2014 Bias Analysis

Sponsoring Washington State Agencies:
Department of Social and Health Services'
Division of Behavioral Health and Recovery
Office of Superintendent of Public Instruction
Department of Health
Liquor and Cannabis Board
Department of Commerce

Prepared by:
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Washington State Healthy Youth Survey 2014

Bias Analysis

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This report is available online at:
http://www.AskHYS.net

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Acknowledgements

Background

The Healthy Youth Survey (HYS) is Washington State's biennial survey of public school students in grades 6, 8, 10 and 12. Since 2002, HYS has been administered in the fall of even numbered years. Schools are randomly selected into a state sample, but all schools with grades 6, 8, 10 or 12 can volunteer to participate, except for those operated in correctional facilities. Because a random sample cannot guarantee a representative sample and because not all schools and students invited to participate in the state sample take the survey, we need to check if the participants do in fact represent the larger group.

This bias analysis aims to find out how well the students who participated in the 2014 Healthy Youth Survey represent Washington State public school students as a whole, in both the state sample and the census results.

Methods

To assess possible bias related to differences among respondents at the school level, we compared the characteristics of:

- Participating and non-participating schools
- Schools that asked the optional survey questions

To assess possible bias at the individual student level, we compared the characteristics of:

- Respondents who finished the survey and those who did not
- Respondents who answered the optional questions and those who did not

We assessed school-level and student-level characteristics for the state sample schools alone and for all participating schools (census).

Conclusions

These findings are limited to generalizing to Washington State. They do not apply to smaller geographic areas such as counties or school districts. The smaller sample sizes for smaller geographic areas may be subject to different bias due to nonparticipating schools and students.

State Sample Findings

The results from the 2014 Healthy Youth Survey state sample may somewhat underrepresent students attending small and non-urban public schools, but are generalizable to the majority of students in Washington State.

Not all students finished the 2014 HYS. Questions asked at the end of the survey may underrepresent students getting lower grades in schools, with low socio-economic status, who live in non-English speaking homes, who are Hispanic, and who are Black/African American. Caution should be exercised when interpreting the results from these questions for these groups of students.

Questions about sexual behavior, orientation and abuse were optional in 2014. About two out of five schools took the optional questions. Schools that took the optional questions were similar to schools that choose not to take them, but may underrepresent schools with lower minority enrollment.

All Eligible School (Census) Findings
The results from the 2014 Healthy Youth Survey for all participating schools (census) also underrepresent students attending small, non-urban and alternative public schools.

Questions asked at the end of the survey may underrepresent students getting low grades in schools, who don't feel safe at school, with low socio-economic status, who use substances (cigarettes, marijuana or alcohol), who live in non-English speaking homes, and who are Hispanic, American Indian/Alaska Native, or Black/African American.

The results from the optional questions may underrepresent schools with lower minority enrollment, lower free and reduced lunch, and schools in urban areas.

1. Introduction

This bias analysis was conducted to determine if the 2014 Healthy Youth Survey results can be generalized to Washington State Public School students.

The 2014 administration of the Healthy Youth Survey (HYS 2014) represents a collaborative effort among the Department of Health; the Office of Superintendent of Public Instruction; the Department of Social and Health Services' Division of Behavioral Health and Recovery; the Liquor and Cannabis Board, and the contractor, Looking Glass Analytics, Inc. Representatives of these agencies served as members of the Healthy Youth Survey Planning Committee, which guided every aspect of the survey development and implementation.

Since 2002, it has been administered in the fall of even numbered years. All Washington State public schools with grades 6, 8, 10 or 12 that were not based in a correctional institution and were able to administer the survey in a classroom setting were eligible to participate in the HYS (e.g., schools where students don't attend classes like online schools or home school support programs were not included). A simple random sample of schools is selected into a state sample. Schools that were not selected for the state sample are termed "not drawn for the state sample." Schools that participate but were not selected into the state sample are termed "volunteer" schools. The combination of the state sampled schools and the volunteer non-sampled schools that participated are termed the "census".

The Washington State Department of Health mailed a letter in January 2014 inviting all eligible schools to participate in the 2014 Healthy Youth Survey. Schools registered for the survey online. Sponsoring agencies called state sample schools that did not register to solicit participation. Schools not drawn for the state sample were not called.

For the state sample, the Washington State Department of Health drew three random samples: schools with grade 6, schools with grade 8, and schools with grades 10, 12 or both. Within selected schools, all of the students in the target grades were invited to participate. This method assured that each eligible student in Washington State had an equal chance of being asked to participate in the state sample. These selection methods maximize the likelihood that students taking the survey as part of the state sample represent students in the specified grades as a whole. However, because a random sample cannot guarantee a representative sample and because not all schools and students invited to participate in the state sample took the survey, we need to check if the participants do in fact represent the larger group.

The 2014 HYS included five survey forms. Schools with students in grade 6 received Form C; schools with students in grades 8, 10 and 12 received both Form A and Form B. Forms A were interleaved or collated with Form B, such that half of students would receive a Form A survey and half would receive Form B survey. Schools could select enhanced versions of the survey forms A and B when they registered (Form A-enhanced and Form B-enhanced). Enhanced versions included optional questions on sexual orientation, behavior and abuse.

Schools, parents and students could each choose not to participate in the survey. School participation in the survey is voluntary. Schools not wanting to ask students about sexual orientation, behavior or abuse registered to receive survey forms without those questions. Parents could opt their students out of the survey by notifying the school. Students could also opt out of the survey before it was administered and they could skip any question they did not want to answer. Apart from those optional exclusions, some students did not finish the survey in the allotted time.

The factors outlined—non-participation, schools opting out of optional questions, and students not finishing the survey—can introduce bias into the survey such that the findings would not represent public school students in grades 6, 8, 10 and 12 in Washington. Bias occurs if findings are affected by differences between students who answered survey questions and those who did not. This bias analysis aims to assess bias by describing differences between participating and non-participating schools and students that might affect overall findings, and testing whether any such differences would impact results.

In 2014, the Healthy Youth Survey included an option for schools from small school districts to survey additional grade levels and receive combined grade results. Appendix D includes an additional analysis of bias among pilot eligible schools. The bias analysis looks at the differences between eligible schools that participated in the pilot and those that did not.

Sources of Bias
Potential sources of bias include:

- **School participation bias**: School participation bias could occur if findings were affected by differences between students in schools that participated and students in schools that chose not to participate in the HYS.

- **Optional question administration bias**: Some schools opted to administer versions of the survey that excluded questions about sexual orientation, behaviors and abuse. Bias for the optional questions could occur if findings were affected by differences between students who answered the optional questions and those who did not. The two most likely sources of differences are:
  o Differences among students in schools that administered Form A-enhanced or Form B-enhanced, which included the optional questions, and students in schools that did not administer Form A and Form B (which do not include optional questions).
  o Differences among students who finished the survey and students who did not, since the sexual activity questions are at the end of the survey.

- **Survey completion bias**: Some students did not complete the survey in the allotted amount of time. Bias could occur for questions toward the end of the survey if students who did not complete the survey would have given different answers than students who completed the survey.

2. Methods

Bias must be assessed indirectly. We cannot simply look to see if participating and non-participating schools and students gave different survey responses, because we do not have responses from non-participants. Instead, we first assessed student characteristics that might affect how respondents answer questions by comparing characteristics of schools that participated in all or parts of the survey and schools that did not. For this comparison, we assessed school-level information provided by the Office of Superintendent of Public Instruction.

To assess possible bias related to differences among respondents at the **school level**, we compared the characteristics of:
- Participating and non-participating schools.
- Schools that did and did not administer the optional questions. Schools that did not participate in HYS were categorized as not administering optional questions.

To assess possible bias at the **individual student level**, we compared the characteristics of:
- Respondents who finished the survey and those who did not.
- Respondents who answered the optional questions and those who did not.

Table 1 summarizes the analysis conducted to assess potential bias at the school level and individual student level.

Table 1: Sources of potential bias and the level of analysis at which they were assessed

Source of potential bias	Description	Base population*	Level of Analysis	
			School	Student
School participation	Participating schools compared to non-participating schools	State sample	X	
		All eligible schools	X	
School-level optional question administration	Schools administering questions compared to schools not administering questions	State sample	X	
		All participating schools (census)	X	
Student-level survey completion	Respondents who finish the survey compared to respondents who did not finish the survey	State sample		X
		All participating schools (census)		X
Student-level optional behavior question completion	Respondents who answered the questions compared to respondents who did not	State sample		X
		All participating schools (census)		X

* Base population for the comparison:
"State sample" means schools that were randomly selected for the representative state sample.
"All eligible schools" means all schools that were eligible to participate in HYS (state sample schools plus non-sampled schools).

We conducted further analyses to assess the degree to which non-completion bias may have affected survey results. First, we looked at the extent of survey non-completion for each grade. Then, by simulating the effect of non-completion bias on questions found early in the survey, we estimated how much questions at the end of the survey might be affected.

All analyses were conducted using STATA statistical software package, version 13.1.

3. Overview of HYS Eligible and Participating Schools

HYS Eligibility and Sampling

Figure 1: Eligibility to Participate in HYS

```
┌─────────────────────────────────────────┐
│ All public schools in Washington         │
└─────────────────────────────────────────┘
        │                    │
        ▼                    ▼
┌──────────────────┐  ┌──────────────────┐      ┌──────────────┐
│ Schools with     │  │ Schools without  │─────▶│ Not Eligible │
│ Grades           │  │ Grades 6, 8, 10  │      └──────────────┘
│ 6, 8, 10 or 12   │  │ or 12            │
└──────────────────┘  └──────────────────┘
        │         ╲
        ▼          ╲
┌──────────────────┐  ┌──────────────────────────┐
│ Schools with     │  │ Schools without regular  │
│ regular          │  │ classrooms, including:   │     ┌──────────────┐
│ classrooms       │  │  • Institutions/         │────▶│ Not Eligible │
└──────────────────┘  │    correctional         │     └──────────────┘
        │             │    facilities           │
        ▼             │  • Online schools        │
┌──────────────┐      │  • Home school support  │
│ Eligible     │      │    programs             │
└──────────────┘      │  • Special services     │
                      │    programs             │
                      └──────────────────────────┘
```
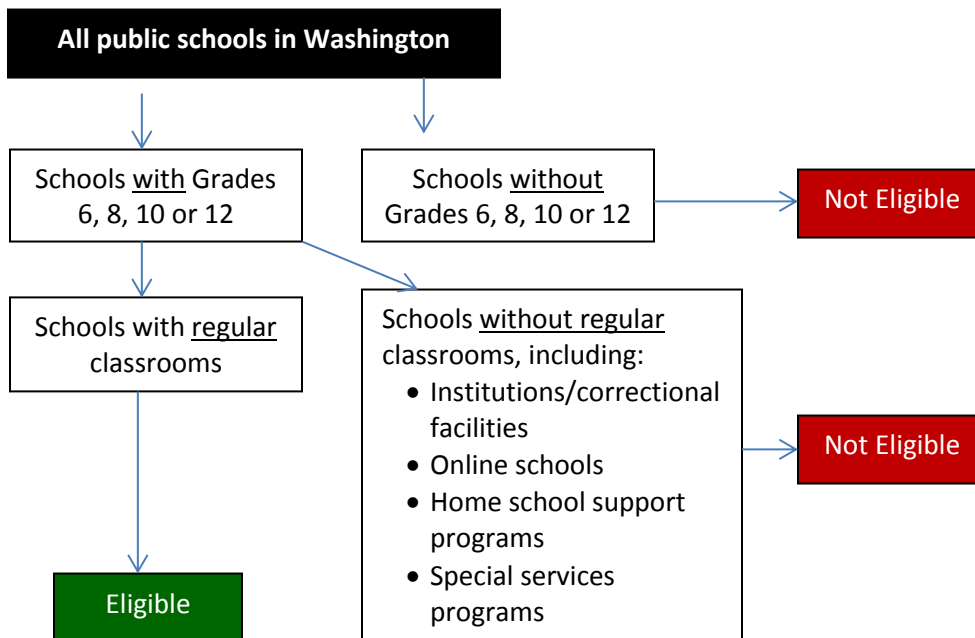
Figure 2: Eligibility and Selection of State Sample

```
┌─────────────────────────────────────────┐
│ All eligible schools in Washington       │
└─────────────────────────────────────────┘
        │                    │
        ▼                    ▼
┌──────────────────┐  ┌──────────────────┐      ┌────────────────────┐
│ Schools with 15  │  │ Schools less     │─────▶│ Grade not eligible │
│ enrolled in      │  │ than 15 enrolled │      │ for State Sample,  │
│ Grade 6, 8, 10   │  │ in Grade 6,      │      │ but Included as    │
│ or 12            │  │ 8, 10 or 12      │      │ Volunteer          │
└──────────────────┘  └──────────────────┘      │ non-sampled school │
        │                                        └────────────────────┘
        ▼
┌──────────────────┐
│ Grade eligible   │
│ for sampling     │
└──────────────────┘
        │
        ▼
┌──────────────────────────┐
│ Simple random sample of  │
│ schools for Grade 6,     │
│ Grade 8, and Grades      │
│ 10/12                    │
└──────────────────────────┘
        │                    │
        ▼                    ▼
┌──────────────────┐  ┌──────────────────────────┐
│ Selected for     │  │ Not selected for State   │
│ State Sample     │  │ Sample, but included as  │
└──────────────────┘  │ volunteer non-sampled    │
                      │ school                   │
                      └──────────────────────────┘
```

