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# Senate Bill 42: Implementation and Impact on Physical Activity in Middle Schools

**Cristina S. Barroso, DrPH**,
Hispanic Health Research Center, Michael & Susan Dell Center for Advancement of Healthy Living, University of Texas School of Public Health, Brownsville Regional Campus

**Steven H. Kelder, PhD, MPH [Co-Director]**,
Michael & Susan Dell Center for Advancement of Healthy Living, University of Texas School of Public Health, Austin Regional Campus

**Andrew E. Springer, DrPH**,
Michael & Susan Dell Center for Advancement of Healthy Living, University of Texas School of Public Health, Austin Regional Campus

**Carolyn L. Smith, BS**,
Michael & Susan Dell Center for Advancement of Healthy Living, University of Texas School of Public Health, Austin Regional Campus

**Nalini Ranjit, PhD**,
Michael & Susan Dell Center for Advancement of Healthy Living, University of Texas School of Public Health, Austin Regional Campus

**Christopher Ledingham, PhD**, and
University of Texas at Brownsville and Texas Southmost College

**Deanna M. Hoelscher, PhD, RD, LD, CNS [Director]**
Michael & Susan Dell Center for Advancement of Healthy Living, University of Texas School of Public Health, Austin Regional Campus

## Abstract

**Purpose—**In 2005, the Texas state legislature passed Senate Bill 42 (SB42) that required public middle school students (grades 6–8) to participate in 30 minutes of daily structured physical activity. The purpose of this study was to assess awareness of and adherence to SB42 in Texas middle schools, and to assess the impact of SB42 on the frequency and quality of structured physical activity.

**Methods—**Key informant (school principals, physical education [PE] instructors, nurses, or designated personnel) telephone interviews on the implementation of SB42 were conducted from a statewide representative sample of public middle schools (n=112). Direct observation, key informant, and student report of physical activity in PE classes at 17 Texas-Mexico border middle schools assessed the frequency and quality of structured physical activity.

**Results—**State level (94% ± 4.5%) and border district (94% ± 13.5%) key informants reported a high level of overall awareness of SB42. Post-implementation of SB42 border districts reported a minimum of four days per week of PE instruction and >58 minutes per PE class, exceeding the 30 minute minimum of structured physical activity per day or 135 minutes per week as required by SB42

**Corresponding Author:** Cristina S. Barroso, DrPH, Assistant Professor, Division of Health Promotion & Behavioral Sciences, University of Texas at Houston, School of Public Health, Brownsville Regional Campus, 80 Fort Brown, RAHC Bldg., Brownsville TX, 78520, Office: 956-882-5180; Fax: 956-882-5152, Cristina.S.Barroso@uth.tmc.edu.

(range 58.2– 61.4 minutes). A significant increase in the number of days of PE class was observed in the border sample between 2004–2005 and 2006–2008, with 8th grade students reporting an average of 2.0 days and 3.7 days of PE per week, respectively ($p<0.001$). Additionally, border districts met the Healthy People 2010 objective of 50% time in moderate-to-vigorous physical activity (MVPA; mean 54.9% ± 5.1%) during PE class.

**Conclusions—**Implementation of SB42 appears to have impacted the frequency of school PE in Texas and the prevalence of child self-reported physical activity behaviors along the Texas-Mexico border. General awareness of and adherence to SB42 was high in both statewide and among the border districts. Our mixed findings on adherence to specific components of the legislation suggest the need for further investigation of the factors that both facilitate and inhibit local leadership around school policy and the mechanisms to ensure the school policy is being implemented.

### Keywords

Texas; adolescents; Latinos; physical activity; schools; health education; public policy; health policy; obesity; MVPA

## Introduction

The prevalence of childhood obesity has doubled for children and tripled for adolescents since the early 1970's [1–3], with recent estimates indicating that 17% of U.S. children between the ages of 2 and 19 are obese [1]. In response to the childhood obesity epidemic, several states have enacted school wellness policy initiatives [4]. Examples of these initiatives include: Arkansas Act 1220, which mandated annual statewide body mass index (BMI) assessments; the Rhode Island School District Nutrition & Physical Activity Model Policy Language, which established district-wide coordinated school health programs (CSHPs) to address school health and wellness policies; and the South Carolina Code 59-10-330, which established coordinated school health advisory councils [5,6]. Despite the recent activity in obesity prevention policies by local and state governments, a limited number of evaluations of these policies have shown varying outcomes [7–9].

