part of a larger rural childhood obesity study.

Measurement Model

The SNPA was developed to quantify the quality of the school nutrition and PA behavioral context across three environmental domains (Physical, Situational, Policy; see image below).



- The SNPA measures 27 items, referred to as "Areas of Interest" (AOIs) across two behavioral contexts (physical activity, n=16 AOIs; nutrition, n=11 AOIs) across the 3 environmental domains (physical, situational, policy). AOIs are measured against best practice criteria for each AOI and scored by quantifying the level of best practice for that AOI. See sample AOI below:

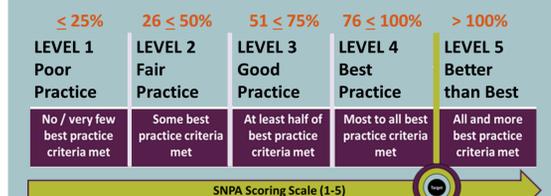
AOI #11: Movement Opportunities

Description: The indoor/outdoor fixed and portable features promote PA, active play, and a variety of movement opportunities

Behavioral Context: PA; **Domain:** Situational Environment

Measurable Criteria: 1. Key features of the outdoor space support and promote a variety of PA movements (e.g. skipping, jumping, climbing, swinging, dodging, throwing, kicking, etc.); 2. Key features of the indoor space support and promote a variety of PA movements (e.g. skipping, jumping, climbing, swinging, dodging, throwing, kicking, etc.); 3. Indoor space is adequate and available when outdoor conditions are unsuitable or unsafe; 4. If the indoor facility is used for other purposes (i.e. school meals, assemblies), PA is scheduled to maximize facility usage.

- If two of four criteria above are met, the score is 50% (Fair).
- Summary scores can be calculated for each behavioral context, each environmental domain, and overall.



METHODS

SNPA Pilot and Study Implementation

A descriptive case study approach at the school level was employed to pilot (n=3) and implement (n=6) the SNPA. The SNPA demonstrated good inter-rater reliability when used by trained evaluators, sensitivity when assessing school resources and practice conditions, and efficacy for identifying environmental characteristics needing improvement.

Research Design

Schools are nested within study communities (n=6) in three Oregon Counties. One elementary school that met the criteria for enrollment (>50% of student body eligible for free or reduced meals) was the focal point for school level baseline data collection. Within each County, schools were randomized to either control or intervention condition.



Measurement

Students

- Height and weight assessments were conducted during the 2012-2013 school year on all K-6th grade students attending 6 rural elementary schools.
- Assessments were conducted by research staff in partnership with Extension field faculty and school volunteers.



Schools

- SNPA assessments were conducted in 6 rural elementary schools between in January and February 2013.
- For each school, the SNPA was completed by 2 trained Extension field faculty in partnership with school staff.

Category: Policy Environment
Area of Interest 16: Structured Physical Education

Required Data Sources:
 Direct Observation Time: 10:30 (AM/PM)
 Interview
 Document Review
 Other, please specify _____

Informant:
 School Administrator
 Teacher, specifically PE Teacher
 District Food Service Director
 Meal Service Manager/Cafeteria Staff
 Classified Staff/Volunteer, specifically _____
 Wellness Committee
 Other, specifically _____

Description:
The school has a structured physical education/physical activity program that is coordinated and/or instructed by trained/credentialed physical educator(s).

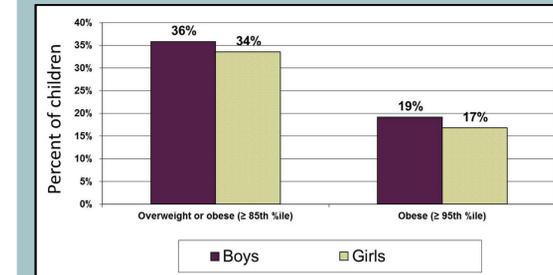
Criteria:
 A - The school has a trained/credentialed Physical Education teacher.
 B - Students participate in a minimum of 150 minutes of structured physical activity education per week.
 C - Physical education instruction is based on a written and sequential physical activity education curriculum that is consistent with state/national standards for physical education (see appendix).

Instructions: Within each Area of Interest, every criteria is verified using 2 required data sources and marked using [-] for does not meet and [] for meets all elements of the criteria description.

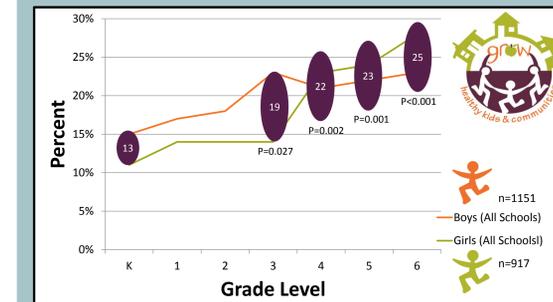
Scoring: Each Area of Interest is scored by dividing the number of criteria met by number of criteria available for percentage score.