HYS Participation by Eligibility and Sampling Results

Figure 3: Description of schools included in the 2014 HYS and status as sample or volunteer non-sampled schools

2014 Public Schools* in Washington = 2,295 schools

NOT Eligible to Participate in HYS:
- Schools without grades 6, 8, 10 and/or 12
- Institutional schools
- Schools were students don't attend classes (homeschool support programs, online schools, etc.)

= 1,078 schools

Eligible to Participate in HYS:
- Schools with grades 6, 8, 10 and/or 12
- Non-institutional schools
- Schools with classrooms to administer the survey

= 1,217 schools

Eligible to be in State Sample:
- Schools with 15 students enrolled in grade level

= 1,120 schools

NOT eligible to be in State Sample:
- Schools with less than 15 students enrolled in grade level

= 97 schools

Schools selected for the State Sample = 222 schools

Schools NOT selected for the State Sample =995 schools

Participated in HYS and included in State Sample Results = 192 schools

State Sample Schools that did NOT Participate in HYS = 30 schools

Participated in HYS and included in volunteer non-sampled and Census Results = 889 schools

Volunteer non-sampled schools that did NOT Participate in HYS = 106 schools

*Note: Private schools in Washington can participate in HYS, but they are not actively recruited and their results are not aggregated into district, county, ESD or state results. In 2014, one private school participated in HYS. Neither that school nor their results are included in this bias analysis.

The grade levels of public schools in Washington vary across the state. Some districts have elementary schools that are grades kindergarten through 6th, so that district's 6th graders are elementary students. Other districts have elementary schools that are kindergarten through 5th and their 6th graders are at a middle school, so that district's 6th graders are middle school students. The following figures (Figures 4a-c) show how grade levels in schools are configured for all schools eligible to participate in the 2014 HYS, any schools that participated (census), and those in the state sample that participated.

Figure 4a: Grade levels of all schools eligible for 2014 HYS
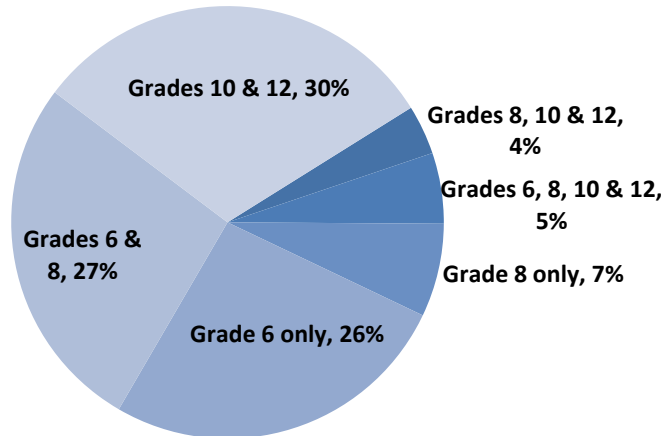
Figure 4b: Grade levels in all schools (census) that participated in 2014 HYS
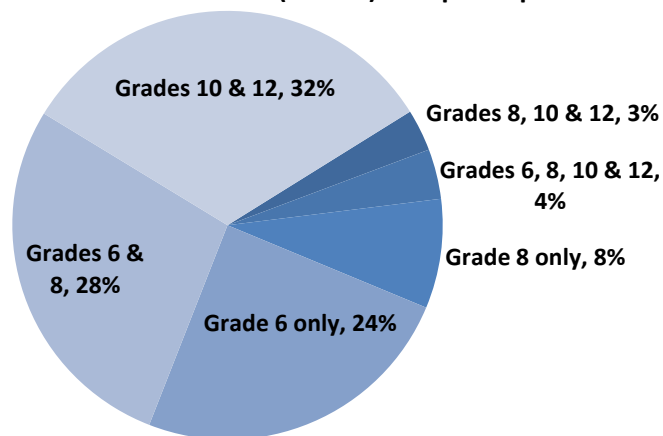
Figure 4c: Grade levels in schools in the State Sample that participated in 2014 HYS
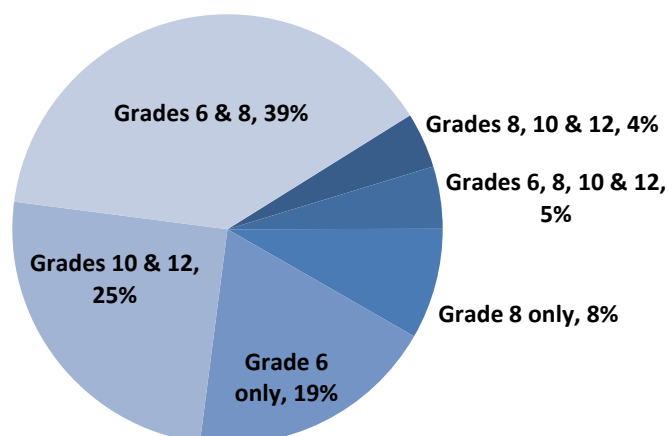
4. School-Level Participation Bias

Questions

> **Were certain types of schools more likely to participate?**
>
> 1. What are the participation rates for the state sample and for all eligible schools?
>
> 2. Are participation rates for alternative schools different from non-alternative schools?
>
> 3. Do schools that participated have different school demographic characteristics compared to schools that did not participate?
>
> 4. Do schools that participated have different community demographic characteristics compared to schools that did not participate?
>
> 5. Are certain types of schools causing more bias?

Methods

In order to assess bias related to differences among schools that participated or did not participate in the survey, we assessed the following school characteristics, available from the Office of Superintendent of Public Instruction www.k12.wa.us/dataadmin:

- School participation rates by sampling status
- School type - Alternative school status
- School Demographics
  - Percent minority enrollment
  - Percent of students receiving free or reduced price lunch
  - School enrollment by grade
  - Math level indices (for schools with grades 6 and 8) and reading level indices (for schools with grades 6, 8 and 10)
  - On-time graduation rate (for schools with grades 10 and 12)
  - School rural or urban designation based on geographic setting codes

We compared the above characteristics for schools that participated in HYS and schools that did not participate. We conducted separate analyses by grade comparing participating schools drawn for the state sample, comparing participating schools not drawn for the state sample, and comparing all eligible participating schools – census schools (state sample plus volunteer non-sampled schools).

For these analyses we used t-test, Fisher's exact and Chi-square to compare schools by participation status. We used Chi-square and Fisher's exact test to compare schools by alternative status. Fisher's exact was used if cell sizes were five or fewer and Chi-square used otherwise. We used t-test to compare schools on percent minority enrollment, percent of students receiving free or reduced price lunch, math and reading level indices, on-time graduation rate, and grade-level school enrollment. Comparisons were considered statistically significant if the p-value was less than 0.05 (that is, a difference of the size found would be expected to occur by chance less than 5 times in 100.).

Results

1. School Participation Rates by Sampling Status

A total of 192 schools and 35,262 students contributed data to the statewide sample. In addition, 188,563 students in 889 schools participated in the survey as volunteer non-sampled schools. These additional schools received reports of their own results, but those results are not included in this statewide report because the schools were not part of the representative statewide sample.

Sixth and 8th grade schools in the state sample were significantly more likely to participate than 6th and 8th grade schools that were not sampled (Tables 2a-b). There was not a significant difference in participation for sampled and volunteer non-sampled 10th and 12th grade schools. Higher participation rates for state sampled schools are expected, because state sample schools received additional phone calls to recruit their participation. Table 1c shows participation rate for all eligible schools – census schools (state sample plus volunteer non-sampled schools); the number of schools in each category is the sum of those in Tables 2a-b.

Among schools drawn for the state sample, participation rates varied from 82% among 12th grades to 94% among 8th grades (Table 2a).

Table 2a: Participation rate by grade for schools drawn for the state sample.

Grade	Participated	Eligible	Participation Rate (%)
6	86	99	86.9%
8	63	67	94.0%
10	54	62	87.1%
12	53	65	81.5%

Table 2b provides participation rates by grade for all eligible schools (census). Participation ranged from 77% among 6th grades to 82% among 8th grades.

Table 2b: Participation rate by grade for all eligible schools (census).

Grade	Participated	Eligible	Participation Rate (%)
6	538	696	77.3%
8	418	512	81.6%
10	380	474	80.2%
12	379	479	79.1%

2. School Participation Rates by School Type– Alternative and Non-Alternative Schools

OSPI assigns each public school a school type code. For this analysis schools were considered to be alternative schools if they had a school type code of "A", "C", "R", "S", "T", "V", or "Z". Some of these alternative schools were not considered eligible for participation in HYS because they do not have an environment where students can anonymously take the survey, e.g., online schools. Alternative schools in this analysis included 127 type "A", 1 type "R", 5 type "S", 6 type "T", and 6 type "V". Schools were considered to be non-alternative schools if they had the school type "P", this analysis included 1,050 type "P" schools. A Demographic Information by School file with these codes is available on OSPI's website at: http://reportcard.ospi.k12.wa.us/DataDownload.aspx.

Schools with less than 15 students per grade were not included in the state sampling frame, but were considered eligible to participate in the survey. Often alternative schools have small school enrollments, so they may be less likely to be included in the state sample.

