Determinants of High-Risk Drinking Among Border and Non-Border Students in Texas, Grades 7-12:
An Investigation of Demographics, Socioeconomic Factors, and Access to Prevention Resources in 2014
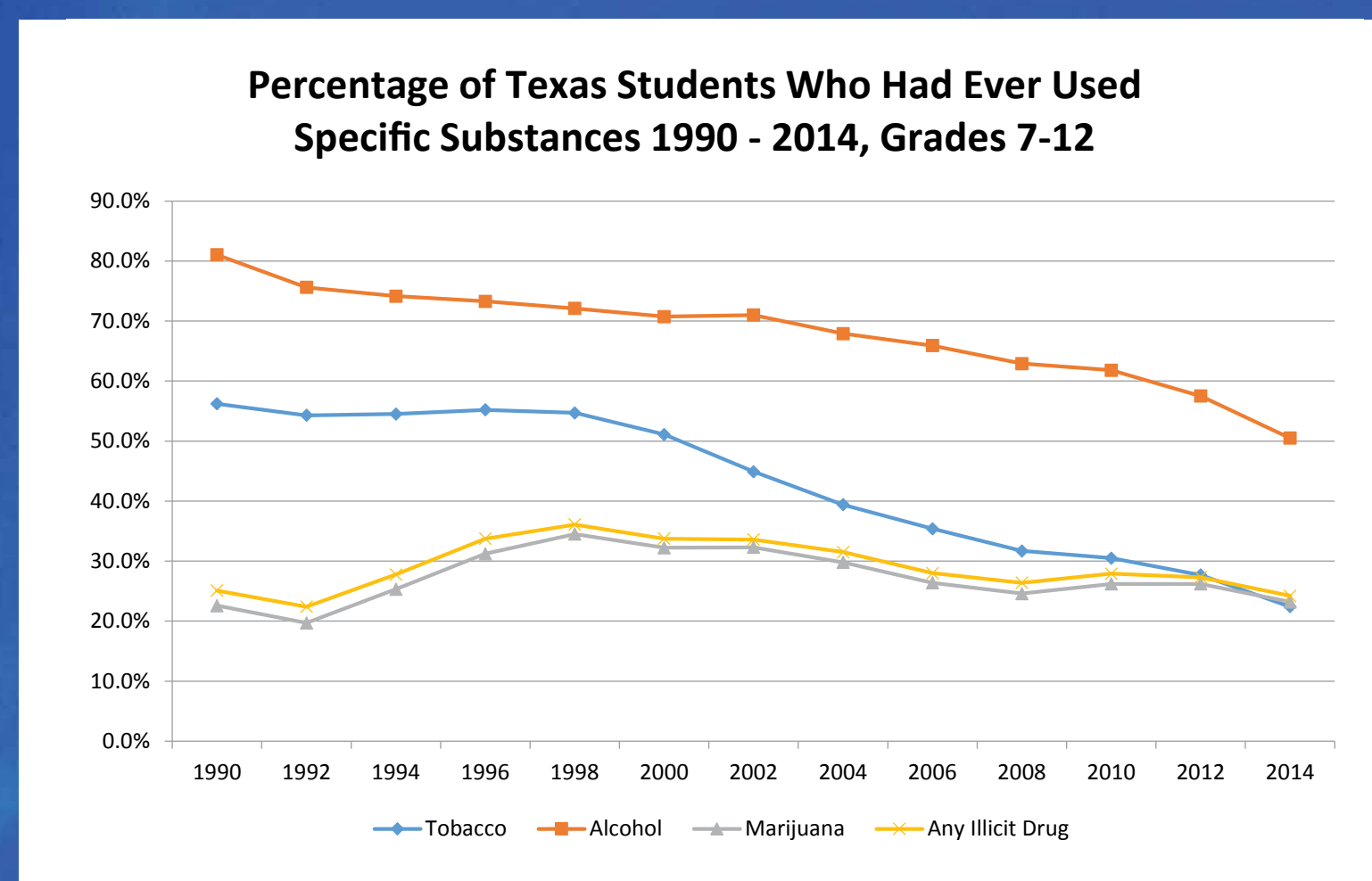
Abigail E. Cameron, PhD • Micki M. Neal, PhD • Texas Department of State Health Services (DSHS) • Mental Health and Substance Abuse Division (MHSA) • Office of Decision Support

Percentage of Texas Students Who Had Ever Used Specific Substances 1990 - 2014, Grades 7-12

Research Questions
1) What are the *characteristics of alcohol use* among African-American, Hispanic, and White (non-Hispanic) students in border versus non-border counties?