RESULTS

Baseline Prevalence of Overweight and Obesity Among K-6 Grade Students by Sex (n = 2068)



All Schools (n=6), Prevalence of Obese, by Grade and Sex

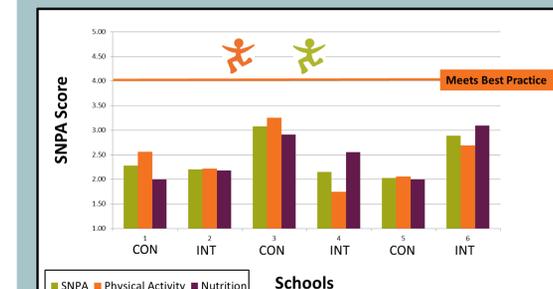


Graph shows upward trending of obese prevalence for boys and girls in grades 3rd through 6th versus grade K (p<0.01).

School Descriptive Characteristics

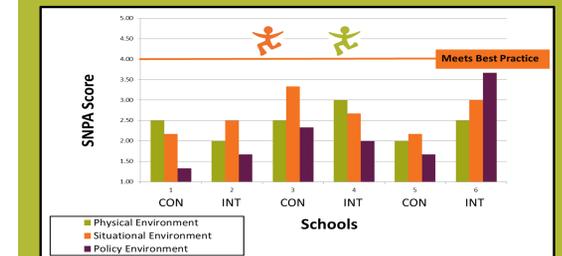
Characteristic	County 1	County 2	County 3			
School	1	2	3	4	5	6
Student enrollment	553	441	494	363	182	176
Eligible (%) for free/reduced meals	69.8	67.8	57.3	61.7	77.5	94.3
Race/Ethnicity (%)						
White	80.7	63.5	92.3	82.4	65.9	36.4
Other	8.3	3.6	4.5	9.9	10.5	57.9
Hispanic	11.0	32.9	3.2	7.7	23.6	5.7

Schools Overall SNPA, Physical Activity, and Nutrition Practice Scores

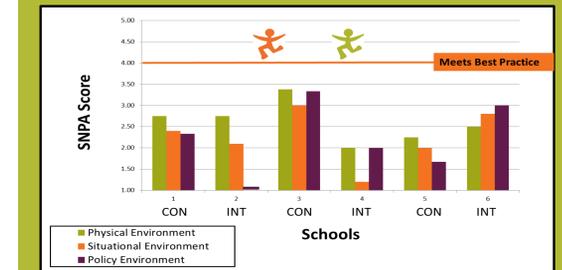


RESULTS

Schools Nutrition Environments



Schools Physical Activity Environments



CONCLUSIONS

- Rural Children**
 - Overweight and obesity prevails among rural K-6 grade students and follows a statistically significant upward trend beginning around grade 3.
- Rural Schools**
 - Generally exhibit fair to good environmental practices, meeting less than half of criteria, and have opportunities to improve the school nutrition and physical activity environments to support weight healthy behaviors.
 - Current and planned efforts to improve environmental practices are not focused or evidence-based, and available resources are inadequate.

Next Steps...

- Schools receive a report outlining areas of strength and opportunities for improvement, along with scored resource guide that provides evidence-informed strategies and resources to help school achieve obesity prevention best practice standards.
- Assessments and reports can be leveraged to secure grant funding to improve contexts, prioritize improvements in prioritized Areas of Interest, and evaluate changes resulting from environmental efforts.

Criterion	Score
A. Playing fields are leveled, drained, turfed, and regularly maintained.	0
B. Facilities are safe and accessible, including playgrounds, fields and surfaced areas (meet ADA and OSHA standards).	0
C. Provides a minimum of 8-10 acres (3-4 square city blocks).	1
D. Includes both manufactured and natural materials.	0
E. Close enough to the school building to permit access to portable play equipment and restrooms.	1
F. Separate hard surface area (50x60 sq. ft./120sq. ft. per child) and designated field space with clearly defined boundaries (isolated from the general playground) is available for physical education instruction without recess interruptions.	0
G. All materials and equipment are developmentally appropriate for all student ages and abilities.	0
H. Variety of field features includes various heights, (i.e. apparatus, hills, and trees to climb), surfaces (i.e. beams, logs, stones, and stumps), and elevations (i.e. crawling under, hiding in, following trail, jumping off).	0
I. Includes all of the following: large multipurpose solid surface; play courts; open green field/turf space anchored playground equipment; track/trail; other.	1

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