Alternative schools in the state sample were just as likely to participate as traditional schools (Table 3a). Bias analyses from previous survey administrations, found alternative schools were less likely to participate. In 2014, very few alternative schools were selected for the state sample, possibly making it difficult to detect a difference in participation.

Table 3a: Participation by alternative school status for schools in the state sample.

Grade	School Type	Did Not Participate %, (n)	Participated %, (n)	Difference (p-value)*
6	Alternative	0.0% (n=0)	100.0% (n=4)	1.0000
	Non-Alternative	13.7% (n=13)	86.3% (n=82)	
8	Alternative	0.0% (n=0)	100.0% (n=3)	1.0000
	Non-Alternative	6.3% (n=4)	93.8% (n=60)	
10	Alternative	11.1% (n=1)	88.9% (n=8)	1.0000
	Non-Alternative	13.2% (n=7)	86.8% (n=46)	
12	Alternative	30.8% (n=4)	69.2% (n=9)	0.2370
	Non-Alternative	15.4% (n=8)	84.6% (n=44)	

Fisher exact

Among all eligible schools (census), alternative schools were significantly less likely to participate in HYS for all grades (Table 3b).

Table 3b: Participation by alternative school status for all eligible schools (census).

Grade	School Type	Did Not Participate %, (n)	Participated %, (n)	Difference (p-value)
6	Alternative	38.1% (n=16)	61.9% (n=26)	**0.0130**
	Non-Alternative	21.6% (n=142)	78.4% (n=514)	
8	Alternative	40.0% (n=22)	60.0% (n=33)	**0.0000**
	Non-Alternative	15.7% (n=72)	84.3% (n=387)	
10	Alternative	33.3% (n=42)	66.7% (n=84)	**0.0000**
	Non-Alternative	14.7% (n=52)	85.3% (n=301)	
12	Alternative	35.1% (n=47)	64.9% (n=87)	**0.0000**
	Non-Alternative	15.1% (n=53)	84.9% (n=297)	

3. School Participation Rates by School Demographics

Among schools selected for the state sample, schools with grades 6, 8, 10 or 12 that participated in HYS were similar to non-participating schools on most variables assessed, except participating schools had higher school enrollment per grade than did non-participating schools; that is, they were larger. Participating 8th grade schools also had higher math and reading level indices than non-participating schools.

Among schools not selected for the state sample and among all eligible schools, schools with grades 6, 8, 10 or 12 that participated in HYS had higher grade-level school enrollment and lower percentages of free/reduced lunch than did non-participating schools. Participating schools with grade 6 had higher percentage of minority enrollment than did non-participating schools. Participating schools with grades 6, 8 and 10 had a higher math level index and participating schools with grades 6 and 8 had a higher reading level index than non-participating schools. Participating schools with grades 10 or 12 had higher on-time graduation rates than non-participating schools.

For a breakdown of school types and the grade levels they include, see the charts on page 6, for state sampled schools and for all participating schools (state sample and volunteer non-sampled schools combined).

Grade 6

Among 6th grades drawn for the state sample, school and grade-level characteristics did not vary significantly by participation status, except for enrollment size. Participating schools had a higher grade level enrollment than schools that did not participate (Table 4a).

Table 4a: Mean school and grade-level variables by participation for 6th grade state sample schools.

School/Grade-level Variables	Participated Mean, ±95% CI, (n)	Did Not Participate Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	37.0 ±4.8 (n=85)	35.5 ±15.5 (n=13)	36.8 ±4.6 (n=98)	0.828
% Free/reduced lunch	50.1 ±4.2 (n=85)	57.8 ±9.9 (n=13)	51.1 ±3.9 (n=98)	0.188
Grade-level enrollment	123.5 ±19.9 (n=85)	51.8 ±11.6 (n=13)	114.0 ±18.0 (n=98)	**0.007**
Math level index	2.7 ±0.1 (n=45)	2.8 ±0.1 (n=9)	2.7 ±0.1 (n=54)	0.946
Reading level index	2.9 ±0.1 (n=44)	2.8 ±0.1 (n=10)	2.9 ±0.1 (n=54)	0.619

Among all eligible 6th grades (census), participating schools had a significantly higher percentage of minority enrollment, lower percentage of free/reduced lunch, higher grade-level enrollment, and higher math and reading level indices than schools that did not participate (Table 4b).

Table 4b: Mean school and grade-level variables by participation for all eligible 6th grade schools (census).

School/Grade-level Variables	Participated Mean, ±95% CI, (n)	Did Not Participate Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	40.6 ±2.0 (n=536)	34.1 ±4.7 (n=146)	39.2 ±1.8 (n=682)	**0.005**
% Free/reduced lunch	47.6 ±1.9 (n=539)	53.7 ±4.2 (n=156)	49.0 ±1.8 (n=695)	**0.004**
Grade-level enrollment	130.9 ±8.4 (n=536)	43.6 ±7.6 (n=146)	112.2 ±7.3 (n=682)	**0.000**
Math level index	2.7 ±0.1 (n=266)	2.6 ±0.1 (n=59)	2.7 ±0.0 (n=325)	**0.010**
Reading level index	2.9 ±0.0 (n=264)	2.8 ±0.1 (n=61)	2.9 ±0.0 (n=325)	**0.017**

Grade 8

Among 8th grades drawn for the state sample, participating schools had a significantly higher grade-level enrollment, and higher math and reading level indices than schools that did not participate (Table 5a).

Table 5a: Mean school and grade-level variables by participation for the 8th grade state sample schools.

School/Grade-level Variables	Participated Mean, ±95% CI, (n)	Did Not Participate Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	38.4 ±5.4 (n=63)	34.2 ±23.8 (n=4)	38.2 ±5.3 (n=67)	0.709
% Free/reduced lunch	45.0 ±5.6 (n=63)	54.7 ±15.5 (n=4)	45.6 ±5.4 (n=67)	0.406
Grade-level enrollment	211.4 ±34.0 (n=63)	59.8 ±47.0 (n=4)	202.3 ±33.2 (n=67)	**0.033**
Math level index	2.7 ±0.1 (n=39)	2.1 ±0.5 (n=3)	2.6 ±0.1 (n=42)	**0.047**
Reading level index	3.1 ±0.1 (n=38)	2.7 ±0.3 (n=3)	3.1 ±0.1 (n=41)	**0.022**

Among all eligible 8th grades (census), participating schools had a significantly lower percentage of free/reduced lunch, higher grade-level enrollment, and higher math and reading level indices than schools that did not participate (Table 5b).

Table 5b: Mean school and grade-level variables by participation for all eligible 8th grade schools (census).

School/Grade-level Variables	Participated Mean, ±95% CI, (n)	Did Not Participate Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference (p-value)
% Minority enrollment	39.5 ±2.3 (n=415)	35.8 ±6.7 (n=86)	38.9 ±2.2 (n=501)	0.210
% Free/reduced lunch	48.5 ±2.1 (n=414)	55.2 ±5.2 (n=93)	49.7 ±2.0 (n=507)	**0.011**
Grade-level enrollment	180.0 ±11.4 (n=415)	41.0 ±13.7 (n=86)	156.1 ±10.8 (n=501)	**0.000**
Math level index	2.5 ±0.1 (n=227)	2.2 ±0.2 (n=24)	2.5 ±0.1 (n=251)	**0.001**
Reading level index	3.0 ±0.0 (n=226)	2.7 ±0.2 (n=26)	3.0 ±0.0 (n=252)	**0.000**

Grade 10

Among 10th grades drawn for the state sample, participating schools had a significantly higher grade-level enrollment than schools that did not participate (Table 6a).

Table 6a: Mean school and grade-level variables by participation for 10th grade state sample schools.

School/Grade-level Variables	Participated Mean, ±95% CI, (n)	Did Not Participate Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference (p-value)
% Minority enrollment	39.6 ±6.7 (n=54)	29.6 ±15.5 (n=8)	38.3 ±6.2 (n=62)	0.294
% Free/reduced lunch	45.8 ±5.9 (n=53)	59.2 ±15.3 (n=8)	47.5 ±5.6 (n=61)	0.115
Grade-level enrollment	234.1 ±52.0 (n=54)	78.3 ±93.5 (n=8)	214.0 ±48.5 (n=62)	**0.033**
Reading level index	3.0 ±0.2 (n=45)	2.8 ±0.5 (n=7)	3.0 ±0.2 (n=52)	0.378
On-time Graduation	76.5 ±5.9 (n=52)	87.9 ±15.5 (n=8)	78.0 ±5.6 (n=60)	0.175

Among all eligible 10th grades (census), participating schools had a significantly lower percentage of free/reduced lunch, higher grade-level enrollment, and higher reading level indices than schools that did not participate (Table 6b).

Table 6b: Mean school and grade-level variables by participation for all eligible 10th grade schools (census).

School/Grade-level Variables	Participated Mean, ±95% CI, (n)	Did Not Participate Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference (p-value)
% Minority enrollment	38.4 ±2.5 (n=380)	35.6 ±6.3 (n=89)	37.9 ±2.4 (n=469)	0.345
% Free/reduced lunch	47.2 ±2.1 (n=377)	58.0 ±5.1 (n=92)	49.3 ±2.0 (n=469)	**0.000**
Grade-level enrollment	201.2 ±18.0 (n=380)	37.9 ±16.0 (n=89)	170.2 ±16.0 (n=469)	**0.000**
Reading level index	3.1 ±0.1 (n=288)	2.8 ±0.2 (n=38)	3.0 ±0.1 (n=326)	**0.009**
On-time Graduation	78.4 ±2.1 (n=374)	66.6 ±6.6 (n=90)	76.1 ±2.1 (n=464)	**0.000**

Grade 12

Among 12th grades drawn for the state sample, participating schools had a significantly higher grade-level enrollment than schools that did not participate (Table 7a).

Table 7a: Mean school and grade-level variables by participation for 12th grade state sample schools.

School/Grade-level Variables	Participated Mean, ±95% CI, (n)	Did Not Participate Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference (p-value)
% Minority enrollment	40.0 ±7.5 (n=53)	25.5 ±14.2 (n=11)	37.5 ±6.8 (n=64)	0.113
% Free/reduced lunch	47.2 ±6.0 (n=52)	55.9 ±10.6 (n=11)	48.7 ±5.3 (n=63)	0.222
Grade-level enrollment	230.3 ±49.2 (n=53)	94.1 ±82.2 (n=11)	206.9 ±44.8 (n=64)	**0.023**
On-time Graduation	75.8 ±5.8 (n=53)	78.7 ±15.9 (n=11)	76.3 ±5.5 (n=64)	0.699

Among all eligible 12th grades (census), participating schools had a significantly lower percentage of free/reduced lunch, a higher grade-level enrollment, and a higher on-time graduation rate than schools that did not participate (Table 7b).

Table 7b: Mean school and grade-level variables by participation for all eligible 12th grade schools (census).