2) Does parental involvement and access to prevention information correspond to a decrease in reports of *high-risk drinking behavior* (i.e., binge drinking) among African-American, Hispanic, and White (non-Hispanic) students in border versus non-border counties?
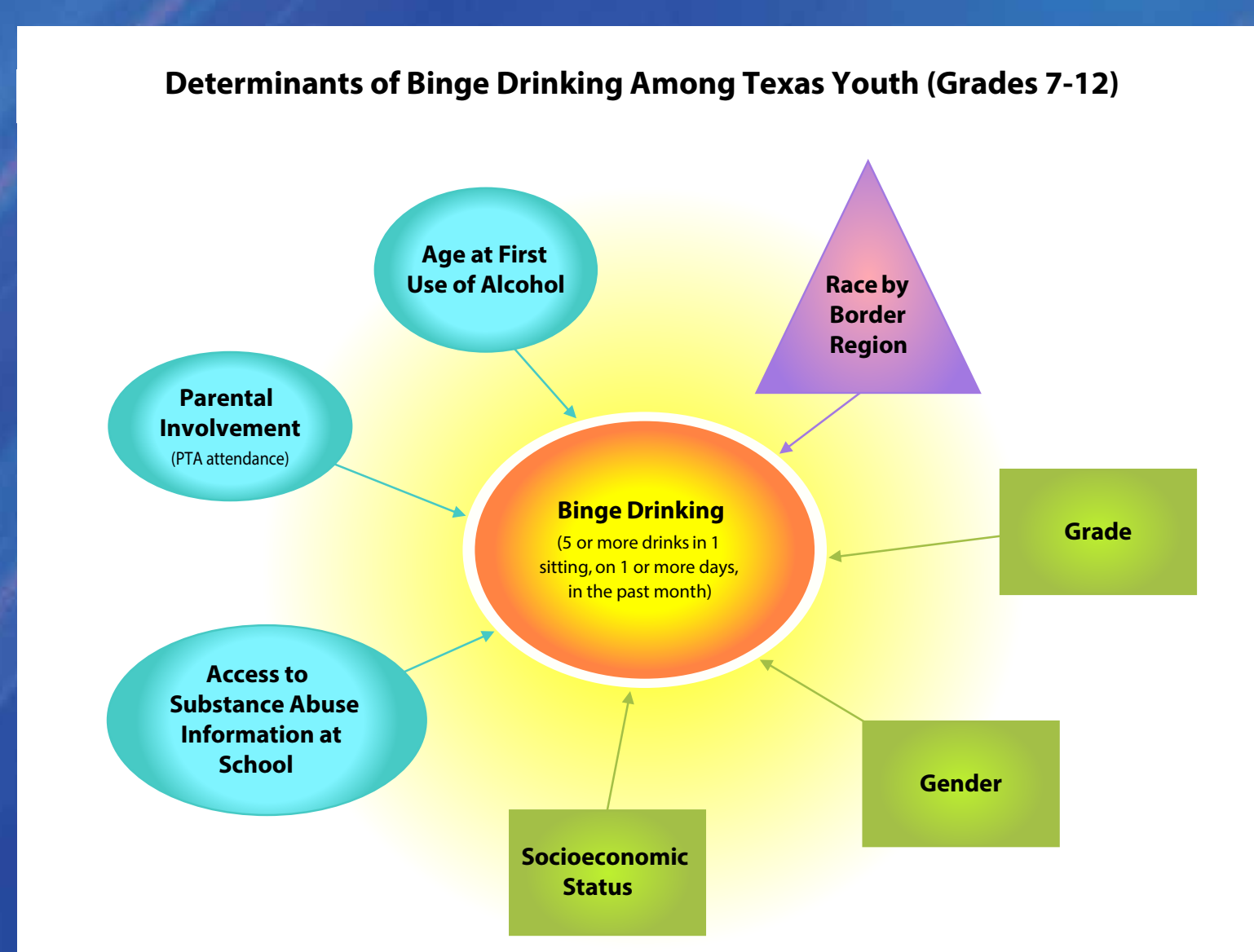
Methodology
- Descriptive statistics are used to summarize and describe patterns in data.

- Poisson regressions are used to analyze count data. This accounts for the discrete and non-negative values, such as the number of times an adolescent has used alcohol in the past month. In addition, it accounts for skewed observations, such as high numbers of adolescents reporting having had no drinks in the past month.

