



YES Occasional Papers

Paper 7

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Findings from US Secondary Schools**

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YOUTH, EDUCATION, AND SOCIETY

OCCASIONAL PAPER

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First Year of USDA School Lunch Meal Standards: Findings from US Secondary Schools

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2014

ACKNOWLEDGMENTS

The Youth, Education, and Society (YES) study is part of a larger research initiative sponsored by the Robert Wood Johnson Foundation, entitled *Bridging the Gap: Research Informing Practice for Healthy Youth Behavior*. The study sponsor had no role in study design; collection, analysis or interpretation of data; writing the report; or the decision to submit the report for publication

INTRODUCTION

The US Department of Agriculture (USDA) issued standards in 2012 to improve federally-reimbursable meal program nutrition;¹ most National School Lunch Program (NSLP) standards were implemented at the beginning of school year (SY) 2012-13.² Media coverage reported student backlash to caloric restrictions,³ refusal to eat new required meal components and increased plate waste,⁴ and initial school drop out from federally-reimbursable meal program participation.⁵ The USDA responded to caloric limitation complaints, loosening meat and grain restrictions.⁶ The Government Accountability Office found that state child nutrition directors reported implementation challenges including increased plate waste and food costs, equipment and menu changes, and difficulty obtaining nutritionally compliant items;⁷ indications of reduced student NSLP participation were also found.⁷ However, both states and school food authorities expected that challenges of USDA standard implementation would lessen over time.⁷ This brief Occasional Paper presents national public school administrator-reported data on student and school responses to changes resulting from USDA standards during SY 2012-13.

METHODS

Analyses used data from SY 2012-13 collected from nationally representative samples of US public schools containing eighth, 10th, or 12th grades (approval obtained from the University of Michigan Behavioral Sciences Institutional Review Board).⁸ In spring 2013, mailed questionnaires were sent to each school's principal, suggesting food service personnel complete questions on lunch meal changes. Questionnaires were collected from 306 middle schools and 334 high schools (response rate 81.9%). All analyses were weighted to represent the number of students attending US public secondary schools reporting each noted measure.

RESULTS

The overwhelming majority of students (93% middle and 89% high school) attended schools that reported changing their lunch meal as a result of USDA standards (Table 1). Within schools that reported changes, respondents indicated that at the time of survey, the majority of students generally liked the new meals to at least some extent (70% middle and 63% high school). Student complaints about the new lunches were reported to have initially been quite high; however, by the time of survey, respondents indicated that few students continued to complain about the new lunches to a great/very great extent (dropping from 44% at first to 11% at time of survey for middle school and from 53% to 18% for high school). The extent to which lunch meals were modified as a result of student complaints varied widely. Increased plate waste from students throwing away food was observed: 25% of middle and high school students attended schools where respondents reported "a little more" waste than the previous year; "much more" waste was reported by 16% of middle and 20% of high schools. Response to the new school lunches showed variation by grade level. The extent of student complaints about school meals (initially and at the time of survey) was significantly greater at the high school level (see Table 1).

Table 1. Responses to USDA school lunch meal standards in US public secondary schools, School Year 2012-2013^a

	Middle school		High school		MS vs HS
	%	(SE)	%	(SE)	p ^b
New USDA standards for school meals took effect starting at the beginning of the 2012-13 school year. Have your lunch meal offerings changed as a result of the new USDA standards?					
Yes	92.9	(1.6)	89.2	(1.9)	0.11
If Yes:					
1. Do students generally seem to like the new school lunches?					
Not at all	8.8	(1.8)	12.8	(2.0)	
To a little extent	21.1	(2.5)	23.8	(2.6)	
To some extent	53.8	(3.1)	50.9	(3.0)	
To a great extent	14.2	(2.1)	11.1	(1.9)	
To a very great extent	2.2	(0.9)	1.4	(0.7)	
To at least some extent ^c	70.2	(2.8)	63.4	(2.9)	0.09
2. Did students complain about the new lunches at first?					
Not at all	9.4	(1.8)	6.2	(1.5)	
To a little extent	17.7	(2.4)	18.1	(2.4)	
To some extent	28.8	(2.8)	23.0	(2.6)	
To a great extent	24.6	(2.7)	28.2	(2.8)	
To a very great extent	19.6	(2.5)	24.5	(2.6)	
Great/very great extent ^c	44.2	(3.1)	52.7	(3.1)	0.04
3. Do students complain about the new lunches now?					
Not at all	20.3	(2.6)	9.9	(1.8)	
To a little extent	27.9	(2.7)	32.9	(2.9)	
To some extent	40.4	(3.0)	39.5	(3.0)	
To a great extent	8.0	(1.6)	14.8	(2.1)	
To a very great extent	3.4	(1.3)	2.8	(0.9)	
Great/very great extent ^c	11.4	(2.0)	17.6	(2.3)	0.03
4. Has the school or district modified their lunch meal offerings in response to student complaints?					
Not at all	36.5	(3.0)	27.4	(2.7)	
To a little extent	22.2	(2.6)	28.1	(2.8)	
To some extent	32.3	(2.9)	32.7	(2.9)	
To a great extent	7.1	(1.6)	7.9	(1.8)	
To a very great extent	1.9	(0.8)	3.9	(1.2)	
Great/very great extent ^c	8.9	(1.8)	11.8	(2.1)	0.26

