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Disparities in supports for student wellness promotion efforts among secondary schools in Minnesota

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Abstract

BACKGROUND—We examined whether there are differences in the presence of supports for student wellness promotion (1) between schools in city, suburban and rural locations and, (2) among rural schools, according to distance from a metropolitan center.

METHODS—The analysis was conducted in a sample of 309 secondary schools using 2012 Minnesota School Health Profiles surveys and National Center for Educational Statistics Common Core Data. Scores for overall support addressed school health improvement coordination (range: 0–29), collaboration on health education activities (range: 0–5), and teachers' professional preparation (range: 0–7).

RESULTS—Mean overall scores for health improvement coordination (10.5 ± 7.3), collaboration on health education activities (3.0 ± 1.5) and professional preparation (4.0 ± 1.9) indicated supports are lacking in schools across city, suburban and rural locations. Comparison of overall scores did not identify disparities; however, weaknesses and strengths of particular relevance for rural schools were identified in examining specific aspects of support. For example, the proportion of rural schools having a written school improvement plan was 54.8% compared to 84.6% of city schools and 64.3% of suburban schools ($p = .01$).

CONCLUSIONS—Tailored training and technical assistance are needed to better support schools in implementing recommended wellness policies and practices.

Keywords

secondary schools; disparities; rural; nutrition; physical activity

The prevalence of nutritional and weight-related problems is high among US secondary students and there are notable disparities between urban and rural areas.^{1, 2} Estimates based on national surveillance data indicate rural areas as compared to urban areas have fewer adolescents that consume the recommended 2 or more cups of fruit per day (12% versus 16%) and a higher percentage of young people who are overweight or obese (38% versus 31%).³ National data further suggest the prevalences of other poor nutrition and weight-related behaviors are similarly high among adolescents in rural and urban areas. For example, among adolescents in rural areas, 50% eat less than one cup of vegetables, 74% consume less than 3 cups of dairy, 55% eat less than one serving of whole grains, 48% consume more than 24 ounces of sugar-sweetened beverages, 51% participate in less than 60 minutes of moderate-to-vigorous physical activity, and 75% watch more than 2 hours of television on a given day.³ These data highlight the need for implementing interventions and policies that effectively support healthy dietary behaviors and prevent obesity among rural youth.

There is substantial and growing evidence that school nutrition and physical activity environments matter for student diet and activity behaviors.^{4, 5} Schools can help adolescent students to achieve and maintain healthy weights through the provision of nutritious food, opportunities to learn healthy eating skills, and opportunities to get regular physical activity. A mounting body of evaluation research demonstrates the development of school district wellness policies may be effective in ensuring students are provided with these forms of encouragement for healthy behavior;^{6–11} however, much less is known in regards to the presence of school-level supports for implementing recommended policies and practices.¹² Although research further suggests rural schools are less likely to report having strong policies and practices that promote healthy weight-related behaviors,^{13, 14} little is known about the potential contribution of geographic disparities in supports for implementing district wellness policies such as employing a school health coordinator or engaging in an improvement planning process.

The current study was designed to help fill these identified research gaps using data on a large sample of public middle schools and junior/senior high schools. This research was conducted in Minnesota, an ideal setting for examining geographic disparities due to the large number and diversity of rural school districts within the state.¹⁵ The study aim was to assess whether differences existed in 2012 between schools in city, suburban, and rural locations with regard to supports for student wellness promotion. As considerable variability exists among rural schools, a secondary aim was to further assess whether differences in established supports existed according to refined designations of rurality based on previous work.¹⁶ To provide a comprehensive picture of school wellness environments, indicators of

school health improvement coordination, staff collaboration on health education activities, and the professional preparation and development of teachers were each examined.

METHODS

Data and Sample

This study was conducted as part of the School Obesity-related Policy Evaluation (ScOPE) study, which aims to evaluate food and activity policy and practice environments in Minnesota secondary schools and examine relationships with the behaviors and weight status of students.¹⁷ Data for the analysis described here were drawn from three primary existing data sets: Minnesota School Health Profiles principal survey, Minnesota School Health Profiles teacher survey, and National Center for Educational Statistics (NCES) Common Core Data.^{18, 19} The School Health Profiles is a survey of school health policies and practices sponsored by the US Centers for Disease Control and Prevention. Mailed principal and teacher questionnaires were collected from Minnesota public schools in 2012, including 309 secondary schools that provided data for one or both questionnaires.²⁰ The NCES Common Core Data is the Department of Education's primary database on public schools in the US and is updated annually.¹⁸ Additional details of the measures drawn from each survey are described below.