School/Grade-level Variables	Participated Mean, ±95% CI, (n)	Did Not Participate Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	37.4 ±2.5 (n=379)	35.5 ±5.9 (n=97)	37.0 ±2.3 (n=476)	0.529
% Free/reduced lunch	47.2 ±2.1 (n=375)	56.6 ±5.0 (n=99)	49.2 ±2.0 (n=474)	**0.000**
Grade-level enrollment	200.3 ±16.7 (n=379)	49.4 ±15.5 (n=97)	169.5 ±14.7 (n=476)	**0.000**
On-time Graduation	78.4 ±2.1 (n=373)	63.8 ±6.7 (n=96)	75.4 ±2.2 (n=469)	**0.000**

4. *School Participation Rates by Community Demographics*

Schools were designated as urban and non-urban based on the school building zip code and the associated rural-urban commuting area codes (RUCA), provided by the Washington State Department of Social and Health Services' Research and Data Analysis Division. This bias analysis looked at four rural-urban classifications:

- Urban
- Sub-urban
- Small Town
- Isolated/Rural

For more information on how these classifications are defined, visit the Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI) Rural Health Research Center: http://depts.washington.edu/uwruca/ruca-maps.php

Among schools drawn for the state sample, 6th grade sub-urban schools were less likely to participate than urban schools. Eighth and 10th grade isolated/rural schools were also less likely to participate than urban schools (Table 8a). If just comparing urban schools to all other schools, 6th and 8th grade non-urban schools were less likely to participate.

Table 8a: Participation by rural/urban designation state sample schools.

Grade	School Type	Did Not Participate %, (n)	Participated %, (n)	Difference (p-value)*
6	Urban	5.2% (n=3)	94.8% (n=55)	-
	Sub-Urban	41.7% (n=5)	58.3% (n=7)	**0.0020**
	Small Town	11.1% (n=1)	88.9% (n=8)	0.4950
	Isolated/Rural	20.0% (n=4)	80.0% (n=16)	0.0620
8	Urban	0.0% (n=0)	100.0% (n=40)	-
	Sub-Urban	15.4% (n=2)	84.6% (n=11)	0.0570
	Small Town	0.0% (n=0)	100.0% (n=5)	1.0000
	Isolated/Rural	22.2% (n=2)	77.8% (n=7)	**0.0310**
10	Urban	5.6% (n=2)	94.4% (n=34)	-
	Sub-Urban	9.1% (n=1)	90.9% (n=10)	0.6780
	Small Town	33.3% (n=1)	66.7% (n=2)	0.1330
	Isolated/Rural	33.3% (n=4)	66.7% (n=8)	**0.0240**
12	Urban	11.4% (n=4)	88.6% (n=31)	-
	Sub-Urban	21.4% (n=3)	78.6% (n=11)	0.3730
	Small Town	40.0% (n=2)	60.0% (n=3)	0.1200
	Isolated/Rural	27.3% (n=3)	72.7% (n=8)	0.2150

Fisher exact

Among all eligible 6th, 8th, 10th and 12th grade schools (census), small town and isolated rural schools were less likely to participate than urban schools. Sixth, 8th and 10th grade sub-urban schools were also less likely to participate than urban schools (Table 8b). If just comparing urban schools to all other schools, 6th, 8th, 10th and 12th grade non-urban schools were less likely to participate.

Table 8b: Participation by rural/urban designation for all eligible schools (census).

Grade	School Type	Did Not Participate %, (n)	Participated %, (n)	Difference (p-value)*
6	Urban	12.3% (n=53)	87.7% (n=378)	-
	Sub-Urban	27.8% (n=32)	72.2% (n=83)	**0.0000**
	Small Town	41.7% (n=20)	58.3% (n=28)	**0.0000**
	Isolated/Rural	49.1% (n=53)	50.9% (n=55)	**0.0000**
8	Urban	6.4% (n=18)	93.6% (n=264)	-
	Sub-Urban	22.8% (n=21)	77.2% (n=71)	**0.0000**
	Small Town	35.9% (n=14)	64.1% (n=25)	**0.0000**
	Isolated/Rural	40.6% (n=41)	59.4% (n=60)	**0.0000**
10	Urban	10.5% (n=26)	89.5% (n=222)	-
	Sub-Urban	19.1% (n=17)	80.9% (n=72)	**0.0390**
	Small Town	31.6% (n=12)	68.4% (n=26)	**0.0010**
	Isolated/Rural	37.5% (n=39)	62.5% (n=65)	**0.0000**
12	Urban	12.4% (n=31)	87.6% (n=220)	-
	Sub-Urban	18.0% (n=16)	82.0% (n=73)	0.1890
	Small Town	33.3% (n=13)	66.7% (n=26)	**0.0010**
	Isolated/Rural	38.1% (n=40)	61.9% (n=65)	**0.0000**

5. *Trying to Determine which School Types Affect Bias*

For the 2010 HYS Bias Analysis, alternative schools were removed and bias was decreased. This bias analysis has shown that schools were less likely to participate in HYS if they were alternative schools, had small grade-level enrollments, or were in rural/isolated locations. Additional tests were conducted in this bias analysis to determine what effect removing these groups that were less likely to participate had on the participation rates and specific school demographics (minority enrollment, free/reduced lunch, math and reading level indices and on-time graduation).

Removing the following groups produced some changes in participation rates and school demographics:
- Schools with 15 or less enrolled in the grade:
  - State sample participation rates and school demographics did not change.
  - All eligible school (census) participation rates increased and minority enrollment for 6th grade schools was no longer significant
- Schools with 50 or less enrolled in the grade:
  - State sample participation rates increased but there were no changes to school demographics
  - All eligible school (census) participation rates increased; and minority enrollment, and math and reading level indices for 6th grade schools; free/reduced lunch and math and level indices for 8th grade schools; reading level index and on-time graduation for 10th grade schools; and on-time graduation for 12th grade schools were no longer significant
- Alternative schools:
  - State sample participation rates increased for 12th grade and on-time graduation rates for 10th and 12th grade schools became significant
  - All eligible school (census) participation rates increased; and reading level index for 6th grade schools, free/reduced lunch for 8th grade schools; reading level index, and on-time graduation for 10th grade schools were no longer significant; minority enrollment for 10th and 12th grade schools became significant
- Schools in isolated/rural locations:
  - State sample participation rates increased
  - All eligible school (census) participation rates increased; and math and reading level indices for 7th grade schools were no longer significant.
- Schools with 50 or less enrolled in the grade, alternative schools and schools in isolated/rural locations:
  - State sample participation rates increased
  - All eligible school (census) participation rates increased; and minority enrollment, free/reduced lunch, math and reading level indices for 6th grade schools, free/reduced lunch, math and reading level indices for 8th grade schools; free/reduced lunch, reading level index, and on-time graduation for 10th grade schools; free/reduced lunch and on-time graduation were no longer significant; minority enrollment for 8th grade schools became significant

Findings

Yes, certain types of schools were more likely to participate.

1. Participation rates were lower for 6th and 8th grade schools not in the state sample.

2. For state sample schools, alternative schools were just as likely to participate as non-alternative schools.

   For all eligible schools (census), 6th, 8th, 10th and 12th grade alternative schools were less likely to participate as non-alternative schools.

3. For state sample schools, 6th, 8th, 10th and 12h grade schools that did not participate had smaller grade-level enrollment. Eighth grade schools that did not participate had lower math and reading level indices.

   For all eligible schools (census), 6th grade schools that did not participate had smaller percent of minority enrollment. Sixth, 8th, 10th and 12h grade schools that did not participate had higher percent of students receiving free/reduced lunch and had smaller grade-level enrollment. Sixth and 8th grade schools that did not participate had lower math level indices. Sixth, 8th and 10th grade schools that did not participate had lower reading level indices. Tenth and 12th grade schools that did not participate had lower on-time graduation rates.

4. For state sample schools, 6th and 8th grade non-urban schools were less likely to participate than urban schools. Sixth grade sub-urban schools were less likely to participate than urban schools. Eighth and 10th grade isolated rural schools were less likely to participate than urban schools.

   For all eligible schools (census), 6th, 8th, 10th and 12th grade non-urban schools were less likely to participate than urban schools. Sixth, 8th, 10th and 12th grade small town and isolated/rural schools were less likely to participate than urban schools. Sixth, 8th and 10th grade sub-urban schools were less likely to participate than urban schools.

   Very little school and community bias was found among state sample schools. More bias was found among all eligible schools (census). Some of this increased bias may be due to the larger number of schools in the census which makes it easier to detect differences.

5. Excluding small schools (50 or less in a grade), alternative schools and schools from isolated/rural locations reduced bias among all eligible schools (census).

5. School-Level Optional Question Bias

Questions

> **Were certain types of schools more likely to ask the optional questions?**
>
> 1. What are the optional question participation rates for the state sample and for all participating schools (census)?
>
> 2. Was asking optional questions different for alternative schools different from non-alternative schools?
>
> 3. Do schools that asked the optional questions have different school demographic characteristics compared to schools that did not ask them?
>
> 4. Do schools that asked the optional questions have different community demographic characteristics compared to schools that did not ask them?

Methods

In order to assess bias related to differences among secondary schools that administered the optional survey questions, we assessed the following school characteristics, available from the Office of Superintendent of Public Instruction at www.k12.wa.us/dataadmin and http://reportcard.ospi.k12.wa.us/DataDownload.aspx:
- School participation rates by sampling status
- School type - Alternative school status
- School Demographics
  - Percent minority enrollment
  - Percent of students receiving free or reduced price lunch
  - School enrollment by grade
  - Math level indices (for schools with grades 6 and 8) and reading level indices (for schools with grades 6, 8 and 10)
  - On-time graduation rate (for schools with grades 10 and 12)
  - School rural or urban designation based on geographic setting codes

We compared the above characteristics for schools that administered the optional questions and those that did not. We conducted separate analyses by grade comparing optional administration schools drawn for the state sample, comparing optional administration schools not drawn for the state sample, and comparing all eligible schools – census schools (state sample plus volunteer non-sampled schools).

For these analyses we used t-test, Fisher's exact and Chi-square to compare schools by participation status. We used Chi-square and Fisher's exact test to compare schools by alternative status. Fisher's exact was used if cell sizes were five or fewer and Chi-square used otherwise. We used t-test to compare schools on percent minority enrollment, percent of students receiving free or reduced price lunch, math and reading level indices, on-time graduation rate, and grade-level school enrollment. Comparisons were considered statistically significant if the p-value was less than 0.05 (that is, a difference of the size found would be expected to occur by chance less than 5 times in 100).

Secondary schools were considered to have administered the optional questions if their students completed responses from the Form A-enhanced survey, the Form B-enhanced survey, or both enhanced survey forms.

Results

1. *Optional Question Participation Rates by Sampling Status*

Among state sample schools, approximately one-third (31%) of participating schools with grade 8 administered the optional questions, while for grades 10 and 12 just over 40% of participating schools administered these questions (Table 9a). The percent of state sample schools was similar to the percent and all eligible schools (census) administering optional questions (Table 9b).

Table 9a: Optional question administration status by grade for participating state sample schools.

Grade	Participated	Optional Questions Administered (n)	Optional Questions Administered (%)
8	61	19	31.1%
10	54	22	40.7%
12	53	23	43.4%

Table 9b: Optional question administration status by grade for all participating eligible schools (census).

Grade	Eligible	Optional Questions Administered (n)	Optional Questions Administered (%)
8	410	126	30.7%
10	385	161	41.8%
12	384	161	41.9%

2. *Optional Questions by School Type– Alternative and Non-Alternative Schools*

Alternative schools in the state sample were just as likely to administer the optional questions (Table 10a). In 2014, very few alternative schools were selected for the state sample, possibly making it difficult to detect a difference.

Table 10a: Optional question administration by alternative school status for participating state sample schools.