Texas Senate Bill 42 (SB42) presents an additional opportunity to explore how policy may impact factors related to obesity prevention in children. Senate Bill 42 amends the Texas Education Agency (TEA) Education Code and the Health and Safety Code relating to health education, physical activity, and food products in public and primary schools. Enacted in June 2005 and with a start date of 2006–2007 school year, SB42 required middle school children throughout Texas to participate in 30 minutes of daily moderate-to-vigorous-physical activity (MVPA) or a minimum of 135 minutes per week or 225 minutes per two week time period. Children also had to participate in physical education (PE) class for at least four of the six-semester middle school cycle. PE class is the common strategy that schools use to address the physical activity mandate. Texas SB42 also directs: 1) middle schools to be trained in and implement an approved coordinated school health program (CSHP); 2) independent school districts (ISDs) to use nationally recognized guidelines for health and PE; 3) schools to evaluate compliance with nutritional regulations; 4) restoration of the school health advisory council (SHAC); and 5) TEA to report annually a summary of the student health and physical activity data provided by ISDs. No specific programs or evaluation was mandated, and new funding was not allocated for implementation of the legislation.

Given the high economic, social, and direct health consequences of childhood obesity [10], surveillance of state and national efforts to curb the obesity epidemic are warranted, especially among economically disadvantaged and ethnic minority children and families who have higher rates of obesity [10]. Brownsville, Corpus Christi, El Paso, and Laredo are four Texas-Mexico

border areas that represent populations with the highest rates of obesity, diabetes, and poverty in Texas [11,12]. Greater than 75% of children in these metropolitan areas are economically disadvantaged, and Latinos represent among the largest ethnic Latino populations [13], an ethnic group that has among the highest rates of obesity in the U.S. [1,10].

The purpose of this study was twofold: 1) to assess awareness of and adherence to Texas SB42 among a representative sample of public middle schools in Texas; and 2) to assess the impact of SB42 on the frequency of school PE class, the quality of school PE, and prevalence of child self-reported physical activity behaviors and child overweight along the Texas-Mexico border.

## Methods

### Study Design and Primary Measures

A mixed methods approach was used to assess the implementation and impact of SB42. Awareness of and adherence to SB42 at the state and border levels were evaluated with a cross-sectional design in which key informant telephone interviews were conducted with school personnel. In the four metropolitan areas along the Texas-Mexico border, we conducted additional assessments of the impact of SB42 on the frequency of physical activity engagement, the quality of physical activity engagement, and student-level sedentary behavior and weight status. The frequency of engagement in structured physical activity was evaluated by both key informant interviews as well as cross-sectional data from two time points on 8$^{th}$ grade student's self-reported days of PE class attendance (School Physical Activity and Nutrition [SPAN] study from 2004–2005 and data collected using the SPAN questionnaire in 2006–2007 or 2007–2008). The quality of physical activity participation at school in middle school students was assessed using a cross-sectional design and systematic observation of student physical activity during PE class (System for Observing Fitness Instruction Time; SOFIT). As measures of impact at the student level, we also assessed changes in the prevalence of TV watching and overweight and obesity at two time points: in 2004–2005 (SPAN study) and in 2006–2007 or 2007–2008 (current study).

### Sample

We assessed the implementation and impact of SB42 with two primary samples: a state representative sample of public middle schools in Texas and a sample of public middle schools from the four metropolitan border areas (Brownsville, Corpus Christi, El Paso, and Laredo). The sampling plan for the statewide key informant survey was based on the SPAN study, a surveillance study of childhood obesity in 4$^{th}$, 8$^{th}$, and 11$^{th}$ grade children conducted in 2000–2002 and 2004–2005 [14]. Our goal was to re-contact the same representative sample of schools that had participated in the 2004–2005 measurement period so that data from the SPAN study and key informants could be examined together. The SPAN study used a probability-based sampling design to obtain a representative of sample of Texas middle schools in terms of ethnicity, age/grade, and location (urban, suburban, and rural) [14]. One-hundred thirty-one middle schools from the 2004–2005 SPAN study were contacted to assess knowledge of and adherence to SB42 via a telephone interview. One-hundred twelve of the 131 schools (85% response rate) were successfully interviewed in late 2006 or 2007. Schools entered the current study in either 2006–2007 or 2007–2008 depending on their availability. For the statewide sample, we included data from both key informants at the school level (e.g., school principals) and data from 8$^{th}$ grade respondents from the SPAN 2004–2005 questionnaire.