Measures

Coordination of school health improvement—Principals were asked several questions relating to the coordination of efforts to improve their school environment. The *presence of a school health coordinator* was assessed by asking if someone at their school was designated to oversee or coordinate school health and safety programs and activities. Having *completed self-assessments of the school nutrition environment and school physical activity environment* were assessed by asking principals if their school had ever used the School Health Index or other self-assessment tool to evaluate relevant policies, activities, and programs.²¹ The content of the school improvement plan (SIP) was assessed by separately asking about the inclusion of *improvement objectives relevant to nutrition services or foods and beverages available at school, physical education and physical activity, and health education* with the option to indicate “no SIP”. *Reviewing health and safety data in planning* for improvements was assessed in reference to the past year and schools were provided the option to indicate “our school did not engage in an improvement planning process.” The *presence of a school health council* was assessed by asking if one or more than one group at their school offered guidance on the development of policies or coordinated activities on health topics. If a school health council was present, principals were also asked about *representation on the school health council* from stakeholders representing each of 17 different roles (such as nutrition or food service staff, parents or families of students) and five types of *activities performed by the school health council* during the past year (such as recommended health and safety policies and activities). Responses for all items were yes/no and were summed to form an overall coordination score (range: 0–29; mean=10.51±7.32). Scores were also defined for school health council presence and representation (range: 1–17; mean=8.16±3.33) as well as school health council activities (range: 0–5; mean=3.51±1.48).

Collaboration on health education activities—To assess the extent of collaboration among school stakeholders, health education teachers were asked if they had worked with the following groups on health education activities during the current school year: (1) *physical education staff*; (2) *health services staff*; (3) *mental health or social services staff*; (4) *nutrition or food service staff*; and (5) *school health council, committee, or team*. Yes/no responses were summed to form an overall collaboration score (range: 0–5; mean=2.98±1.48).

Professional preparation and development—Principals and lead health education teachers were additionally asked questions to assess the training of physical education and health education staff. *Training received by physical education teachers* was assessed by asking principals to report (yes/no) if physical education teachers or specialists at their school had received professional development on physical education during the past 2 years. *Training received by health education teachers* was assessed by asking teachers to indicate (yes/no) if they had received professional development on (1) nutrition and dietary behavior and (2) physical activity and fitness during the past 2 years. Likewise, *training desired by health education teachers* was assessed by asking teachers to indicate (yes/no) whether they would like to receive professional development on (1) nutrition and dietary behavior and (2) physical activity and fitness. The *certification of health education teachers* was assessed by asking teachers to indicate (yes/no) whether they were certified, licensed, or endorsed by the state to teach health education in middle school or high school. *Years of health education teacher experience* was also assessed by specifically asking about experience teaching health education courses or topics and the proportion of teachers with more than five years of experience was calculated. Yes/no responses and the dichotomous indicator of teacher experience were summed to form an overall professional preparation score (range: 0–7; mean=4.04±1.89).

School demographics—School-level demographics were obtained from the NCES Common Core Data,¹⁸ and included geographic location, minority enrollment, and free/reduced-price school meal eligibility. School geographic location was categorized as *city*, *suburban*, or *rural* and rural schools were further categorized as *town/rural fringe*, *town/rural distant*, or *remote rural*. Geographic locations were assigned based on a combination of NCES and Rural-Urban Commuting Area (RUCA) classification schemes, which both utilize the US Census Bureau's Office of Management and Budget definitions for urbanized areas and cluster definitions.^{18, 22} The NCES classification scheme uses school address and proximity to urban area whereas the RUCA classification scheme uses census tract population density, urbanization, and daily commuting data. For the current analysis, rural schools were assigned to the *town/rural fringe* category if they were classified as “town or rural” by NCES and “metropolitan” by RUCA or classified as “town fringe or rural fringe” by NCES and “micropolitan or town” by RUCA. Rural schools were assigned to the *town/rural distant* category if they were classified as “town distant, town remote” by NCES and “micropolitan or town” by RUCA and likewise were assigned to the *remote rural* category if they were classified as “rural distant or rural remote” by NCES and “rural” by RUCA. The methods described here for classifying schools as town/rural fringe, town/rural distant, or

remote rural produced three categories that represent increasing distances from a metropolitan center.¹⁶

Ethnic/racial minority enrollment was defined by the percentage of students within a school representing a background other than non-Hispanic white and categorized as <5%, 5 to <50%, or ≥50%. Free/reduced-price school meal eligibility was similarly defined by the percentage of students within a school who were eligible and categorized for analysis as <20%, 20 to <60%, or ≥60%. School grade level (middle school versus junior/senior high school) was also determined based on 2012 data from the Minnesota Department of Education. Middle schools were defined as any school that enrolled students in grade 6 or higher and did not enroll students beyond grade 9 or any school that enrolled students between grade 5 and grade 8. Junior/senior high schools were defined as any school that enrolled students in grade 10 or higher and did not enroll students before grade 6.

