RESEARCH
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State Laws Are Associated with School Lunch Duration and Promotion Practices

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ABSTRACT

Background The changes in school meal programs stemming from the Healthy, Hunger-Free Kids Act of 2010 have expanded interest in strategies that increase student participation in school lunch and reduce plate waste. However, it remains unclear what factors are associated with schools' use of such strategies.

Objective This study examines whether state laws are associated with two types of school meal-related practices: (a) using promotional strategies (ie, taste tests, using posters or announcements) and (b) duration of lunch periods.

Design This cross-sectional study utilized the nationally representative 2014 School Health Policies and Practices Study, combined with corresponding state laws gathered by the National Wellness Policy Study. School data were available from 414 public schools in 43 states.

Main outcome measures Outcome measures included 16 strategies to promote school meals and the amount of time students had to eat lunch after being seated.

Statistical analyses performed Multivariate logistic regression and Poisson regression were used to examine associations between state laws and school practices, after accounting for school demographic characteristics.

Results Compared to schools in states with no law about engaging stakeholders in meal programs, schools in states with a law were more likely to conduct taste tests (64% vs 44%, P=0.016), collect suggestions from students (67% vs 50%, P=0.017), and invite family members to a school meal (71% vs 53%, P=0.015). Schools used more promotion strategies in states with a law than in states without a law (mean=10.4 vs 8.8, P=0.003). Schools were more likely to provide students at least 30 minutes to eat lunch after being seated in states with laws that addressed a minimum amount of time for lunch duration (43% vs 27%, P=0.042).

Conclusions State-level policy provisions are associated with school practices. Policy development in more states may support school practices that promote lunch participation and consumption.

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THE PAST DECADE HAS BROUGHT CONSIDERABLE attention to the topic of school nutrition, including the school meal programs administered by the US Department of Agriculture (USDA) and aspects of the school food and beverage environment outside the meal programs. As a result of language in the Healthy, Hunger-Free Kids Act of 2010, the USDA updated the nutrition standards and meal patterns for the National School Lunch Program, with changes implemented by the start of the 2012-2013 school year.[1] There is evidence that the types of foods and beverages in school lunches have improved since the revised standards took effect.[2-4] Policies such as national standards and state laws can support school-level nutrition practices that increase student access to healthful options, which then yield important benefits for students, such as healthy dietary behaviors[5] and improved weight outcomes.[6]

The USDA's strategic goals include maintaining high levels of student participation in school meal programs,[7] and ensuring that students actually consume those meals.[8] Several strategies may help to accomplish this goal. For example, the issue of lunch duration has been increasingly of interest, as it relates to the issue of plate waste. Although there have been suggestions that plate waste has increased in recent years, plate waste has always been problematic,[8,9] and several studies show that it has not worsened as a result of revised nutrition standards.[10,11] Even prior to the past decade, research indicated that shorter lunch periods were problematic for students because they do not allow sufficient time for students to consume adequate nourishment, leading to substantial amounts of food and milk being discarded.[12] Several organizations recommend that students should have at least 20 minutes to eat lunch.[13-15] Importantly, this pertains to the time that students are able to eat—beginning

from the time they are seated—not the amount of time scheduled for lunch, which also includes time spent waiting in the lunch line. Thus, longer scheduled lunch periods may be necessary for students to have sufficient time to eat. The advocacy position in favor of providing students at least 20 minutes for lunch is supported by research showing that elementary and middle school students consume significantly less of their milk, entrées, and vegetables when provided fewer than 20 minutes for lunch.[16,17] Furthermore, elementary students consume more foods with important nutrients such as calcium and vitamin A when they have 30 minutes for lunch instead of 20 minutes.[12]