Description of Data
Data utilized for this project were collected as part of the Texas School Survey (TSS) (see http://www.texasschoolsurvey.org). This is a robust data set with very few changes to the instrument over time.

Since 1988, the TSS has collected anonymous information on substance use and health behaviors. Students in grades 6-12 are randomly selected from school districts throughout Texas using a multi-stage

Determinants of Binge Drinking Among Texas Youth (Grades 7-12)

probability design with Texas schools as the primary sampling units. Counties along the Texas-Mexico border are oversampled (each year) in order to assess substance abuse in detail and include a racially and ethnically diverse sample. In 2014, sampled data reveal that 41,564 Texas students completed surveys with a student response rate of 86.7% and a statewide school response rate of 18%. Data utilized for this project concern only grades 7-12 (N=33,463).
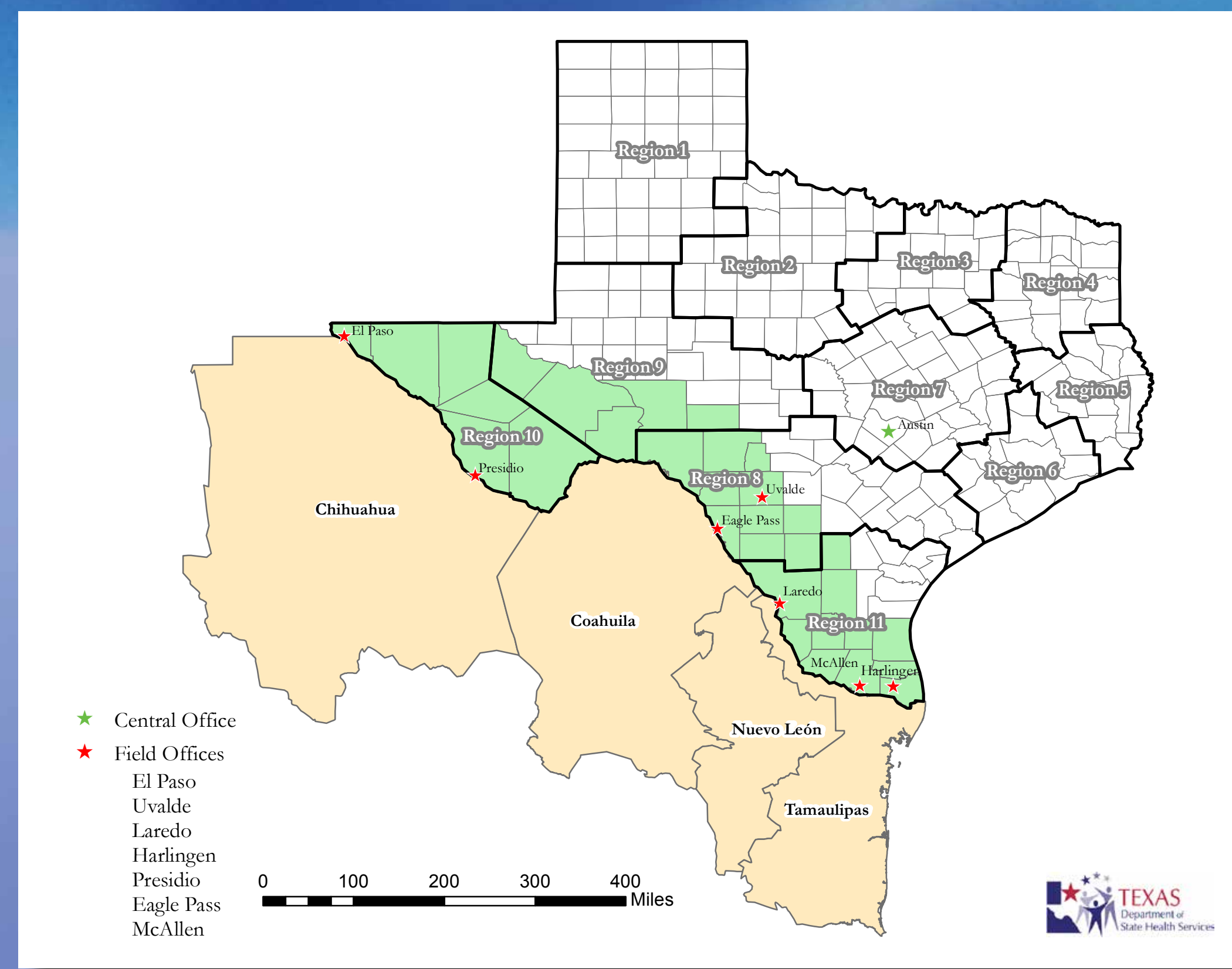
The survey instrument features a multiple-choice answer design. It is designed to be completed within a single class period (about 40 minutes) and is administered by a teacher in either pencil/paper or an online format. Students are asked to report on their use of: alcohol, tobacco, inhalants, illicit drugs, over-the-counter drugs, prescription drugs, as well as, their attitudes, involvement in extracurricular activities, and access to information about drugs and alcohol.