Table 1. Responses to USDA school lunch meal standards in US public secondary schools, School Year 2012-2013, cont.

	Middle school	High school	MS vs HS		
	%	(SE)	%	(SE)	p ^b
5. Compared to last year, are students now throwing away more or less food from their school lunches?					
Much less	3.4	(1.1)	3.8	(1.1)	
A little less	11.4	(2.0)	10.0	(1.8)	
About the same amount	44.1	(3.1)	41.3	(3.0)	
A little more	25.2	(2.7)	24.7	(2.6)	
Much more	15.8	(2.3)	20.2	(2.4)	
A little more/much more ^c	41.0	(3.0)	44.9	(3.0)	0.34

Note. USDA, United States Department of Agriculture; MS, middle school; HS, high school.

^aMiddle school = grade 8; high school = grades 10 and 12. School sample sizes (unweighted) were 306 for middle and 334 for high school for any school lunch meal changes. School sample sizes (unweighted) for the remainder of outcomes were limited to cases that responded “yes” to any school lunch meal changes and ranged from 279 to 283 for middle school and to 299 to 301 for high school. Results were weighted to represent the number of students attending US public secondary schools reporting each noted measure. Cases were not restricted to schools who reported participating in the USDA National School Lunch Program (NSLP); however, 94% of schools participating in the NSLP reported changing their lunch meals as a result of the new USDA standards.

^bP values for middle versus high school differences obtained using chi square tests.

^cSpecified dichotomies coded and presented for the purposes of statistically comparing middle versus high school prevalence levels.

Response to the new school lunches also showed variation by school characteristics (see Table 2). Within the analytic sample, descriptive statistics for school characteristics were as follows: student body 66% or more white: 38.1% middle school, 48.9% high school 40% or more eligible for FRLP: 69.2% middle, 55.7% high school total enrollment more than 1,000: 22.5% middle, 57.7% high school. Rural: 28% middle, 31% high school. Significance of differences based on school characteristics were obtained from bivariate chi square tests and multivariate logistic regression models controlling simultaneously for all school characteristics.

For students attending high schools where the student body was predominately ($\geq 66\%$) white, bivariate analyses showed not only lower student liking for the new lunch meals than for students in non-predominately white schools (56% vs. 71%) but also higher student complaints both initially (60% vs. 45%) and at the time of survey (23% vs. 12%). In multivariate models, differences in student liking for the new lunch meals between predominantly white versus non-predominately white schools were no longer significant at $p < .05$ ($p < .10$), and differences in complaints at the time of survey were no longer significant. At the middle school level, significantly higher plate waste than the previous year was more likely to be reported for students in predominantly white schools than non-predominately white schools in bivariate models (56% vs. 32%); the association dropped to non-traditional significance of $p < .10$ in multivariate models.

Table 2. Bivariate associations between school characteristics and responses to USDA school lunch meal standards in US public middle and high schools during school year 2012-2013^a