Grade	School Type	Did Not Administer Optional Questions %, (n)	Administered Optional Questions %, (n)	Difference *(p-value)**
8	Alternative	33.3% (n=1)	66.7% (n=2)	0.2260
	Non-Alternative	70.7% (n=41)	29.3% (n=17)	
10	Alternative	62.5% (n=5)	37.5% (n=3)	1.0000
	Non-Alternative	58.7% (n=27)	41.3% (n=19)	
12	Alternative	55.6% (n=5)	44.4% (n=4)	1.0000
	Non-Alternative	56.8% (n=25)	43.2% (n=19)	

Fisher exact

Among all participating schools (census), alternative schools were just as likely to administer the optional questions (Table 10b).

Table 10b: Optional question administration by alternative school status for all participating schools (census).

Grade	School Type	Did Not Administer Optional Questions %, (n)	Administered Optional Questions %, (n)	Difference *(p-value)**
8	Alternative	63.6% (n=21)	36.4% (n=12)	0.4650
	Non-Alternative	69.8% (n=263)	30.2% (n=114)	
10	Alternative	58.3% (n=49)	41.7% (n=35)	0.9750
	Non-Alternative	58.1% (n=175)	41.9% (n=126)	
12	Alternative	58.6% (n=51)	41.4% (n=36)	0.9060
	Non-Alternative	57.9% (n=172)	42.1% (n=125)	

3. Optional Questions by School Demographics

Among schools selected for the state sample, schools that administered the optional questions were similar to schools that did not administer them on most variables assessed, except participating 12th grade schools had higher minority enrollment than non-administering schools (Tables 11a, 12a, and 13a).

Among all participating schools (census), schools with grades 8, 10 or 12 that administered the optional questions had higher minority enrollment than non-administering schools (Tables 11c, 12a, and 13a). Grade 8 schools that administered the optional questions also had a higher percentage of students with free and reduced lunch than non-administering schools.

Grade 8

Among 8th grades drawn for the state sample, there were no differences between schools that administered the optional questions and those that did not (Table 11a).

Table 11a: Mean school and grade-level variables by optional question participation for 8th grade state sample schools.

School/Grade-level Variables	Did Not Administer Optional Questions Mean, ±95% CI, (n)	Administered Optional Questions Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	36.8 ±5.5 (n=42)	39.6 ±13.0 (n=19)	37.7 ±5.5 (n=61)	0.639
% Free/reduced lunch	45.3 ±6.3 (n=42)	43.1 ±12.5 (n=19)	44.6 ±5.8 (n=61)	0.732
Grade-level enrollment	208.6 ±39.3 (n=42)	215.7 ±73.6 (n=19)	210.8 ±35.1 (n=61)	0.856
Math level index	2.6 ±0.2 (n=26)	2.8 ±0.2 (n=11)	2.7 ±0.1 (n=37)	0.232
Reading level index	3.1 ±0.1 (n=25)	3.2 ±0.1 (n=11)	3.1 ±0.1 (n=36)	0.217

Among all participating 8th grades (census), schools administering the optional surveys had a significantly higher percentage of minority enrollment and free/reduced lunch than schools that did not (Table 11b).

Table 11b: Mean school and grade-level variables by optional question participation for all participating 8th grade schools (census).

School/Grade-level Variables	Did Not Administer Optional Questions Mean, ±95% CI, (n)	Administered Optional Questions Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	36.1 ±2.5 (n=282)	45.3 ±4.6 (n=123)	38.9 ±2.3 (n=405)	**0.000**
% Free/reduced lunch	46.7 ±2.5 (n=281)	51.7 ±4.3 (n=123)	48.2 ±2.2 (n=404)	**0.040**
Grade-level enrollment	187.3 ±13.6 (n=282)	165.4 ±22.1 (n=123)	180.6 ±11.6 (n=405)	0.089
Math level index	2.5 ±0.1 (n=145)	2.5 ±0.1 (n=72)	2.5 ±0.1 (n=217)	0.753
Reading level index	3.0 ±0.1 (n=144)	3.0 ±0.1 (n=72)	3.0 ±0.0 (n=216)	0.649

Grade 10

Among 10th grades drawn for the state sample, there were no differences between schools that administered the optional questions and those that did not (Table 12a).

Table 12a: Mean school and grade-level variables by optional question participation for 10th grade state sample schools.

School/Grade-level Variables	Did Not Administer Optional Questions Mean, ±95% CI, (n)	Administered Optional Questions Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	35.7 ±7.7 (n=32)	45.2 ±12.1 (n=22)	39.6 ±6.7 (n=54)	0.176
% Free/reduced lunch	43.4 ±8.2 (n=31)	49.1 ±8.5 (n=22)	45.8 ±5.9 (n=53)	0.362
Grade-level enrollment	243.4 ±71.7 (n=32)	220.7 ±75.2 (n=22)	234.1 ±52.0 (n=54)	0.679
Reading level index	3.1 ±0.3 (n=23)	3.0 ±0.2 (n=22)	3.0 ±0.2 (n=45)	0.507
On-time Graduation	77.6 ±8.7 (n=30)	75.0 ±7.8 (n=22)	76.5 ±5.9 (n=52)	0.683

Among all participating 10th grades (census), schools administering the optional surveys had a significantly higher percentage of minority enrollment than schools that did not (Table 12b).

Table 12b: Mean school and grade-level variables by optional question participation for all participating 10th grade schools (census).

School/Grade-level Variables	Did Not Administer Optional Questions Mean, ±95% CI, (n)	Administered Optional Questions Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	35.3 ±2.9 (n=221)	42.8 ±4.3 (n=159)	38.4 ±2.5 (n=380)	**0.004**
% Free/reduced lunch	45.6 ±2.6 (n=220)	49.5 ±3.5 (n=157)	47.2 ±2.1 (n=377)	0.072
Grade-level enrollment	213.7 ±24.2 (n=221)	183.8 ±26.9 (n=159)	201.2 ±18.0 (n=380)	0.109
Reading level index	3.1 ±0.1 (n=169)	3.0 ±0.1 (n=119)	3.1 ±0.1 (n=288)	0.360
On-time Graduation	79.5 ±2.6 (n=217)	76.9 ±3.3 (n=157)	78.4 ±2.1 (n=374)	0.218

Grade 12

Among 12th grades drawn for the state sample, schools administering the optional surveys had a significantly higher percentage of minority enrollment than schools that did not (Table 13a).

Table 13a: Mean school and grade-level variables by optional question participation for 12th grade state sample schools.

School/Grade-level Variables	Did Not Administer Optional Questions Mean, ±95% CI, (n)	Administered Optional Questions Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	32.9 ±8.3 (n=30)	49.3 ±12.6 (n=23)	40.0 ±7.5 (n=53)	**0.031**
% Free/reduced lunch	44.7 ±8.3 (n=29)	50.3 ±8.5 (n=23)	47.2 ±6.0 (n=52)	0.362
Grade-level enrollment	240.4 ±71.8 (n=30)	217.0 ±65.5 (n=23)	230.3 ±49.2 (n=53)	0.648
On-time Graduation	76.6 ±8.7 (n=30)	74.7 ±7.5 (n=23)	75.8 ±5.8 (n=53)	0.761

Among all participating 12th grades (census), schools administering the optional surveys had a significantly higher percentage of minority enrollment than schools that did not (Table 13b).

Table 13b: Mean school and grade-level variables by optional question participation for all participating 12th grade schools (census).

School/Grade-level Variables	Did Not Administer Optional Questions Mean, ±95% CI, (n)	Administered Optional Questions Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference (p-value)
% Minority enrollment	34.2 ±2.9 (n=220)	41.8 ±4.3 (n=159)	37.4 ±2.5 (n=379)	**0.003**
% Free/reduced lunch	45.5 ±2.6 (n=217)	49.6 ±3.5 (n=158)	47.2 ±2.1 (n=375)	0.065
Grade-level enrollment	210.2 ±22.4 (n=220)	186.6 ±24.8 (n=159)	200.3 ±16.7 (n=379)	0.172
On-time Graduation	79.5 ±2.6 (n=215)	76.7 ±3.3 (n=158)	78.4 ±2.1 (n=373)	0.191

4. Optional Questions by Community Demographics

Among schools drawn for the state sample, there were no differences in administering the optional questions by urban and non-urban locations (Table 14a).

Table 14a: Optional question participation by rural/urban designation for participating schools in the state sample.

Grade	School Type	Did Not Administer Optional Questions %, (n)	Administered Optional Questions %, (n)	Difference (p-value)*
8	Urban	71.1% (n=27)	28.9% (n=11)	-
	Sub-Urban	63.6% (n=7)	36.4% (n=4)	0.6390
	Small Town	80.0% (n=4)	20.0% (n=1)	0.6770
	Isolated/Rural	57.1% (n=4)	42.9% (n=3)	0.4690
10	Urban	55.9% (n=19)	44.1% (n=15)	-
	Sub-Urban	70.0% (n=7)	30.0% (n=3)	0.4290
	Small Town	50.0% (n=1)	50.0% (n=1)	0.8710
	Isolated/Rural	62.5% (n=5)	37.5% (n=3)	0.7340
12	Urban	51.6% (n=16)	48.4% (n=15)	-
	Sub-Urban	72.7% (n=8)	27.3% (n=3)	0.2630
	Small Town	33.3% (n=1)	66.7% (n=2)	0.5210
	Isolated/Rural	62.5% (n=5)	37.5% (n=3)	0.6350

Fisher exact

Among all participating 8th, 10th and 12th grade schools (census), isolated/rural schools were more likely to ask the optional questions than urban schools (Table 8c).

Table 14b: Optional question participation by rural/urban designation for all participating schools (census).

Grade	School Type	Did Not Administer Optional Questions %, (n)	Administered Optional Questions %, (n)	Difference (p-value)*
8	Urban	71.8% (n=183)	28.2% (n=72)	-
	Sub-Urban	74.6% (n=53)	25.4% (n=18)	0.4820
	Small Town	64.0% (n=16)	36.0% (n=9)	0.3260
	Isolated/Rural	54.2% (n=32)	45.8% (n=27)	**0.0010**
10	Urban	59.9% (n=133)	40.1% (n=89)	-
	Sub-Urban	66.7% (n=48)	33.3% (n=24)	0.3270
	Small Town	53.8% (n=14)	46.2% (n=12)	0.2650
	Isolated/Rural	44.6% (n=29)	55.4% (n=36)	**0.0020**
12	Urban	59.5% (n=131)	40.5% (n=89)	-
	Sub-Urban	67.1% (n=49)	32.9% (n=24)	0.3270
	Small Town	53.8% (n=14)	46.2% (n=12)	0.2650
	Isolated/Rural	44.6% (n=29)	55.4% (n=36)	**0.0020**

Findings

Yes, certain types of schools were more likely to ask the optional questions.

1. The percent of schools asking optional questions was similar for state sampled schools of all eligible schools (census).

2. The percent of schools asking optional questions was similar for alternative schools and non-alternative schools.

3. For state sample schools, 12th grade schools with a greater percentage of minority enrollment were more likely to ask the optional questions.

   All eligible schools (census), 8th, 10th and 12th grade schools with a greater percentage of minority enrollment were more likely to ask the optional questions. Eighth grade schools with a higher percentage of students receiving free/reduced lunch were more likely to ask the optional questions.

4. For state sample schools, asking optional questions was similar for schools from different urban/rural classifications.