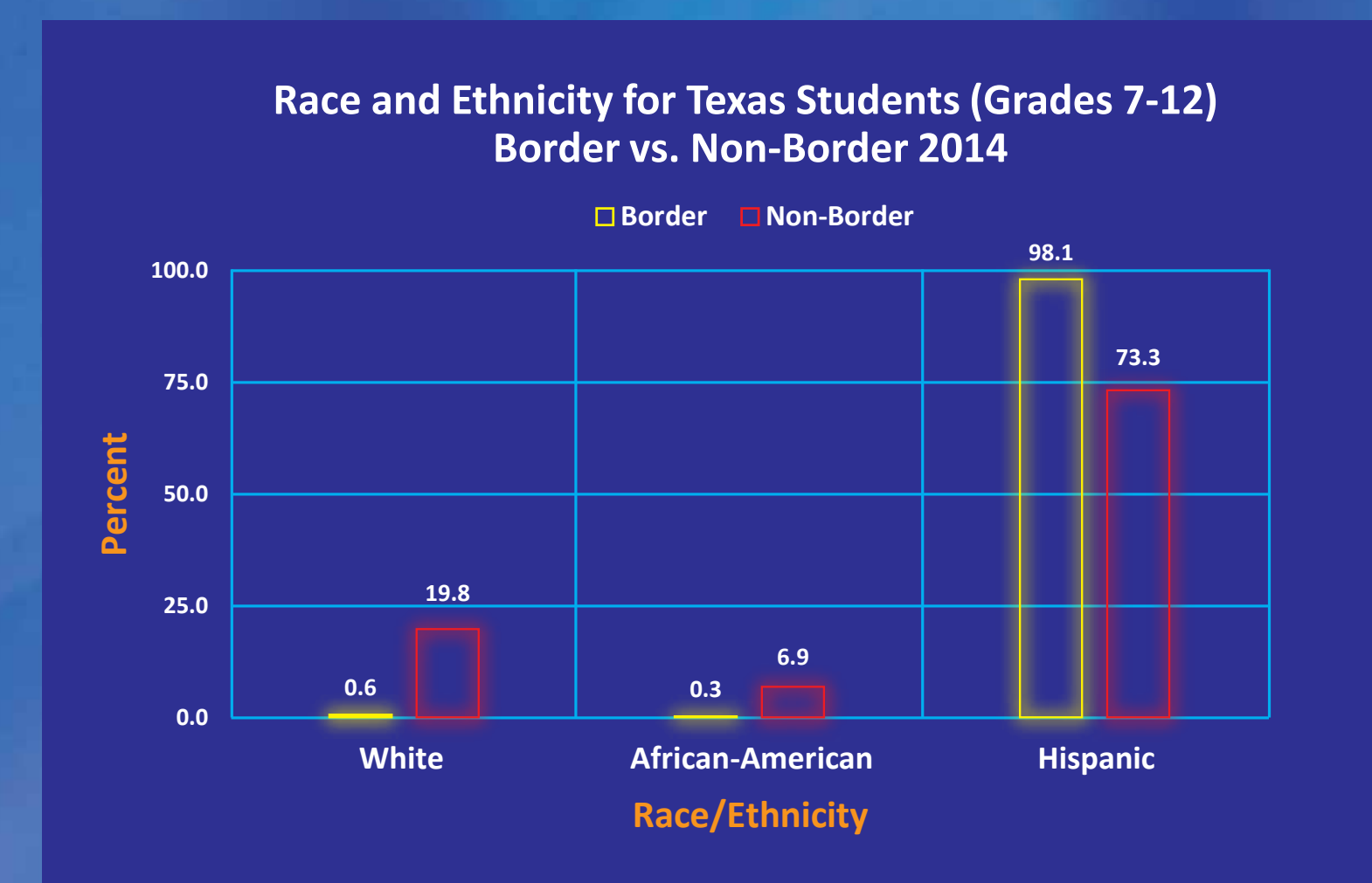
Variables and Measurement
Dependent Variable:
- Binge Drinking (5 or more drinks, 1 or more times per month)
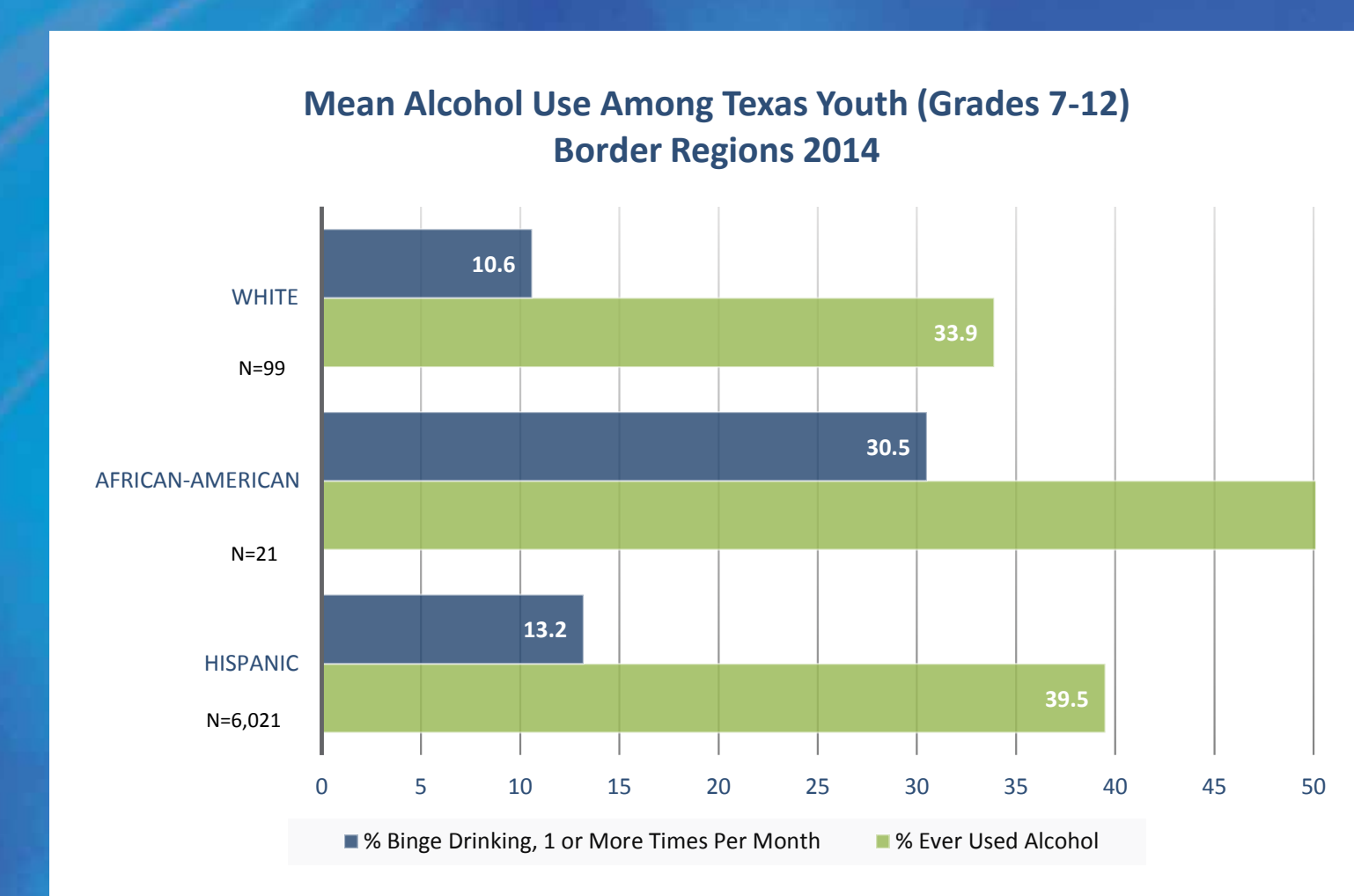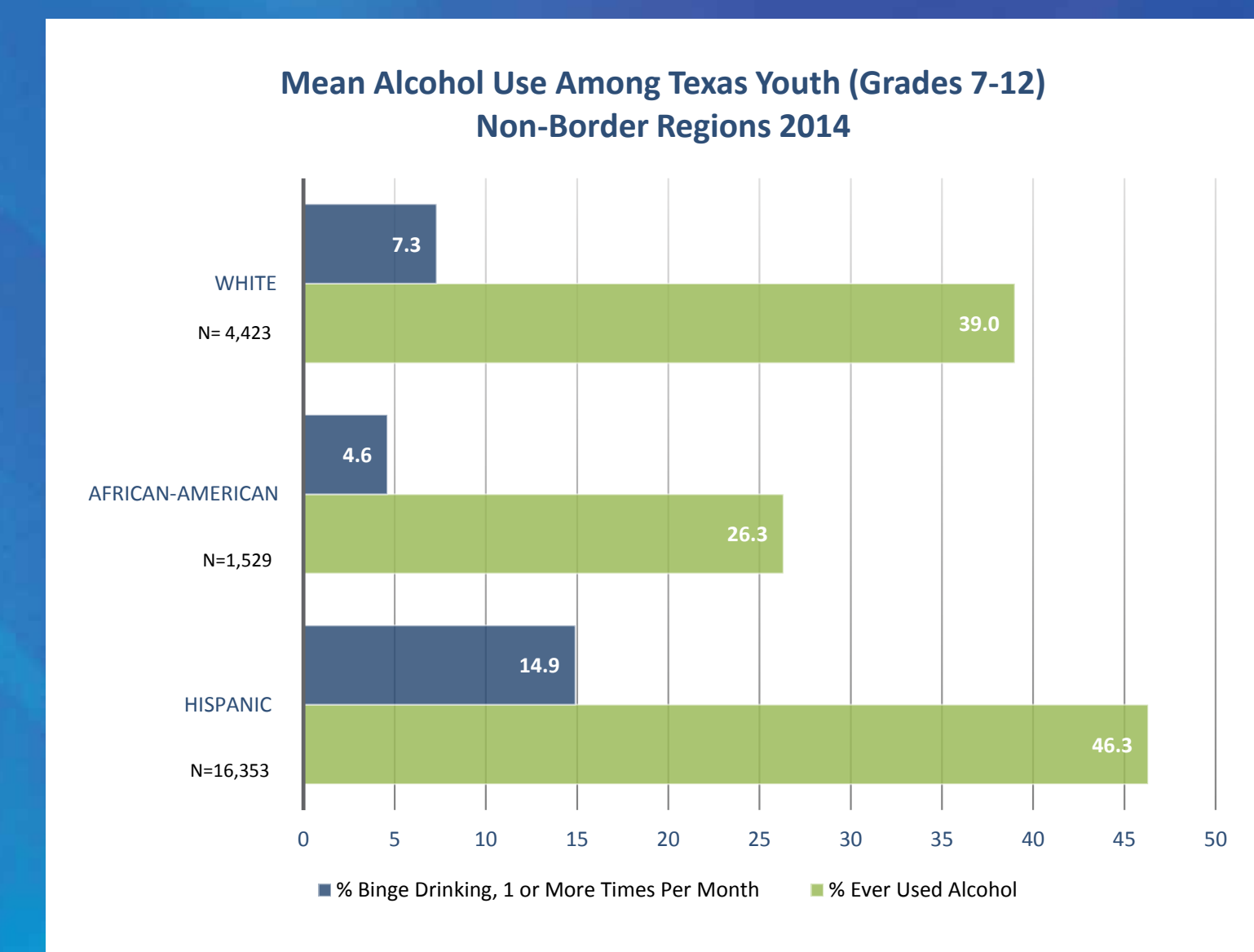
Independent Variables:
- Age at First Use
- Gender
- Access to Substance Use Information at School
- Parental Involvement in School Activities (PTA attendance)
- Socioeconomic Status
- Race by Border Region
- Grade