Direct observation of PE class, measured height and weight, and behavioral questionnaires were also obtained from a subsample of 2004–2005 SPAN middle schools in four Texas-Mexico border metropolitan areas (Brownsville, Corpus Christi, El Paso, and Laredo). Brownsville and Corpus Christi school districts agreed to participate in 2007. El Paso and

Laredo school districts agreed to participate, but only in 2008, due to scheduling conflicts (El Paso) or after completion of a separately funded research project. Overall, 16 of 21 schools agreed to participate in the key informant interviews, a 76.2% response rate. Reasons for non-participation included involvement with other health-related research projects and/or poor performance on state academic standards. For the border sample, we included data from key informants at the school level, observational data on physical activity during PE class for 6$^{th}$, 7$^{th}$, and 8$^{th}$ grade students, and student-level data from 8$^{th}$ grade students based on the SPAN study from 2004–2005 and data collected for the current study (2006–2007 or 2007–2008) using the SPAN questionnaire.

## Data Collection Methods and Procedures

**Key Informant Telephone Interviews—**Key informant telephone interviews with school health leaders (school principals, PE instructors, nurses, or designated personnel) were conducted by trained interviewers in 2006 or 2007 based on the state probability sample from SPAN (n=112). Key informant questions were adapted from questionnaires used in the Child and Adolescent Trial for Cardiovascular Health (CATCH) Study [15,16]. Additional items that addressed SB42 were developed and pre-tested with school administrators prior to administration, resulting in minor modifications. Items on the key informant survey assessed awareness of and adherence to specific provisions of SB42, informational channels for learning about SB42, school adoption of a physical activity policy, establishment of a school health advisory council, adoption and implementation of a CSHP, and other school wellness policies.

**System for Observing Fitness Instruction Time (SOFIT)—**Student engagement in moderate-to-vigorous physical activity was assessed using the SOFIT method in 17 Texas-Mexico border schools in 2007 or 2008. Development, validation, and inter-rater reliability have been described elsewhere [15,17, and 18]. For the current study, up to three observations per school were conducted by trained observers, with one observation per 6$^{th}$, 7$^{th}$, and 8$^{th}$ grades (in some schools, grade levels were mixed).

**Self-Reported Physical Activity & Sedentary Behavior—**Self-reported physical activity and dietary behavior data were collected using the SPAN questionnaire before (2004–2005) implementation of SB42 for the statewide sample and after (2006–2008) implementation of SB42 for the border sample. The SPAN study questionnaire assesses physical activity and nutrition behaviors, attitudes and knowledge among 4$^{th}$, 8$^{th}$ and 11$^{th}$ grade students [14]. The SPAN protocols and measures were pilot tested and evaluated for reproducibility with 4$^{th}$ and 8$^{th}$ grade students [19,20]. Questionnaires were available in both English and Spanish and were administered to at least 100 8$^{th}$ grade students at the schools. In the present paper, we report four items from the SPAN questionnaire: PE class attendance during the past week, moderate physical activity (MPA), vigorous (VPA), and number of hours of daily TV watching/playing video games (statewide sample 2004–2005 and border sample 2006–2008).

**Body Mass Index—**Student height and weight measures were conducted at Texas-Mexico border schools during the spring semesters of 2007 or 2008. Height and weight were obtained by trained and certified staff using Tanita 800-S digital platform scales with remote display and portable PE-AIM-101 freestanding stadiometers; values were recorded on the SPAN questionnaire. BMI was calculated from the measured heights and weights of students (BMI = weight in kilograms divided by height in meters-squared). Obesity was defined as a BMI ≥ 95$^{th}$ percentile based on CDC age and sex growth charts [21].

Approval for this study was obtained from the Committee for the Protection of Human Subjects at the University of Texas Health Science Center at Houston. Additionally, participating school districts reviewed the study for compliance to human subjects and district research regulations.

**Statistical Analysis—**The key informant telephone interview and SOFIT measures assessed awareness and adherence to SB42. Data were summarized as proportions at the statewide level as well as for border and non-border regions. Tests for significance of difference between the border and non-border regions were obtained using t-tests for continuous variables and chi-square tests for categorical variables. Mean and standard errors for SOFIT measures were obtained from mixed-effects regression models adjusted for gender of PE instructor, location of lesson, and total number of students participating. Prevalence of standard BMI categories and means of selected physical activity and sedentary behaviors were obtained from student-level data using data from 2004–2005 and from 2006–2008. Analyses were performed by border/non-border status. All computations were performed using Statistical Analysis System Software v 9.2 (SAS Institute, Cary, NC) [22].