Promoting students' consumption of a variety of fruits and vegetables (FV) in school meals can be challenging. Environmental factors shape children's food preferences,[18] and the school food environment impacts children's acceptance and consumption of FV. Merely making FV available is likely insufficient to substantially impact dietary intake, without adjunctive strategies to increase students' liking of—and consumption of—these foods. Strategies such as taste tests are effective for improving children's liking for FV.[19,20] For example, a study of a "tasting challenge" involving jicama and edamame in four elementary schools in Colorado demonstrated the feasibility and utility of this strategy for promoting students' willingness to try new foods.[21] Importantly, interviews with food service personnel indicated that promotional strategies to increase student consumption and decrease plate waste were deemed to be important, but were rarely used because of limited staff time and budgets.[21] A larger study among 2,945 elementary students in New Jersey found that taste tests paired with nutrition education lessons resulted in increased liking of foods (eg, squash, zucchini, chick peas, spinach) and willingness to eat those foods.[20]

Other research has found that intervention strategies such as providing enhanced training and materials for cafeteria staff can increase the availability of food categories such as whole grains,[22] and involving a chef in preparing and promoting school foods increased students' selection and consumption of whole grains and vegetables.[23] In addition, relatively simple strategies such as adding a promotional banner around the bottom of a salad bar increased salad bar participation and selection of vegetables among elementary students, and this effect was magnified further when combined with brief promotional video segments on televisions in the cafeteria during lunchtime.[24] Such efforts that apply the principles of behavioral economics are low-cost, evidence-supported practices that are increasingly common across the country.[24,25]

Overall, although existing work documents the importance of school practices in promoting students' consumption of school lunches, less is known about how to support schools in implementing these practices. State-level policy provisions such as state laws might be one avenue, but no studies document the association between state laws and these school practices. This study examined the association between state laws governing: (1) promotional practices and (2) lunch duration with concomitant school-level practices.

METHODS

This study linked data on school practices gathered through the School Health Policies and Practices Study (SHPPS) with state-level legal data compiled as part of the National Wellness Policy Study.

RESEARCH SNAPSHOT

Research Question: Are school practices that support student participation in school lunch programs more common in states where laws encourage or require such practices?

Key Findings: Among a nationally representative sample of 414 public schools, state laws pertaining to the duration and the promotion of school meals were associated with corresponding school-level practices.

School-Level Data

SHPPS is a national survey periodically conducted by the Centers for Disease Control and Prevention to assess school health policies and practices at state, district, school, and classroom levels. The current study used school-level data gathered between February and June 2014. A brief description of SHPPS methods is provided here, with extensive details available elsewhere.[26] SHPPS was reviewed by an institutional review board at the Centers for Disease Control and Prevention and determined to be exempt research under federal regulation 45 CFR 46.101 (b).[26] A two-stage sample design was used to generate a nationally representative sample of elementary, middle, and high schools. All public, private, and state-administered schools in the United States, containing kindergarten through grade 12, were eligible for sampling. In each school, the principal or other school contact identified the most knowledgeable respondent for each questionnaire. Trained interviewers visited each school to conduct computer-assisted personal interviews. Seven school-level questionnaires were administered via face-to-face interviews; the current analyses utilized data gathered from the Nutrition Services questionnaire.[27] The participation rate for the questionnaire was 69%, and it was most frequently completed by a foodservice manager (69%) or other school nutrition services staff (12%). A list of 16 items addressed specific practices used to promote school meals during the 12 months before the study, and respondents were asked to reply "Yes" or "No" for each topic. Regarding duration of lunch, respondents were asked: "How long do students usually have to eat lunch once they are seated?" with an open response as number of minutes. Two variables were calculated, based on prior research and recommendations for students, whereby 20 minutes can be considered a minimum acceptable amount of time, but 30 minutes is preferable. Therefore, the two variables were: (1) whether students were provided at least 20 minutes to eat lunch (yes or no); and (2) whether students were provided at least 30 minutes to eat lunch (yes or no).

Data were also gathered on school characteristics, which were used as contextual covariates in the analyses. Region was coded by the researchers based on the US census region[28] of the state where each school was located. Additional demographic variables were sourced from extant data collected by Market Data Retrieval[29] and linked to the SHPPS data set, including school size, student race/ethnicity, locale,