Data Analysis

Analyses were performed using the Statistical Analysis System (SAS, version 9.3, 2011, SAS Institute, Cary, NC, USA) or Stata (version 12.1, 2012, StataCorp, College Station, TX). Chi-square tests were used to compare the presence of supports for student wellness promotion efforts among the overall sample of 309 secondary schools by geographic location (city, suburban, rural) and among the 222 rural schools by distance from a metropolitan center (town/rural fringe, town/rural distant, remote rural). Generalized estimating equations were used to make the same comparisons with adjustment for school demographic covariates, including school grade level, minority enrollment, and free/reduced-price meal eligibility. Generalized linear models were similarly used with and without adjustment for school demographic covariates to compare summary scores representing different forms of supports for student wellness promotion by geographic location and distance from a metropolitan center. Tukey's *post hoc* test was used to make additional pairwise comparisons that account for multiple comparisons and these probability tests are reported in the tables. A 95% confidence level was used as the threshold for determining the statistical significance of probability tests; however, with multiple comparisons, it is important to remember that some of the associations observed could be spurious and view the results in aggregate.

RESULTS

Coordination of School Health Improvement

Mean overall coordination scores for schools in city, suburban, and rural locations were comparable; however, differences by geographic location were identified with regard to the proportion of schools engaging in an improvement planning process and having a written SIP (Table 1). The proportion of rural schools that reported engaging in an improvement planning process was only 78.2% in contrast to 88.9% of city schools and 93.2% of suburban schools ($p = .04$). Likewise, the proportion of rural schools that reported having a written SIP was just 54.8% in contrast to 84.6% of city schools and 64.3% of suburban schools ($p = .01$). Among schools with a written SIP, the proportion of schools that specifically included objectives relevant to nutrition services or foods and beverages

available at school was conversely highest in rural (50.5%) as compared to city (27.3%) and suburban (11.1%) locations ($p < .001$). Similar patterns were observed for the inclusion of objectives relevant to physical education and physical activity ($p = .02$) and health education ($p = .01$) among schools with a written improvement plan.

Analyses among the subsample of rural schools further showed mean overall coordination scores were comparable for schools in town/rural fringe, town/rural distant, and remote rural locations (Table 2). Differences were not identified in the proportion of schools engaging in any of the forms of school health improvement coordination examined here except with regard to review of health and safety data as part of an improvement planning process. Among schools that reported engaging in an improvement planning process, the proportion of schools that completed a review of health and safety data was lowest in remote rural (40.0%) as compared to town/rural fringe (60.7%) and town/rural distant (68.0%) locations ($p = .01$).

Additional models adjusted for school demographic covariates did not identify any differences between schools in city, suburban, and rural locations. In contrast, the observation that remote rural schools were less likely than schools in town/rural fringe and town/rural distant locations to review health and safety data as part of an improvement planning process continued to be statistically significant ($p = .03$). The adjusted models also suggested that schools in remote rural locations were more likely to have ever completed a self-assessment of their school nutrition environment ($p = .03$) and school physical activity environment ($p = .03$) (data not shown).

Collaboration on Health Education Activities

Mean overall collaboration scores for schools in city, suburban, and rural locations were comparable; however, differences by geographic location were identified with regard to the proportion of schools where health education teachers reported collaborating with health services and nutrition or food service staff on health education activities (Table 1). The proportion of suburban school teachers that reported collaboration with health services staff was only 55.6% in contrast to 83.3% of city school teachers and 69.6% of rural school teachers ($p = .03$). Similarly, the proportion of suburban school teachers that reported collaboration with nutrition or food service staff was only 13.3% in contrast to 40.0% of city school teachers and 38.7% of rural school teachers ($p = .004$).