## Results

### Awareness and Adherence to SB 42

The probability-based random sample of statewide key informants (n=112) consisted of 46.3% administrators, 9.5% PE instructors, 37.9% school nurses, and 6.3% other (counselors, health service directors, and student liaisons). Fourteen respondents of the statewide key informants (n=112) were from the Texas-Mexico border. The border sample included 50.0% administrators, 42.9% PE instructors, and 7.1% nurses.

At the state level, key informants reported a high level (94% ± 4.5%) of overall awareness of SB42 (Table 1), whereas statewide awareness of specific SB42 requirements was less favorable. Thirty-one percent were not aware of the need to include a parental involvement component as part of a CSHP or the establishment of a district SHAC. The majority of state level key informants had learned about SB42 from their school district (52% ± 10%) or through professional education (24% ± 8.5%; Table 1).

Key informants from border districts similarly reported a high level of overall awareness of SB42 (94% ± 13.5%). Although not significantly different from the non-border sample, a quarter of border area key informants were not aware of the required 30 minutes of structured physical activity or a minimum of 135 minutes per week for middle school children (Table 1). Furthermore, just under half of the border area key informants (46%) were not aware of the federal law on school wellness policy (Table 1).

Adherence to SB42 showed mixed results. Key informants reported that their school district had formed a SHAC (Texas 91%, border districts 83%, and non-border districts 93%), yet only 39% of statewide and 43% of border area key informants reported that their school had formed a SHAC (Table 2). The majority of key informants at both the state level (74%) and metropolitan border areas (67%) reported the existence of a district policy statement on structured physical activity (Table 1). Even though the mandate stipulates that students can be exempted from the physical activity requirement, 67% at the state level and 87% of the border districts reported no exemptions for SB42 (Table 3).

### Frequency of Structured Physical Activity

Statewide and at the border level, school reports of physical activity minutes exceeded the recommended 30 minute minimum. At the state level, schools reported an average of 4.7 days of PE class per week, with an average length of class of 53 minutes for a total of 249 minutes per week. In the border sample, the frequency of PE class also exceeded the state mandate of 30 minutes per day or 135 minutes per week. Key informants from border districts reported between 4.3 and 4.5 days of PE instruction per week (Table 3), for a total of >264 minutes of scheduled PE per week. Student self-report of PE class days per week (mean 3.9; SPAN

questionnaire 2006–2008) corroborated key informant reported PE days per week (Figure 1). A significant increase in the number of days of PE class was observed in the border sample between 2004–2005 and 2006–2008, with 8th grade students reporting an average of 2.0 days and 3.9 days of PE per week, respectively ($p<0.001$; Figure 1). While some discrepancy was found on the average duration of PE class per session based on the key informant report and 46 SOFIT direct observations (e.g., 61.4 minutes vs. 51.3 minutes, respectively), both data collection methods indicated that the average number of structured physical activity minutes exceeded the 30 minute minimum per day required by the statute (Table 3). Border districts reported using both regular daily PE class scheduling (63% ± 26.5%, $p=0.0091$) and block scheduling (44% ± 27.5%; $p=0.0012$). Block scheduling extends the traditional 50-minute class period into a 90-minute class session on alternate days. The increase in PE frequency reported by students in the border sample follows similar trends in student PA engagement. Border students reported a significant increase in days of MPA ($p<0.001$) and VPA ($p<0.001$; Figure 1).

### Quality of Structured Physical Activity in Border Districts

A total of 17 border middle schools (grades 6th, 7th, and 8th) were visited during the spring of 2007 or 2008 for the SOFIT direct observations (n=46). PE instructors were of both sexes. Observed PE classes were mainly held indoors. Border districts met the Healthy People 2010 objective of 50% time in MVPA (mean 54.9% ± 5.1%) during PE class (data not shown) [23]. The average percent lesson time spent in specific activities during PE class were: lying down (mean 1.1 % ± 0.6%); sitting (mean 16.3% ± 4.6%); standing (mean 27.7% ± 3.8%); walking (mean 40.7% ± 4.3%); and vigorous physical activity (mean 14.1% ± 2.1%).

### Body Mass Index and Sedentary Behavior

Measured BMI and self-reported sedentary behavior in 8th grade students from the metropolitan border districts for 2004–2005 (prior to SB42) and 2006–2008 were reported. Eighth grade students from the border districts were comparable in mean BMI ($p=0.8284$), percentage of overweight ($p=0.8178$), percentage of obese ($p=0.3160$), and prevalence of sedentary behavior ($p=0.4238$) across the two time periods (data not shown).