   For all eligible schools (census), 8th, 10th and 12th grade isolated/rural schools were more likely to ask the optional questions than urban schools.

   Very little school and community bias was found among state sample schools. More bias was found among all eligible schools (census). Some of this increased bias may be due to the larger number of schools in the census which makes it easier to detect differences.

Questions

> **Are results for questions at the end of the survey biased due to non-completion?**
>
> *For the state sample:*
>
> 1. What percent of respondents completed the survey?
>
> 2. Are respondents who did not complete the survey different from those who completed the survey?
>
> 3. Are all respondents different from those that completed the survey?
>
> *For all participating schools (census):*
>
> 4. What percent of respondents completed the survey?
>
> 5. Are respondents who did not complete the survey different from those who completed the survey?
>
> 6. Are all respondents different from those that completed the survey?

Methods

For our first set of analyses, survey completion was categorized as:
- "Completers" – answered all of the last 30 questions, or all of the last 20 questions for respondents in grade 6.
- "Non-completers" – did not answer 3 or more of the last questions.

The last 30 questions were selected because a student might try to finish by skipping items; we reasoned that missing 3 or more items would be more likely to reflect non-completion than missing 1 or 2 items, which might be skipped for other reasons such as unwillingness to report.

We developed risk ratios to assess differences between categories of participants – comparing survey completers to non-completers. A risk ratio compares rates among groups. For example, if 15% of survey completers and 30% of survey non-completers reported getting low grades, we would report a risk ratio of 0.5, meaning that completers were half as likely as non-completers to have low grades. For every risk ratio, we also provide a "95% confidence interval," which gives the range that should contain the true population value 95% of the time. The confidence interval is not a measure of how "confident" we are in the estimate; instead, it describes the range of values that we might reasonably expect to include the actual risk ratio among all Washington State students. If the confidence interval includes 1, the two groups are not statistically significantly different.

We compared respondents based on questions assessing personal characteristics found early in the survey according to their completion status by grade. Systematic differences in responses to these questions increase the likelihood of bias for questions toward the end of the survey. The characteristics for student-level comparisons include student reports of:
- School factors
  - Low grades (mostly Cs, Ds or Fs at school)
  - Feeling unsafe at school (answers of "definitely no" or "mostly no" to a question about feeling safe at school)

- Indicators of low socioeconomic status
  - Mother not completing high school
  - Father not completing high school
  - Food insecurity (family cutting meal size or skipping meals in past 12 months due of lack of money)
  - No recent dental visit (not visiting dentist for a check-up in past two years)
- Behavioral factors
  - Cigarette smoking (any cigarette smoking in the past 30 days)
  - Marijuana smoking (having ever smoked marijuana)
  - Binge drinking (drinking 5 or more drinks on any one occasion in the past two weeks)
  - Drinking alcohol (drinking any alcohol in the past 30 days)
- Race and ethnicity
  - Race and Hispanic ethnicity
  - Non-English language spoken at home

An analysis of individual survey question non-completion found that rates for 8th and 10th graders fell below the HYSPC target of 15% non-completion (see Appendix A: Non-completion by Form Type and Grade). The low completion rates for grades 8 and 10 increase concerns about biased estimates for questions near the end of the survey.

We conducted a second set of analyses to determine the potential magnitude of this bias. We took a close look at how much we might expect non-completion to influence grade-level surveys results. We compared the prevalence of responses from the full state sample to the prevalence of a subset that included only survey completers:
- "Completers" – answered all of the last 30 questions.
- "Full state sample" – all respondents in the state sample.

By excluding non-completers from the subset, we simulate the extent of bias that would occur if these questions were found at the end of the survey. We compared respondents from these two groups using the same personal characteristics listed above.

These same analyses were completed for all participating schools (census).

Figure 5 shows the state sample non-completion rates for each survey question on Form B by grade. Non-completion increases over the length of the survey. The jump in non-completion around question 38/39 is due to the questions on height and weight, which some students choose not to answer. Non-completion rates charts for all of the survey forms are available in Appendix A.

Figure 5: Question non-completion over the course of Form B by grade for the state sample
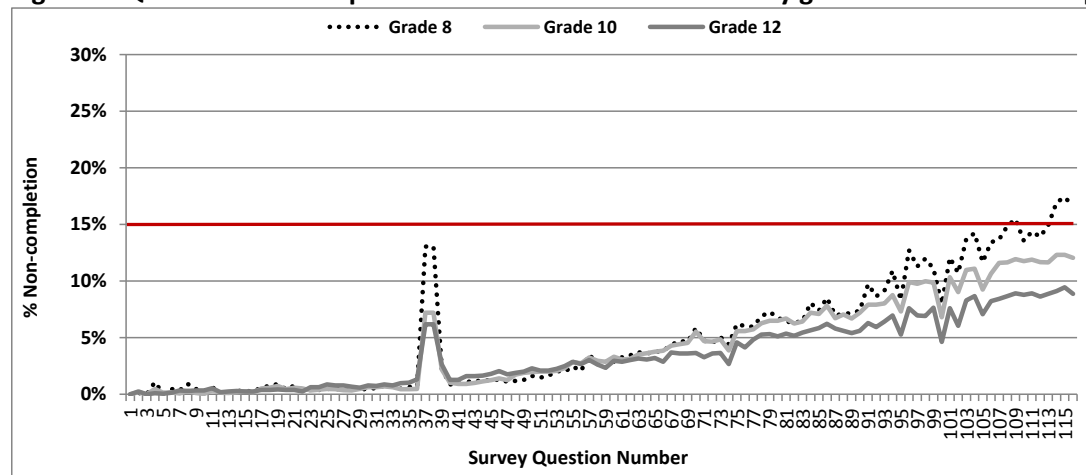
Results

1. Number of Completers and Non-completers in the State Sample

Table 15 shows the percent of respondents with survey completion and non-completion in each grade. Grade 8 has the highest percentage of survey non-completion (22%).

Table 15: Survey completion by grade for state sample schools, all forms

Grade	n	Survey Completion: Answered All Last Questions* (%)	Survey Non-completion: Missing more than 3 questions* (%)
6	9,129	77.7%	15.1%
8	10,673	73.3%	21.6%
10	8,821	80.2%	16.0%
12	6,639	83.5%	13.0%

Number of respondents missing 3 or more questions among last 20 for grade 6, number of respondents missing 3 or more questions among last 30 for grades 8, 10 and 12.

7.2% of 6th graders, 5.2% of 8th graders, 4% of 10th graders and 4% of 12 graders did not answer 1 or 2 of the last questions. They are not included in these analyses, so the percentages of completion and non-completion do not sum to 100%.

For more information about survey non-completion for each individual survey question by grade level and form type, see Appendix A: Non-completion by Form Type and Grade.

2. Completers Compared to Non-completers in the State Sample

Table 16 gives risk ratios for characteristics listed above for respondents in the state sample who completed the survey to those who did not (didn't answer at least 3 of the last 30 questions or of the last 20 questions for respondents in grade 6). Of the 64 comparison tests conducted, 42 showed statistically significant differences. Given that some associations are expected to be statistically significant just by chance, these results indicate that respondents who completed the survey are different from respondents who did not complete the survey for the characteristics assessed.

Survey completers in the state sample were less likely than non-completers to report:
- Lower grades in school (all grades) and feeling unsafe in school (grades 6 and 10)
- Variables indicating low economic status (mother/father didn't graduate high school, food insecurity, and no dental visits in past year (grades 8, 10 and 12 for all measures; except not for 12th grade food insecurity)
- Substance use (cigarettes, marijuana and alcohol use for grade 6, marijuana for grade 10)
- Non-English spoken at home (all grades)
- Being Hispanic (all grades), Black/African American (all grades) or American Indian/Alaska Native (grades 8 and 10),

Survey completers in the state sample were more likely than non-completers to report:
- Being white (all grades) or Asian (grades 8, 10 and 12)

Table 16: Survey completion and student characteristics for state sample schools, risk ratio (95% confidence interval)

	Completers Compared to Non-completers by Grade			
	6	**8**	**10**	**12**
Variable	**RR (95% CI)***	**RR (95% CI)***	**RR (95% CI)***	**RR (95% CI)***
School factors				
Lower grades	**0.5 (0.5-0.6)**	**0.5 (0.4-0.5)**	**0.5 (0.4-0.6)**	**0.7 (0.6-0.8)**
Feeling unsafe at school	**0.6 (0.5-0.8)**	0.9 (0.8-1.0)	**0.7 (0.6-0.8)**	0.9 (0.7-1.1)
Indicators of low socioeconomic status				
Mother didn't graduate high school	na	**0.8 (0.6-0.9)**	**0.5 (0.4-0.6)**	**0.7 (0.5-0.9)**
Father didn't graduate high school	na	**0.7 (0.6-0.9)**	**0.6 (0.5-0.7)**	**0.7 (0.5-0.8)**
Food insecurity	na	**0.5 (0.4-0.5)**	**0.6 (0.5-0.8)**	0.8 (0.6-1.0)
No dental visit in last year	na	**0.6 (0.5-0.7)**	**0.6 (0.5-0.8)**	**0.7 (0.5-1.0)**
Substance use factors				
Current cigarette smoking	**0.4 (0.2-0.6)**	1.1 (0.8-1.4)	0.8 (0.7-1.0)	0.8 (0.7-1.0)
Current marijuana use	**0.4 (0.2-0.6)**	0.9 (0.7-1.0)	**0.7 (0.6-0.9)**	0.9 (0.8-1.1)
Binge drinking	0.9 (0.6-1.5)	0.9 (0.7-1.1)	0.9 (0.7-1.0)	0.9 (0.7-1.1)
Current alcohol drinking	**0.6 (0.4-0.9)**	0.9 (0.8-1.1)	0.9 (0.8-1.0)	1.0 (0.8-1.1)
Race/ethnicity** and language				
Non-English spoken at home	**0.6 (0.5-0.7)**	**0.8 (0.7-0.9)**	**0.7 (0.6-0.8)**	**0.7 (0.5-0.8)**
White	**1.7 (1.5-1.9)**	**1.6 (1.4-1.7)**	**1.6 (1.4-1.8)**	**1.6 (1.4-1.8)**
Hispanic	**0.8 (0.7-0.9)**	**0.6 (0.5-0.7)**	**0.5 (0.4-0.6)**	**0.6 (0.5-0.7)**
American Indian/Alaska Native	0.9 (0.7-1.2)	**0.7 (0.6-0.9)**	**0.6 (0.4-0.8)**	0.7 (0.4-1.1)
Asian	0.9 (0.7-1.1)	**1.6 (1.4-2.0)**	**1.9 (1.5-2.4)**	**1.4 (1.0-1.8)**
Black/African American	**0.5 (0.4-0.7)**	**0.6 (0.5-0.7)**	**0.7 (0.5-0.9)**	**0.7 (0.5-0.9)**
Pacific Islander	0.9 (0.6-1.4)	1.4 (0.9-2.0)	1.1 (0.7-1.7)	1.0 (0.6-1.7)

* RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the p <0.05 level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.

To see the specific percentages of the characteristics reported above by completion status and grade, see Appendix B: Student Characteristics by Completion.

3. State Sample Completers Compared to All State Sample Respondents

Table 17 shows the differences in prevalence between state sample survey completers and the prevalence of those all state sample respondents for the same student characteristic questions assessed above.