Results
How do demographics, access to substance use information, and parental involvement correspond to students' likelihood of reporting binge drinking one or more times within the previous month? While students in border regions are more likely to report this experience than their non-border peers, the consumption patterns vary by students' race/ethnicity, which was examined as an interaction effect.

Race and Ethnicity for Texas Students (Grades 7-12) Border vs. Non-Border 2014

It is not surprising that grade level relates statistically to binge drinking, with each unit increase in grade (6 – 12) corresponding to an 11% odds increase (<.0001). Similarly, students who

Mean Alcohol Use Among Texas Youth (Grades 7-12) Non-Border Regions 2014

Mean Alcohol Use Among Texas Youth (Grades 7-12) Border Regions 2014

While Hispanic and White students in border regions show similar rates of binge drinking, African-Americans in that region are 50% less likely to binge drink (p<.0001). Likewise, White non-border students have 50% lower odds (p<.0001), while African-American non-border students have 40% lower odds (p<.001). Although statistically significant, Hispanic non-border students are only 2% less likely to report binge drinking, compared to their border counterparts (p<.05).

Regression Results for the Dependent Variable, Binge Drinking*

PARAMETER	RESPONSE CATEGORIES	ODDS COMPARED TO HIGHLIGHTED CATEGORY	ESTIMATE	STANDARD ERROR	PR > CHISQ
Intercept		11.9%	-2.1278	0.023	<.0001
Socioeconomic Status Free and Reduced Price Lunch?	Don't Know	114.0%	0.131	0.0088	<.0001
	No	94.0%	-0.0616	0.0079	<.0001
	Yes	100.0%	0	0	
Parental Involvement in School Activities	No	126.0%	0.2312	0.0078	<.0001
	Yes	100.0%	0	0	
Access to Substance Abuse Info at School	No	108.4%	0.0804	0.0069	<.0001
	Yes	100.0%	0	0	
Grade		1	0.1094	0.0023	<.0001
Age at First Use		98.0%	-0.0204	0.0014	<.0001
Gender	0	Female	98.3%	-0.0167	0.0066	0.0117
	1	Male	100.0%	0	0	
Race by Border Region	White	Non-Border	49.8%	-0.6977	0.0127	<.0001
	White	Border	86.9%	-0.1401	0.0737	0.0573
	African-American	Non-Border	38.9%	-0.9451	0.105	<.0001
	African-American	Border	53.5%	-0.6248	0.1057	<.0001
	Hispanic	Non-Border	98.0%	-0.0204	0.0087	0.0185
	Hispanic		100.0%	0	0	

*Binge Drinking is measured as, "In the past 30 days, student reported 5 or more drinks of alcohol AT ONE TIME" where: (1) = 1 day, (2) = 2 days, (3) = 3 to 5 days, (4) = 6 - 9 days, and (5) = 10 or more days.
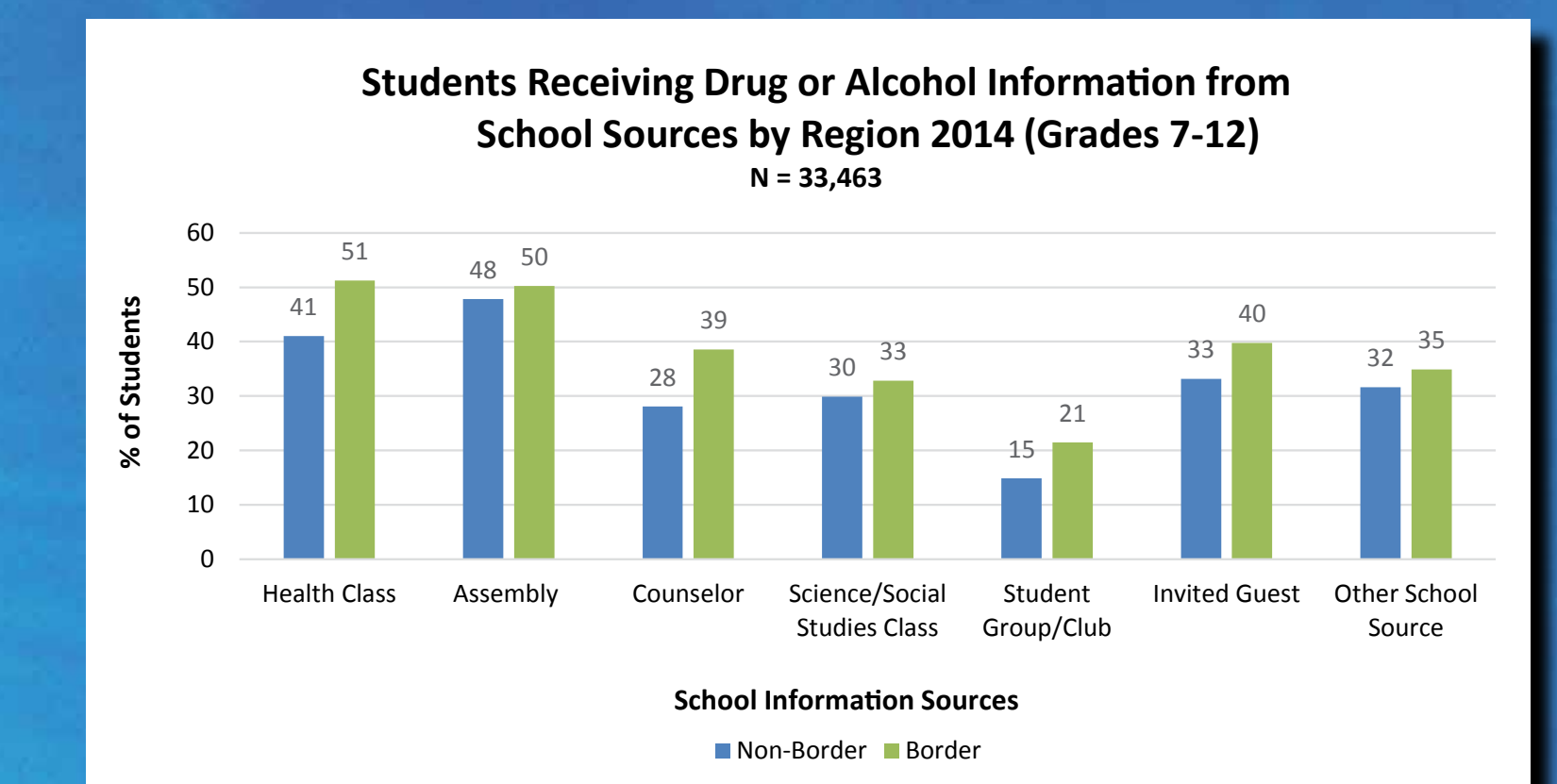
Discussion and Implications
Alcohol is the most frequently used substance by young adults (L.D. Johnston, P.M. O'Malley, R.A. Miech, J.G. Bachman, J.E. Schulenberg 2016), and by Texas youth, grades 7-12. This research reveals that 50.5% of Texas students (grades 7-12) reported that they had used alcohol at some point in their lives and about 13.8 % of students reported having engaged in binge drinking (five or more drinks at one time) at least once in the past thirty days.