## Discussion

Our results suggest that implementation of SB42 impacted the frequency of school PE class statewide and the prevalence of child self-reported physical activity behaviors along the Texas-Mexico border. While our cross-sectional data at the state level preclude us from identifying the causal role of SB42 on physical activity in children, our findings based on two cross-sectional samples of 8th grade students from the same border schools before and after implementation of SB42 provide some evidence that the average number of PE days per week and self-reported structured physical activity participation increased after the legislation was implemented. Additionally, our conservative estimates from the key informant survey for the statewide sample and direct SOFIT observations and SPAN questionnaire data for the border sample indicate that most middle schools along the border and for the state as a whole are at least meeting the 135 minute weekly requirement for physical activity. These findings are encouraging given the decline in daily PE attendance reported for U.S. high school students [24], and particularly since schools serving low-income communities, such as Texas-Mexico border schools, may lack resources for implementation of school wellness initiatives.

Although no specific criteria are provided on ‘quality’ of structured physical activity under SB42, we assessed the time students were engaged in MVPA during PE class as a measure of quality physical activity programming. Structured observations of activity levels in PE classes across the border districts suggest that most (mean MVPA 54.9% ± 5.1%) are meeting the

Healthy People 2010 objective of 50% time in MVPA during PE class [23]. Additionally, child self-report of MPA and VPA suggest that border students are approaching the corresponding Healthy People 2010 objectives [23]. Even though we cannot attribute these findings to SB42 given observations occurred following passage and implementation, these findings are consistent with the intention of SB42 and provide one indication of the quality of physical activity programming in this sample of border schools.

Our findings support previous research on Texas elementary school policy on physical activity that also concluded that schools were meeting or exceeding physical activity requirements [9]. Because schools along the Texas-Mexico border are among the poorest in the country [13] and have been faced with several challenges such as high teen pregnancy rates [25] and low academic scores [26], we may expect border schools to also lag in implementation of CSHPs. Our positive findings on overall implementation of SB42 in this border sample may provide insight into factors that facilitate implementation of school wellness initiatives. We speculate that the significant increase in number of PE days per week observed in the border sample may be due to greater investments in health promotion campaigns and school programming in border districts as identified by Kelder et al. (2009) [9]. Investments that may have promoted the implementation of SB42 include the Coordinated Approach To Child Health El Paso school health program [27], community outreach programs such as Qué Sabrosa Vida [28] and Walk El Paso project [29] in El Paso, and, more recently, community-based participatory research programs in Brownsville (NIH/NCHMD Project EXPORT: Excellence in Partnerships for Community Outreach, Research on Health Disparities, and Training).

Overall, general awareness of and adherence to SB42 was high both statewide and among the border districts. While most of the key informants knew of SB42, many had only a partial understanding of what was outlined in the bill as was evident in both the statewide and border data. The parental involvement component of CSH programming and the need to form a SHAC were two aspects of the legislation that merit further attention given the roughly one-third of respondents at the state and border levels that were unaware of these requirements.

Assessment of informational channels for SB42 suggested that many of the key informants learned of the requirements from district offices or professional education sources. Further examination indicated that border key informants learned of SB42 requirements not only from district offices and professional education, but also from other school employees and the news media. Recommendations based on local wellness policy research assert that awareness of school wellness initiatives may improve if a provision for professional development and assistance for school personnel involved in the implementation of these initiatives is included [30,31]. Because many of the key informants learned of SB42 through professional education sources, this may hold true for this sample.

Even though border school districts reported awareness of and adherence to SB42, no significant changes in BMI and sedentary behavior (daily TV watching/playing video games) were observed in students between the two time periods. Firstly, increased physical activity through improved PE class frequency or quality of PE has been found to be insufficient to influence BMI levels [32]. Secondly, it is possible that insufficient amount of time between the start date of SB42 (2006–2007) and our assessment (2006–2008) elapsed to observe differences in student sedentary behaviors. At the same time, the lack of change in TV watching but increased number of PE days per week before and after SB42 may speak to the potential for state policy to increase physical activity at the school level while underscoring the continued challenges for changing individual-level behavior change outside the school setting.