Of the 64 comparison tests conducted, 17 showed statistically significant differences. Given that some associations are expected to be statistically significant just by chance, these results indicate that respondents who completed the survey are different from respondents from the full state sample for some of the characteristics assessed.

Survey completers in the state sample were less likely than respondents in the full state sample to report:
- Lower grades in school (grades 6, 8 and 10)
- Socio-economic variables: mother didn't graduate high school (grade 10), food insecurity (grade 8), and no dental visit in past year (grade 8)
- Non-English spoken at home (grade 6)

- Being Hispanic (grades 8, 10 and 12) and Black/African American (grades 6 and 8)

Survey completers in the state sample were more likely than respondents in the full state sample to report:
- Being white (all grades) and Asian (grade 8)

Table 17: Simulating non-completion bias with student characteristics among state sample schools, risk ratio (95% confidence interval) by grade.

| Variable | Completers Compared to All State Sample Respondents by Grade | | | |
	6 RR (95% CI)*	8 RR (95% CI)*	10 RR (95% CI)*	12 RR (95% CI)*
School factors				
Lower grades	**0.9 (0.8-1.0)**	**0.8 (0.8-0.9)**	**0.9 (0.8-1.0)**	1.0 (0.9-1.0)
Feeling unsafe at school	0.9 (0.8-1.0)	1.0 (0.9-1.0)	0.9 (0.8-1.0)	1.0 (0.9-1.1)
Indicators of low socioeconomic status				
Mother didn't graduate high school	na	0.9 (0.9-1.0)	**0.9 (0.8-1.0)**	0.9 (0.8-1.1)
Father didn't graduate high school	na	0.9 (0.8-1.0)	0.9 (0.8-1.0)	1.0 (0.9-1.1)
Food insecurity	na	**0.8 (0.7-0.9)**	0.9 (0.9-1.0)	1.0 (0.9-1.1)
No dental visit in last year	na	**0.9 (0.8-1.0)**	0.9 (0.8-1.0)	1.0 (0.9-1.1)
Substance use factors				
Current cigarette smoking	0.8 (0.6-1.2)	1.0 (0.9-1.2)	0.9 (0.8-1.1)	1.0 (0.9-1.1)
Current marijuana use	0.8 (0.6-1.1)	1.0 (0.9-1.1)	1.0 (0.9-1.0)	1.0 (0.9-1.1)
Binge drinking	1.0 (0.8-1.2)	1.0 (0.8-1.1)	1.0 (0.9-1.1)	1.0 (0.9-1.1)
Current alcohol drinking	1.0 (0.8-1.2)	1.0 (0.9-1.1)	1.0 (0.9-1.1)	1.0 (0.9-1.1)
Race/ethnicity and language**				
Non-English spoken at home	**0.9 (0.8-1.0)**	0.9 (0.9-1.0)	0.9 (0.9-1.0)	0.9 (0.8-1.0)
White	**1.1 (1.0-1.2)**	**1.1 (1.0-1.2)**	**1.1 (1.0-1.2)**	**1.1 (1.0-1.2)**
Hispanic	1.0 (0.9-1.1)	**0.9 (0.8-0.9)**	**0.9 (0.8-0.9)**	**0.9 (0.8-1.0)**
American Indian/Alaska Native	1.0 (0.9-1.1)	0.9 (0.8-1.1)	0.9 (0.7-1.1)	0.9 (0.7-1.2)
Asian	1.0 (0.9-1.1)	**1.1 (1.0-1.2)**	1.1 (1.0-1.2)	1.0 (0.9-1.2)
Black/African American	**0.8 (0.7-1.0)**	**0.9 (0.7-1.0)**	0.9 (0.8-1.1)	0.9 (0.8-1.1)
Pacific Islander	0.9 (0.7-1.2)	1.0 (0.8-1.3)	1.0 (0.8-1.3)	1.0 (0.8-1.3)

RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the p <0.05 level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.*

4. Number of Completers and Non-completers in All Participating Schools (Census)

Table 18 shows the percent of respondents with survey completion and non-completion in each grade. Grade 8 has the highest percentage of survey non-completion (24%).

Table 18: Survey completion by grade for all participating schools (census), all forms

Grade	n	Survey Completion: Answered All Last Questions* (%)	Survey Non-completion: Missing more than 3 questions* (%)
6	59,379	75.3%	17.8%
8	59,617	71.3%	23.5%
10	54,117	80.8%	15.1%
12	40,118	85.0%	11.3%

Number of respondents missing 3 or more questions among last 20 for grade 6, number of respondents missing 3 or more questions among last 30 for grades 8, 10 and 12.
6.8% of 6th graders, 5.2% of 8th graders, 4.0% of 10th graders and 3.7% of 12 graders did not answer 1 or 2 of the last questions. They are not included in these analyses, so the percentages of completion and non-completion do not sum to 100%.

For more information about survey non-completion for each individual survey question by grade level and form type, see Appendix A: Non-completion by Form Type and Grade.

5. Completers Compared to Non-completers in All Participating Schools (Census)

Table 19 gives risk ratios for characteristics listed above for respondents in all participating schools (census) who completed the survey to those who did not (didn't answer at least 3 of the last 30 questions or of the last 20 questions for respondents in grade 6). Of the 64 comparison tests conducted, 60 showed statistically significant differences. These results indicate that respondents who completed the survey are different from respondents who did not complete the survey for the characteristics assessed.

Survey completers in all schools were less likely than non-completers to report:
- Lower grades in school (all grades) and feeling unsafe in school (all grades)
- Variables indicating low economic status: mother/father didn't graduate high school (all grades), food insecurity (all grades), and no dental visits in past year (all grades)
- Substance use (all grades, except for current drinking among 8th graders)
- Non-English spoken at home (all grades)
- Being Hispanic (all grades), American Indian/Alaska Native (all grades), and Black/African American (all grades), and Pacific Islander (grade 10)

Survey completers in all schools more likely than non-completers to report:
- Being white (all grades) and Asian (all grades)

Table 19: Survey completion and student characteristics for all participating schools (census), risk ratio (95% confidence interval)

Variable	Completers Compared to Non-completers by Grade			
	6 RR (95% CI)*	8 RR (95% CI)*	10 RR (95% CI)*	12 RR (95% CI)*
School factors				
Low grades	**0.5 (0.5-0.6)**	**0.5 (0.5-0.6)**	**0.5 (0.5-0.5)**	**0.6 (0.6-0.7)**
Feeling unsafe at school	**0.7 (0.7-0.8)**	**0.9 (0.8-0.9)**	**0.7 (0.7-0.7)**	**0.7 (0.7-0.8)**
Indicators of low socioeconomic status				
Mother didn't graduate high school	na	**0.7 (0.7-0.8)**	**0.6 (0.6-0.7)**	**0.7 (0.6-0.7)**
Father didn't graduate high school	na	**0.7 (0.7-0.8)**	**0.6 (0.6-0.7)**	**0.7 (0.6-0.8)**
Food insecurity	na	**0.5 (0.5-0.6)**	**0.6 (0.5-0.6)**	**0.6 (0.6-0.7)**
No dental visit in last year	na	**0.6 (0.5-0.6)**	**0.6 (0.6-0.7)**	**0.6 (0.6-0.7)**
Substance use factors				
Current cigarette smoking	**0.5 (0.4-0.6)**	**0.8 (0.7-0.9)**	**0.7 (0.7-0.8)**	**0.8 (0.7-0.9)**
Current marijuana use	**0.6 (0.5-0.8)**	**0.9 (0.8-0.9)**	**0.8 (0.7-0.8)**	**0.8 (0.8-0.9)**
Binge drinking	**0.7 (0.6-0.8)**	**0.9 (0.8-1.0)**	**0.8 (0.8-0.9)**	**0.8 (0.8-0.9)**
Current alcohol drinking	**0.7 (0.6-0.9)**	1.0 (0.9-1.0)	**0.9 (0.8-0.9)**	**0.9 (0.9-1.0)**
Race/ethnicity and language				
Non-English spoken at home	**0.6 (0.6-0.7)**	**0.7 (0.7-0.8)**	**0.6 (0.6-0.6)**	**0.7 (0.6-0.7)**
White	**1.6 (1.6-1.7)**	**1.5 (1.5-1.6)**	**1.7 (1.6-1.8)**	**1.6 (1.5-1.7)**
Hispanic	**0.7 (0.6-0.7)**	**0.7 (0.7-0.7)**	**0.6 (0.5-0.6)**	**0.6 (0.6-0.7)**
American Indian/Alaska Native	**0.8 (0.7-0.9)**	**0.7 (0.6-0.8)**	**0.8 (0.7-0.9)**	**0.8 (0.6-0.9)**
Asian	**1.3 (1.2-1.4)**	**1.6 (1.5-1.7)**	**1.4 (1.3-1.6)**	**1.3 (1.1-1.5)**
Black/African American	**0.7 (0.6-0.7)**	**0.6 (0.6-0.7)**	**0.5 (0.5-0.6)**	**0.5 (0.5-0.6)**
Pacific Islander	1.0 (0.8-1.2)	0.9 (0.8-1.1)	**0.8 (0.7-1.0)**	0.9 (0.7-1.1)

* RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the p <0.05 level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.

6. All Completers Compared to All Respondents

Table 20 shows the differences in prevalence between all survey completers and the prevalence of all survey respondents for the same student characteristic questions assessed above.

Of the 64 comparison tests conducted, 49 showed statistically significant differences. Given that some associations are expected to be statistically significant just by chance, these results indicate that respondents who completed the survey are different from respondents from the full state sample for some of the characteristics assessed.

Survey completers in all schools were less likely than all survey respondents (census) to report:
- Lower grades in school (all grades) and feeling unsafe in school (all grades)
- Variables indicating low economic status (mother/father didn't graduate high school (all grades), food insecurity (all grades), and no dental visits in past year (all grades)
- Substance use: cigarettes (grades 6, 8 and 10), marijuana use (grades 10 and 12) and binge drinking (grade 10)
- Non-English spoken at home (all grades)
- Being Hispanic (all grades), American Indian/Alaska Native (all grades) and Black/African American (all grades)

Survey completers in all schools were more likely than all survey respondents (census) to report:
- Being white (all grades) and Asian (grades 6, 8 and 10)

Table 20: Simulating non-completion bias with student characteristics among all participating schools (census), risk ratio (95% confidence interval)