	Middle school			High school			AOR p ^c	AOR p
	% Without	% With	p ^b	% Without	% With	p		
Lunch meal offerings have changed as a result of the new USDA standards								
Student body 66% or more White	91.9	94.4	0.412	0.839	88.8	89.7	0.801	0.671
40% or more eligible for FRLP	95.4	91.8	0.262	0.519	88.9	89.6	0.835	0.515
Total enrollment more than 1,000	91.8	96.7	0.164	0.141	85.4	92.1	0.052	0.017
Rural	90.9	98.0	0.029	0.048	87.7	92.6	0.181	0.103
Students generally like the new school lunches to some extent or more								
Student body 66% or more White	72.5	66.5	0.283	0.161	70.9	55.7	0.007	0.095
40% or more eligible for FRLP	73.3	68.7	0.433	0.160	61.0	65.3	0.455	0.805
Total enrollment more than 1,000	69.7	71.8	0.743	0.836	58.1	67.1	0.115	0.631
Rural	72.0	65.9	0.302	0.425	68.6	52.6	0.008	0.112
Students complained about the new lunches at first to a great/very great extent								
Student body 66% or more White	41.3	48.6	0.233	0.350	45.2	60.3	0.009	0.017
40% or more eligible for FRLP	47.5	42.6	0.442	0.997	56.3	49.9	0.275	0.880
Total enrollment more than 1,000	42.1	50.8	0.212	0.089	54.2	51.7	0.678	0.921
Rural	39.5	55.0	0.016	0.021	52.1	54.0	0.753	0.497
Students complain about the new lunches now to a great/very great extent								
Student body 66% or more White	10.6	12.7	0.581	0.844	11.9	23.4	0.010	0.131
40% or more eligible for FRLP	12.5	10.9	0.679	0.754	21.7	14.4	0.101	0.493
Total enrollment more than 1,000	12.2	8.7	0.430	0.542	20.4	15.7	0.301	0.704
Rural	8.6	17.8	0.026	0.038	15.1	23.0	0.096	0.497
School/district modified lunch meal in response to student complaints to a great/very great extent								
Student body 66% or more White	9.5	8.1	0.697	0.421	12.3	11.3	0.799	0.514
40% or more eligible for FRLP	10.1	8.4	0.656	0.440	17.0	7.8	0.015	0.019
Total enrollment more than 1,000	9.1	8.2	0.827	0.681	6.4	15.5	0.017	0.094
Rural	8.6	9.7	0.771	0.710	13.4	8.5	0.221	0.470
Compared to last year, students now throw away a little/much more food from their school lunches								
Student body 66% or more White	31.7	55.6	<.001	0.091	40.4	49.5	0.118	0.396
40% or more eligible for FRLP	55.8	34.1	<.001	0.021	49.6	41.3	0.154	0.531
Total enrollment more than 1,000	45.3	26.7	0.008	0.029	42.4	46.7	0.467	0.209
Rural	36.0	52.7	0.009	0.079	41.9	51.2	0.131	0.184

Note. USDA, United States Department of Agriculture; FRLP, free and reduced price lunch.

^aMiddle school = grade 8; high school = grades 10 and 12. School sample sizes (unweighted) ranged from 279 to 306 for middle school and to 229 to 334 for high school. Results weighted to represent the number of students attending US public secondary schools reporting each noted measure. % Without indicates the percentage of students attending schools with the noted outcome *but without* the specified school characteristic. % With indicates the percentage of students attending schools with the noted outcome *and with* the specified school characteristic.

^bBivariate p values for differences based on school characteristics obtained using chi square tests.

^cMultivariate p values for differences based on school characteristics obtained using logistic regression models.

At the middle school level, higher plate waste than the previous year was significantly less likely for students in socioeconomically disadvantaged schools (where 40% or more of the student body was eligible for free/reduced price lunch, or FRLP) than for students in schools where less than 40% of students were FRLP-eligible (34% vs. 56%; significant in both bi- and multivariate models).

Finally, response to the new meals appeared to be less positive for students in rural schools than in urban or suburban schools. Bivariate and multivariate models showed that administrators perceived that complaints were significantly higher for middle school students attending rural versus urban/suburban schools, both initial complaints (55% vs. 40%) as well as complaints at the time of study (18% vs. 9%). Bivariate models also showed significantly higher plate waste than the previous year for students attending rural versus urban/suburban middle schools (53% vs. 36%), although the association dropped to non-traditional significance levels of $p < .10$ in multivariate models. In high school models, bivariate analyses showed significantly lower student liking of the new meals for students in rural versus urban/suburban schools (53% vs. 69%), but this association was not significant in multivariate models.

DISCUSSION

Reported negative outcomes have resulted in calls to pause USDA NSLP standard implementation and/or critically evaluate standard renewal in 2015.⁴ However, this study showed that by spring of SY 2012-13 (the first year of new USDA NSLP standard implementation), school administrators reported the strong majority of US public secondary school students liked the new meals to at least some extent; student complaints had dropped substantially compared to the beginning of the year. Increased waste over the previous school year was observed; school meal receptivity appeared to be lower in predominantly white schools as well as in rural schools. The generally positive results are consistent with smaller studies,⁹ but also highlight the continuing difficulties faced by schools in implementing the new USDA standards, such as increased waste.⁷

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