These findings contribute to an emerging body of research that suggests that policy can positively affect obesity-related factors in the school environment [7–9]. For example, policy

requirements for PE attendance have been found to provide an average of 31 additional minutes per week that students spend in physical activity in PE class in U.S. high schools [33]. An environmental and policy intervention evaluated in 24 U.S. middle schools was found to have significant effects on physical activity for the total group and boys, but not girls [34]. A policy-based school intervention in 10 elementary schools in the U.S. that emphasized nutrition policy and social marketing was found to significantly decrease obesity incidence among intervention elementary school students [35]. Similarly, in Utah, a small observational study (n=4 elementary schools) by Jordan et al. (2008) found that children attending schools that met specific physical activity, nutrition and obesity prevention policy and wellness criteria under the "Gold Medal Schools Program" had no significant increases in BMI *z* scores compared to children in "non-Gold Medal schools", whose BMI significantly increased [36]. These studies provide support for the role of policy in driving physical activity and other health-related behaviors among students. With emerging literature on the measurement of school-based policy [37–39] to better inform policy research design, future research in school-based policy is needed to identify the specific factors that contribute to policy development, dissemination, and monitoring as well as the causal role of school policy in obesity prevention.

This study does have limitations. While we cannot rule out social desirability bias from key informants regarding the number of structured physical activity minutes reported per class and days per week, we were able to provide some support for these findings through the triangulation of key informant, SOFIT direct observations, and student reports at the border level. Even though our assessment of statewide implementation of SB42 and the SOFIT measures with the border sample relied on a single time period and we cannot infer causality, our border-level data afforded a comprehensive examination of the execution of this mandate, including the utilization of multiple methods of assessments (key informant, direct observation, and student report) as well as measures taken before and after implementation of SB42. Finally, other sources of structured physical activity (such as physical activity breaks) were not assessed, which may have resulted in an underestimation of structured physical activity.

The important discrepancies in awareness and action around SB42 found in this study suggest the need for better understanding of the factors that both facilitate and inhibit local leadership around school policy, communication channels to disseminate school policy, and mechanisms to ensure school policy is being implemented. To better understand factors that facilitate adherence to SB42 and other school wellness initiatives, future assessments should include: 1) comparisons regarding PE class length and frequency and MVPA during PE class between the different types of PE classes offered in schools (grade-specific PE, mixed-grade PE, co-ed PE, gender-specific PE); 2) use of other venues for structured physical activity (intramural sports and sports teams) to meet policy standards and objectives; 3) access to school facilities for physical activity (e.g., gyms, tracks, weight rooms) before and after school as well as other school environment changes that promote school wellness for the entire school community (students, staff, and parents); and 4) barriers to PE and physical activity (limitations in staff, lack of equipment and materials, class size, low academic priority, and limited financial resources), all of which may impact schools' ability to adhere to the initiatives. In regards to SB42, further research should assess the impact of Senate Bill 530, enacted in 2007 to strengthen the objectives of Senate Bill 19 (predecessor of SB42 and targeting elementary school children) and SB42, on adherence to the PE class requirement of four semesters for middle schools and annual physical fitness assessments of students.

In summary, our findings based on state and border samples of Texas middle schools suggest that most schools in Texas are adhering to SB42 and that schools are meeting or exceeding the required number of structured physical activity minutes. The significant increase in frequency of PE observed in our border sample before and after implementation of SB42 provides some evidence that state level policies can impact student physical activity participation. At the same

time, because knowledge and adherence to specific components of SB42 varied among both a representative sample of Texas public middle schools and schools from four Texas-Mexico border municipalities- with approximately 1 in 4 schools unaware of the physical activity requirement, further support is warranted to increase implementation and adherence. The emergence of school wellness initiatives to address child obesity presents an important opportunity to promote child health at a system's level. As such, continued monitoring of implementation and research on the efficacy of these initiatives at the local level [30] are warranted to assess health-related goals as well as make needed policy refinements so that intended effects can be achieved.