Previous literature documents that students who engage in binge drinking experience higher risks (than other underage drinkers) for negative outcomes including: poor academic performance, suicide, alcohol-related car crashes, abuse of licit/illicit drugs, and alcohol dependence, etc. (J. McCambridge, J. McAlaney, R. Rowe, 2011; J. Miller, T. Naimi, R. Brewer, & S. Jones 2007). Therefore, binge drinking behaviors established in adolescence are of vital concern. How can high-risk drinking behaviors be reduced?

reported using alcohol for the first time at an earlier age are more likely to report binge drinking; for each additional year of age of first use of alcohol, the odds of reporting binge drinking decreased by 2% (p<.0001).

Across all race/ethnicity groups and grade levels, females are about 2% less likely than males to report binge drinking within the past month (p<.05). Broadly, students who are on free or reduced lunch are 6% more likely to engage in binge drinking than students who are not (p<.0001). However, students who report receiving substance use information from one or more school sources were 8% less likely to binge drink than those who did not (p<.05). Finally, parental involvement appears to have a favorable impact on high risk drinking. The odds of binge drinking for students whose parents usually attend open houses or PTA meetings are 26% lower than those whose parents did not attend (p<.0001).

- Binge drinking varies by region, race/ethnicity, gender, and socioeconomic status. Significant determinants, particularly socioeconomic status and border region, suggest the increased need for targeted prevention efforts in regions plagued by poverty, particularly in border counties.

- The strong positive effects of parental involvement reveal that families can play an influential role in reducing their child's risk of engaging in binge drinking by actively participating in school activities like the Parent-Teacher Association (PTA). Parental engagement should be incentivized by prevention efforts.

- There is significant room for improvement in the dissemination of drug and alcohol information in Texas schools. Additional supports should be extended to high poverty schools to facilitate competitive applications for prevention grants and resources. The Texas Education Code states that the required health curriculum in Texas schools should include essential knowledge of the dangers of drugs and alcohol. Our results suggest the need for increased access to drug and alcohol information, especially in border schools and high-poverty schools.

Students Receiving Drug or Alcohol Information from School Sources by Region 2014 (Grades 7-12) N = 33,463

Acknowledgements

Citations
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