Analyses among the subsample of rural schools further showed mean overall collaboration scores were comparable for schools in town/rural fringe, town/rural distant, and remote rural locations (Table 2). Differences were likewise not identified for collaborations between health education teachers and any of the distinct school stakeholder groups examined here.

Additional models adjusted for school demographic covariates showed differences between city, suburban, and rural schools with regard to the proportion of schools where health education teachers reported collaborating with nutrition or food service staff continued to be statistically significant ($p = .02$); however, no differences were observed for collaboration with health services staff. Similar to the pattern observed in unadjusted models, these models additionally showed the proportion of rural school teachers that reported

collaboration with physical education staff was significantly higher at 90.0% as compared to 62.4% of city school teachers and 78.3% of suburban school teachers ($p = .04$). The finding among the rural subsample of no unadjusted differences for collaboration on health education activities between health teachers and stakeholder groups in town/rural fringe, town/rural distant, and remote rural locations was the same in adjusted models (data not shown).

Professional Preparation and Development

Mean overall professional preparation and development scores for schools in city, suburban, and rural locations were comparable; however, differences by geographic location were identified with regard to the proportion of schools where training was received by physical education teachers in the past 2 years (Table 1). The proportion of rural schools in which physical education teachers had received training was only 81.4% in contrast to 96.2% of city school teachers and 95.6% of suburban schools ($p = .01$).

Analyses among the subsample of rural schools further showed mean overall professional preparation and development scores were comparable for schools in town/rural fringe, town/rural distant, and remote rural locations (Table 2). Differences were likewise not identified for any measures of professional preparation and development examined here.

Additional models adjusted for school demographic covariates showed the observed difference between city, suburban, and rural schools with regard to the proportion of schools where training was received by physical education teachers in the past 2 years was no longer statistically significant ($p = .18$). In contrast to the unadjusted models, the adjusted models showed the proportion of rural health education teachers that desired training on physical activity and fitness was higher at 70.5% as compared to 46.9% of suburban school teachers, and 42.5% of city school teachers ($p = .03$). The finding among the rural subsample of no unadjusted differences for measures of the professional preparation and development of teachers in town/rural fringe, town/rural distant, and remote rural locations was the same in adjusted models (data not shown).

DISCUSSION

This study described differences between schools in city, suburban, and rural locations with regard to supports for student wellness promotion using statewide data on public middle schools and junior/senior high schools in Minnesota. The results showed supports as defined by overall measures of school health improvement coordination, collaboration on health education activities, and teachers' professional preparation were lacking in schools across geographic location. In focusing on rural schools, results showed supports defined by the same overall measures were also lacking regardless of distance from a metropolitan center; however, specific aspects of support were identified as important targets for interventions to reduce disparities and other aspects of support were identified as strengths. Rural schools as compared to city and suburban schools were least likely to have provided physical education teachers with professional development on physical education in the past 2 years and least likely to have a written SIP. Conversely, among schools with a written SIP, rural schools were most likely to have specifically included objectives relevant to the foods and beverages

available at school, physical education and physical activity, and health education. The results further showed that, among rural schools engaging in an improvement planning process, the proportion of schools that completed a review of health and safety data was lowest in remote rural as compared to town/rural fringe or town/rural distant locations.

The demographic characteristics of participating schools should be considered in interpreting the findings along with strengths and limitations of the design. Although similar patterns were observed in the unadjusted and adjusted models examined here, some differences between city, suburban, and rural schools were no longer statistically significant after accounting for school grade level, minority enrollment, and enrollments of students eligible for free/reduced-price meals. Although research regarding the existence of disparities in school food and physical activity environments according to ethnic/racial background and income has produced mixed findings,^{13, 14} the results of the current study suggest that resources available to schools for supporting student wellness promotion efforts are likely related to these characteristics of schools.

Strengths of this study included the diverse nature of the school sample and ability to examine multiple aspects of support for student wellness promotion based on information collected from both school administrators and teachers. Few previous studies have described supports for student wellness promotion among US rural schools or school districts and the large, diverse sample of rural schools included in this study allowed for an assessment of whether differences in established supports exist according to relative distance from a metropolitan center.^{23–26} This study was also unique in its ability to together examine differences in the coordination of school health improvement, collaboration on health education activities, and the professional preparation and development of teachers.