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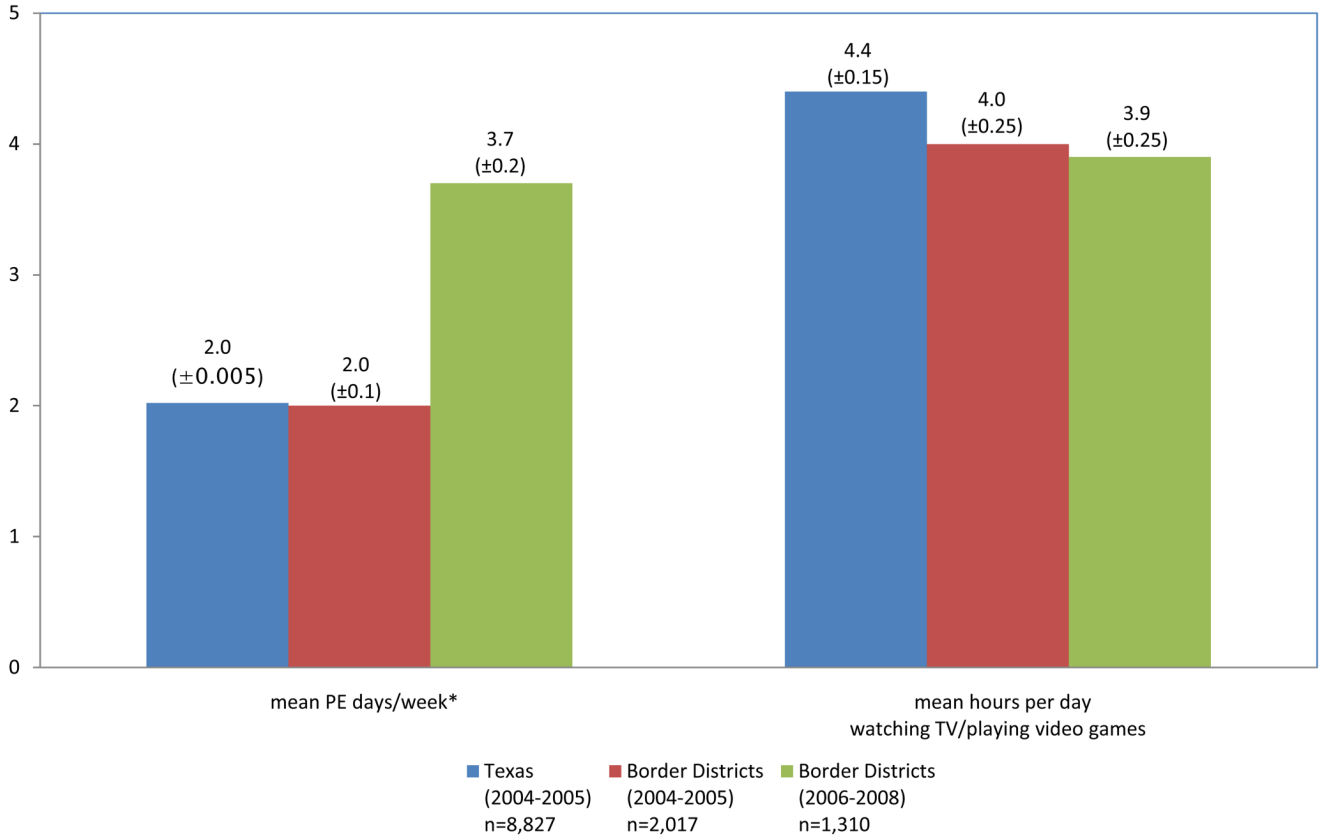


**Figure 1.**

Self-Reported Structured Physical Activity[a] and Sedentary Behaviors[a] of 8th Grade Border Students, 2004–2005 and 2006–2008

[a]Mean values and probabilities adjusted for age, gender, and random school-level intercept.

PE: physical education

[*]$p<0.001$; difference between border districts 2004–2005 and border districts 2006–2008

## Table 1

Policy Awareness in Texas Middle Schools 2006–2008, Statewide and Border Key Informants

| | Texas n=112 districts % (95% CI) | Border Districts n=16 schools % (95% CI) | Non-Border Districts n=96 schools % (95% CI) | p-value* |
|---|---|---|---|---|
| *Are you aware that Senate Bill 42 (SB42) requires?:* | | | | |
| PA and CSHP | 94 (90–99) | 94 (80–107) | 95 (90–99) | *0.8956* |
| 30 min of structured PA per day or 135 min/week | 79 (71–86) | 75 (51–99) | 79 (71–88) | *0.7118* |
| Health education | 81 (74–89) | 75 (51–99) | 83 (75–91) | *0.4724* |
| Physical education | 81 (74–89) | 94 (80–107) | 79 (71–88) | *0.2007* |
| Nutrition services | 81 (73–88) | 81 (60–103) | 80 (72–89) | *0.9394* |
| Parental involvement | 69 (60–78) | 81 (60–103) | 67 (57–77) | *0.2646* |
| Establishment of a district SHAC | 69 (61–78) | 81 (60–103) | 67 (58–77) | *0.2748* |
| *How did you become aware of SB42?* | | | | |
| School district | 52 (42–62) | 36 (7–64) | 55 (44–65) | *0.1956* |
| School employee | 12 (6–19) | 21 (−3–46) | 11 (4–17) | *0.2677* |
| News media | 9 (3–15) | 14 (−7–35) | 8 (2–14) | *0.4715* |
| Professional education | 24 (16–33) | 21 (−3–46) | 25 (16–34) | *0.7739* |
| *Physical education (PE)* | | | | |
| Did your district issue a policy statement on structured PA? | 74 (64–84) | 67 (35–98) | 76 (65–86) | *0.5094* |
| Attend PE two semesters overall | 57 (44–70) | 40 (−28–108) | 58 (45–72) | *0.4401* |
| Attend PE a minimum of two days per week for one school year | 17 (8–25) | 10 (−13–33) | 18 (8–28) | *0.5484* |
| Attend PE every semester | 43 (31–54) | 44 (4–85) | 42 (30–55) | *0.9085* |
| Other | 38 (27–49) | 58 (26–91) | 34 (22–46) | *0.1185* |
| Exemption for sports outside of school? | 33 (23–44) | 13 (−6–33) | 38 (26–49) | *0.0868* |
| *Are you aware of federal law on school wellness policy?* | 71 (62–80) | 54 (22–85) | 74 (64–83) | *0.1477* |
| *Did your district issue a policy statement on Texas Public School Nutrition Policy?* | 87 (80–94) | 93 (79–108) | 86 (79–94) | *0.4481* |

PA: physical activity

CSHP: coordinated school health program

* Difference between border and non-border districts

## Table 2

Policy Adherence in Texas Middle Schools 2006–2008, Statewide and Border Key Informants

| | Texas n=112 districts % (95% CI) | Border Districts n=16 schools % (95% CI) | Non-Border Districts n=96 schools % (95% CI) | p-value* |
|---|---|---|---|---|
| Has your district formed a SHAC? | 91 (85–98) | 83 (59–108) | 93 (87–99) | *0.29* |
| Does anyone at your school serve on the district SHAC? | 73 (62–84) | 50 (5–95) | 76 (65–88) | *0.1303* |
| Has your school formed a SHAC? | 39 (29–49) | 43 (13–73) | 39 (28–50) | *0.7718* |
| How many members on school SHAC? | 6 (5–7) | 7 (2–12) | 6 (5–8) | *0.6078* |
| What is the composition of your SHAC? | | | | |
| PE teacher | 23 (14–31) | 14 (−7–35) | 24 (15–33) | *0.4211* |
| Teacher other than PE | 24 (15–32) | 21 (−3–46) | 24 (15–33) | *0.8252* |
| Food service staff worker | 16 (9–23) | 21 (−3–46) | 15 (7–22) | *0.5274* |
| Coach | 13 (6–19) | 14 (−7–35) | 13 (5–20) | *0.8525* |
| Student | 4 (0–8) | 14 (−7–35) | 2 (−1–6) | *0.0646* |
| Parent | 15 (8–22) | 21 (−3–46) | 14 (6–21) | *0.4714* |
| Administration staff member | 26 (17–34) | 14 (−7–35) | 28 (18–37) | *0.3018* |
| Other | 94 (89–99) | 93 (77–108) | 94 (89–99) | *0.8295* |

SHAC: school health advisory council

PE: physical education

*Difference between border and non-border districts

## Table 3

Frequency and Characteristics of Physical Education (PE) in Texas Middle Schools 2006–2008, Statewide and Border Key Informants

| | Texas n=112 districts % (95% CI) | Border Districts n=16 schools % (95% CI) | Non-Border Districts n=96 schools % (95% CI) | p-value* |
|---|---|---|---|---|
| *What type of PE class schedule is followed?* | | | | |
| Regular daily | 85 (79–92) | 63 (36–89) | 89 (83–96) | *0.0091* |
| Block | 15 (8–21) | 44 (16–71) | 10 (4–16) | *0.0012* |
| Other | 2 (−1–4) | 7.1 (−8.3–22.6) | 1.1 (−1.1–3.2) | *0.1756* |
| *How many minutes / class?* | | | | |
| 6th grade | 53 (50–56) | 61.4 (47.9–75) | 51.8 (49.1–54.5) | *0.0202* |
| 7th grade | 53 (49–56) | 58.1 (45.7–70.5) | 51.8 (48.3–55.4) | *0.1889* |
| 8th grade | 53 (49–56) | 58.1 (45.7–70.5) | 51.8 (48.3–55.4) | *0.1889* |
| *How many days / week?* | | | | |
| 6th grade | 4.7 (4.6–4.9) | 4.3 (3.5–5) | 4.8 (4.7–5) | *0.0124* |
| 7th grade | 4.7 (4.5–4.9) | 4.5 (3.9–5.1) | 4.7 (4.5–4.9) | *0.3991* |
| 8th grade | 4.7 (4.5–4.9) | 4.5 (3.7–5.3) | 4.7 (4.5–4.9) | *0.5367* |

* Difference between border and non-border districts