The findings of this study are also subject to limitations, including the cross-sectional design, brief self-report measures, and lack of data on state agency or community-based supports for student wellness promotion. Although the sample of schools was demographically diverse, caution should be used in making generalizations to schools and students from other areas as the data were collected in one midwestern state. It is further possible that schools choosing not to participate were different from those that did participate despite the adequate survey response rates.²⁰ The 2012 survey data represent a snapshot in time and additional research will be needed to describe the direction and rate of changes in supports for student wellness that may be occurring within schools. Despite the breadth of data examined, the survey measures were brief and thus may not have captured important nuances of variability in the aspects of support examined here. The survey data were also subject to bias as supports for student wellness promotion were reported by school principals, designees, and teachers. Survey data were not collected from students, family members, or other community members to gather their perspectives and there are likely other relevant types of support for student wellness promotion that were not measured.

In conclusion, findings suggest that additional training and technical assistance are needed to improve support for schools in city, suburban, and rural locations to implement recommended policies and practices for promoting student wellness. Future research describing differences between urban and rural schools with regard to the presence of

supports for student wellness promotion will be important to conduct in other US regions and should consider incorporating more detailed measures of support for student wellness promotion. For example, in addition to assessing the presence of a school health coordinator, it may be useful to quantify designated hours per week of school health coordinator effort. Additionally, it will be critical for qualitative studies to explore the perspectives of diverse stakeholders to build a greater understanding of how the actual process of implementing wellness policies and practices may also differ between urban and rural schools. Components of the implementation process such as clarifying communication among school staff, students, and families may be otherwise difficult to assess using self-report questionnaires.

IMPLICATIONS FOR SCHOOL HEALTH

Results of this study also have practical implications for stakeholders who are directly involved in working with middle schools and high schools to promote the health of students. There are numerous opportunities for health professionals, food and nutrition professionals, school administrators, and educators to build school-level supports for implementing recommended policies and practices. The findings of this study about schools in Minnesota provide a useful starting place for schools in diverse geographic locations to conduct an individualized assessment of their own existing efforts to coordinate school health improvement, collaborate on health education activities, and provide professional development. Based on the findings of an individualized assessment, school health stakeholder groups might consider accessing outside experts and resources for tailored training and technical assistance. For example, experts in nutrition and physical education at a local university or state agency could guide school stakeholders by assisting with the interpretation of health and safety data; providing tools for the assessment of school nutrition and physical activity environments; directing stakeholders to best practice guidelines; and suggesting goals for improvement. Results of the current study could also help to direct the focus of networking activities of school health stakeholders within and across geographic regions. As the presence of supports for implementing policies and practices appear to be distributed among schools in varied geographic areas, it is likely school health stakeholders may be able to identify other schools with similar challenges to provide tips for building up their resources. Stakeholders in rural areas may, in particular, gain from sharing ideas for addressing supports that are more often lacking outside of city and suburban areas, including the presence of a written school improvement plan, engagement in an improvement planning process, and the provision of training for physical education teachers.

Human Subjects Approval Statement

The University of Minnesota's Institutional Review Board Human Subjects Committee approved the study protocol (#1007E85315).

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Table 1

Supports for Student Wellness Promotion among Minnesota Secondary Schools by Location, 2012

	City N = 36	Suburban N = 51	Town/rural N = 222	p
Coordination of School Health Improvement				
Presence of school health coordinator (%)	77.8	88.9	88.8	.25
Completed self-assessment of the school environment				
Nutrition environment (%)	37.0	37.8	42.7	.74
Physical activity environment (%)	44.4	37.8	35.4	.65
Established school improvement plan (%)	84.6 ^a	64.3 ^{a,b}	54.8 ^b	.01
School improvement plan included objectives for:				
Nutrition (%)	27.3 ^{a,b}	11.1 ^a	50.5 ^b	< .001
Physical education and physical activity (%)	22.7 ^{a,b}	18.5 ^a	43.1 ^b	.02
Health education (%)	27.3 ^{a,b}	11.1 ^a	41.3 ^b	.01
Engaged in an improvement planning process (%)	88.9 ^a	93.2 ^a	78.2 ^a	.04
Reviewed health and safety data in planning (%)	50.0	63.4	55.9	.54
Presence of school health council (%)	63.0	60.0	68.5	.51
Representation on school health council (mean ± SD)	7.94 ± 3.09	7.52 ± 2.87	8.30 ± 3.45	.51
Activities performed by health council (mean ± SD)	3.53 ± 1.33	3.74 ± 1.43	3.46 ± 1.51	.66
Overall coordination score (mean ± SD)	9.89 ± 7.69	9.22 ± 6.59	10.87 ± 7.42	.35
Collaboration on Health Education Activities				
Past year collaboration of health education staff with				
Physical education staff (%)	76.7	84.4	88.5	.19
Health services staff (%)	83.3 ^a	55.6 ^b	69.6 ^{a,b}	.03
Mental health or social services staff (%)	73.3	60.0	68.1	.44
Nutrition or food service staff (%)	40.0 ^{a,c}	13.3 ^b	38.7 ^c	.004
School health council, committee, or team (%)	46.7	26.7	44.2	.08
Overall collaboration score (mean ± SD)	4.27 ± 1.05	3.87 ± 1.06	4.20 ± 1.06	.13
Professional Preparation and Development				
Training received by physical education teachers (%)	96.2 ^{a,b}	95.6 ^a	81.4 ^b	.01
Training received by health education teachers				
Nutrition and dietary behavior (%)	40.0	31.1	32.1	.67
Physical activity and fitness (%)	50.0	37.8	44.0	.57
Training desired by health education teachers				
Nutrition and dietary behavior (%)	56.7	75.6	71.7	.18
Physical activity and fitness (%)	60.0	62.2	65.5	.80
Certification of health education teachers (%)	96.7	100.0	92.1	.11
5+ years of health education teacher experience (%)	80.0	86.4	73.3	.16
Overall health education teacher score (mean ± SD)	3.89 ± 1.75	4.29 ± 1.80	4.00 ± 1.93	.53

a,b,c: in each row, cells that share a superscript do not differ ($p > .05$) based on a pairwise test with Tukey's *post hoc* test to account for multiple comparison

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Table 2

Supports for Student Wellness Promotion among Rural Minnesota Secondary Schools by Location, 2012

	Town/rural fringe N = 79	Town/rural distant N = 67	Remote rural N = 76	p
Coordination of School Health Improvement				
Presence of school health coordinator (%)	87.8	90.0	88.9	.92
Completed self-assessment of the school environment				
Nutrition environment (%)	33.8	43.3	51.4	.09
Physical activity environment (%)	28.4	36.7	41.7	.24
Established school improvement plan (%)	45.8	58.9	60.6	.16
School improvement plan included objectives for:				
Nutrition (%)	54.6	51.5	46.5	.78
Physical education and physical activity (%)	42.4	51.5	37.2	.46
Health education (%)	39.4	51.5	34.9	.33
Engaged in an improvement planning process (%)	75.7	83.3	76.4	.51
Reviewed health and safety data in planning (%)	60.7 ^{a,b}	68.0 ^a	40.0 ^b	.01
Presence of school health council (%)	74.3	65.0	65.3	.40
Representation on school health council (mean ± SD)	8.56 ± 3.92	8.62 ± 2.89	7.74 ± 3.27	.39
Activities performed by health council (mean ± SD)	3.64 ± 1.41	3.44 ± 1.60	3.28 ± 1.57	.48
Overall coordination score (mean ± SD)	11.64 ± 7.59	10.95 ± 7.83	10.03 ± 6.88	.42
Collaboration on Health Education Activities				
Past year collaboration of health education staff with				
Physical education staff (%)	86.8	88.3	90.5	.80
Health services staff (%)	76.5	66.7	65.1	.31
Mental health or social services staff (%)	66.2	71.7	66.7	.77
Nutrition or food service staff (%)	32.4	41.7	42.9	.40
School health council, committee, or team (%)	44.8	45.0	42.9	.96
Overall collaboration score (mean ± SD)	4.15 ± 1.07	4.23 ± 1.06	4.22 ± 1.07	.88
Professional Preparation and Development				
Training received by physical education teachers (%)	80.8	84.8	79.2	.71
Training received by health education teachers				
Nutrition and dietary behavior (%)	29.9	38.3	28.6	.45
Physical activity and fitness (%)	39.7	46.7	46.0	.67
Training desired by health education teachers				
Nutrition and dietary behavior (%)	69.1	70.0	76.2	.63
Physical activity and fitness (%)	66.2	65.0	65.1	.99
Certification of health education teachers (%)	95.6	91.7	88.7	.34
5+ years of health education teacher experience (%)	72.1	76.7	71.4	.77
Overall health education teacher score (mean ± SD)	3.95 ± 1.96	4.22 ± 1.91	3.86 ± 1.91	.50

a,b,c: in each row, cells that share a superscript do not differ (p .05) based on a pairwise test with Tukey's *post hoc* test to account for multiple comparisons