	All Completers Compared to All Respondents by Grade			
	6	8	10	12
Variable	RR (95% CI)*	RR (95% CI)*	RR (95% CI)*	RR (95% CI)*
School factors				
Lower grades	**0.9 (0.8-0.9)**	**0.9 (0.8-0.9)**	**0.9 (0.9-0.9)**	**0.9 (0.9-1.0)**
Feeling unsafe at school	**0.9 (0.9-1.0)**	1.0 (0.9-1.0)	**0.9 (0.9-1.0)**	**0.9 (0.9-1.0)**
Indicators of low socioeconomic status				
Mother didn't graduate high school	na	**0.9 (0.9-1.0)**	**0.9 (0.9-1.0)**	**1.0 (0.9-1.0)**
Father didn't graduate high school	na	**0.9 (0.9-1.0)**	**0.9 (0.9-1.0)**	**1.0 (0.9-1.0)**
Food insecurity	na	**0.9 (0.8-0.9)**	**0.9 (0.9-0.9)**	**0.9 (0.9-1.0)**
No dental visit in last year	na	**0.9 (0.8-0.9)**	**0.9 (0.9-1.0)**	**1.0 (0.9-1.0)**
Substance use factors				
Current cigarette smoking	**0.9 (0.7-1.0)**	**0.9 (0.9-1.0)**	**0.9 (0.9-1.0)**	1.0 (0.9-1.0)
Current marijuana use	0.9 (0.8-1.0)	**0.9 (0.9-1.0)**	**1.0 (0.9-1.0)**	1.0 (0.9-1.0)
Binge drinking	0.9 (0.9-1.0)	1.0 (0.9-1.0)	**1.0 (0.9-1.0)**	1.0 (0.9-1.0)
Current alcohol drinking	1.0 (0.9-1.1)	1.0 (0.9-1.0)	1.0 (0.9-1.0)	1.0 (1.0-1.0)
Race/ethnicity and language				
Non-English spoken at home	**0.9 (0.9-0.9)**	**0.9 (0.9-1.0)**	**0.9 (0.9-0.9)**	**0.9 (0.9-1.0)**
White	**1.1 (1.1-1.1)**	**1.1 (1.1-1.1)**	**1.1 (1.1-1.1)**	**1.1 (1.0-1.1)**
Hispanic	**0.9 (0.9-1.0)**	**0.9 (0.9-0.9)**	**0.9 (0.9-0.9)**	**0.9 (0.9-1.0)**
American Indian/Alaska Native	**0.9 (0.9-1.0)**	**0.9 (0.8-1.0)**	**0.9 (0.9-1.0)**	**1.0 (0.9-1.1)**
Asian	**1.0 (1.0-1.1)**	**1.1 (1.1-1.1)**	**1.1 (1.0-1.1)**	1.0 (1.0-1.1)
Black/African American	**0.9 (0.9-1.0)**	**0.9 (0.8-0.9)**	**0.9 (0.8-0.9)**	**0.9 (0.8-1.0)**
Pacific Islander	1.0 (0.9-1.1)	1.0 (0.9-1.1)	1.0 (0.9-1.1)	1.0 (0.9-1.1)

* RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the p <0.05 level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.

Findings

Yes, results for questions at the end of the survey were biased due to non-completion.

For the state sample respondents:

1. Non-completion rates ranged from 13% to 22% (highest among 8th graders).

2. Respondents who completed the survey were less likely to report:
    *   Getting lower grades (all grades) and not feeling safe at school (grades 6 and 10)
    *   Mother or father not graduating high school (all grades), cutting meals due to finances (grades 8 and 10), and not seeing a dentist (all grades)
    *   Current cigarette smoking (grade 6), current marijuana use (grades 6 and 10), and current alcohol drinking (grade 6)
    *   Living in non-English speaking homes (all grades)
    *   Being Hispanic (all grades), American Indian/Alaska Native (grades 8 and 10), and Black/African Americans (all grades)

    Respondents who completed the survey were more likely to report:
    *   Being white, (all grades) and Asian (grades 8, 10 and 12)

3. Results near the end of the survey may not adequately represent the following students, including those respondents:
    *   Getting lower grades (grades 6, 8 and 10)
    *   Mother not graduating high school (grade 10), cutting meals due to finances (grade 8), and not seeing a dentist (grade 8)
    *   Living in non-English speaking homes (grade 6)
    *   Being Hispanic (grades 8, 10 and 12) and Black/African Americans (grades 6 and 8)

For all eligible respondents (census):

4. Non-completion rates ranged from 11% to 24% (highest among 8th graders).

5. Respondents who completed the survey were less likely to report:
    *   Getting low grades (all grades) and not feeling safe at school (all grades)
    *   Mother or father not graduating high school (all grades), cutting meals due to finances (all grades), and not seeing a dentist (all grades)
    *   Current cigarette smoking (all grades), current marijuana use (all grades), binge drinking (all grades), and current alcohol drinking (grades 6, 10 and 12)
    *   Living in non-English speaking homes (all grades)
    *   Being Hispanic (all grades), American Indian/Alaska Native (all grades), Black/African Americans (all grades), and Pacific Islander (grade 10)

    Respondents who did complete the survey were more likely to report:
    *   Being white (all grades) and Asian (all grades)

6. Results near the end of the survey may not adequately represent the following students, including those respondents:
    *   Getting lower grades (all grades) and not feeling safe at school (all grades)
    *   Mother or father not graduating high school (all grades), cutting meals due to finances (all grades), and not seeing a dentist (all grades)
    *   Current cigarette smoking (grades 6, 8 and 10), current marijuana use (grades 8 and 10), binge drinking (grade 10)
    *   Living in non-English speaking homes (all grades)
    *   Being Hispanic (all grades), American Indian/Alaska Native (all grades), and Black/African Americans (all grades)

There were some differences, but overall, respondents who did not complete the survey from the state sampled schools were similar to respondents who did not complete the survey from all eligible schools (census).

7. Student-Level Optional Question Bias

Questions

> **Are results for the optional questions biased because not all schools took them?**
>
> *For the state sample:*
>
> 1. What percent of respondents completed the optional questions?
> 2. Are respondents who took the optional questions different from those who did not take them?
> 3. Are all respondents different from those that took the optional questions in the survey?
>
> *For all participating schools (census):*
>
> 4. What percent of respondents completed the optional questions?
> 5. Are respondents who took the optional questions different from those who did not take them?
>
> 6. Are all respondents different from those that took the optional questions?

Methods

"Optional question takers" are categorized as such if they answered the sexual orientation question on Form A-enhanced or if they answered at least one of the two sexual abuse or four sexual behavior questions on Form B-enhanced. Respondents not answering the optional questions might have chosen to skip them, or might not have gotten to the questions in the allotted time. "Non-optional question takers" are respondents who took Form A or Form B that do not include the questions.

We compared respondents based on questions assessing personal characteristics found early in the main body of the survey. The characteristics for student-level comparisons include student reports of:

- School factors
  - Low grades (mostly Cs, Ds or Fs at school)
  - Feeling unsafe at school (answers of "definitely no" or "mostly no" to a question about feeling safe at school)
- Indicators of low socioeconomic status
  - Mother not completing high school
  - Father not completing high school
  - Food insecurity (family cutting meal size or skipping meals in past 12 months due of lack of money)
  - No recent dental visit (not visiting dentist for a check-up in past two years)
- Behavioral factors
  - Cigarette smoking (any cigarette smoking in the past 30 days)
  - Marijuana smoking (having ever smoked marijuana)
  - Binge drinking (drinking 5 or more drinks on any one occasion in the past two weeks)
  - Drinking alcohol (drinking any alcohol in the past 30 days)
- Race and ethnicity
  - Race and Hispanic ethnicity
  - Non-English language spoken at home

We conducted separate analyses by grade. We developed risk ratios to assess differences between categories of participants. A risk ratio compares rates among groups. For every risk ratio, we also provide a "95% confidence interval," which gives the range that should contain the true population value 95% of the time. The confidence interval is not a measure of how "confident" we are in the estimate; instead, it describes the range of values that we might reasonably expect to include the actual risk ratio among all Washington State respondents. If the confidence interval includes 1, the two groups are not statistically significantly different.

Comparisons are of respondents who answered optional questions compared to those that did not answer optional questions.

We conducted a second set of analyses to determine the potential magnitude of this bias on the optional questions. Four optional questions on sexual behavior were at the end of the survey, so bias on these results might be due to non-completion bias.

We took a close look at how much we might expect non-completion of optional questions to influence grade-level surveys results. We compared the prevalence of responses for all the optional questions (on Form A-enhanced or Form B-enhanced) from the full state sample to the prevalence of a subset that included only survey completers:

- "Optional Takers" – answered at least one optional question (sexual orientation, sexual behavior and/or sexual abuse).
- "Full state sample" – all respondents in the state sample.

By excluding non-completers from the subset, we simulate the extent of bias that would occur if these questions were non-optional.

These same analyses were completed for all participating schools (census).

Results
1. Optional Question Participation Rates in the State Sample
Table 21a shows the percent of respondents that took the survey forms that had optional questions (Form A-enhanced or Form B-enhanced). Table 21b shows the percent of "Optional Takers – respondents that took the survey forms that had optional questions and answered at least one optional question (sexual orientation, sexual behavior and/or sexual abuse).

Table 21a: Optional question participation rates for state sample schools

Grade	n	Answered Form with Optional Questions (%)
8	3,007	28.2%
10	3,498	39.7%
12	2,583	38.9%

Table 21b: Percent of Optional Question Takers* for state sample schools

Grade	n	Optional Question Takers* (%)
8	2,748	91.4%
10	3,253	93.0%
12	2,425	93.9%

Respondents that took the survey forms that had optional questions and answered at least one optional question (sexual orientation, sexual behavior and/or sexual abuse).

For more information about survey non-completion for each individual survey question by grade level and form type, see Appendix A: Non-completion by Form Type and Grade.

2. *Optional Takers Compared to Non-Optional Takers in the State Sample*

Table 22 gives risk ratios for characteristics listed above comparing respondents in the state sample who answered at least one optional question to those who did not.

Of the 51 comparison tests conducted, 25 showed statistically significant differences. Given that some associations are expected to be statistically significant just by chance, these results indicate that respondents who completed optional questions are different from respondents that did not fill out the optional questions for the characteristics assessed. The results were mixed, with option question takers sometimes having more risk and sometimes having less risk than respondents who did not take the optional questions.

Optional question takers in the state sample were more likely to report:
- Feeling unsafe at school (grade 12)
- Low socio-economic variables: low mother/father education status (grade 12), food insecurity (grade 12), and no dental visit in past year (grade 12)
- Cigarette smoking (grade 12), marijuana use (grade 12), binge drinking (grade 8), and current drinking (grade 8)
- Non-English language spoken at home (grades 10 and 12)
- Being white (grade 8), American Indian/Alaska Native (grade 8), Asian (grades 10 and 12), Black/African American (grades 10 and 12), and Pacific Islander (grades 10 and 12)

Optional question takers in the state sample were less likely to report:
- Lower grades in school (grade 8)
- Low socio-economic variables: food insecurity (grade 8) and no dental visit in past year (grade 8)
- Non-English language spoken at home (grade 8)
- Being white (grade 10 and 12) and Hispanic (grade 10)

Table 22: Answering optional questions and student characteristics for the state sample, risk ratio (95% confidence interval)

Variable	Answering Optional Questions Compared to those that Did Not Answer Them by Grade			
	6 RR (95% CI)*	8 RR (95% CI)*	10 RR (95% CI)*	12 RR (95% CI)*
School factors				
Low grades	na	**0.8 (0.7-0.9)**	1.0 (0.9-1.1)	1.0 (0.9-1.2)
Feeling unsafe at school	na	1.0 (0.9-1.1)	1.1 (0.9-1.2)	**1.3 (1.1-1.5)**
Indicators of low socioeconomic status				
Mother with high school education or less	na	0.9 (0.8-1.1)	1.1 (0.9-1.2)	**1.5 (1.3-1.8)**
Father with high school education or less	na	1.1 (0.9-1.3)	1.0 (0.9-1.1)	**1.6 (1.3-1.8)**
Food insecurity	na	**0.7 (0.6-0.8)**	1.1 (0.9-1.2)	**1.3 (1.2-1.5)**
No dental visit in last year	na	**0.7 (0.6-0.9)**	1.2 (1.0-1.4)	**1.3 (1.1-1.5)**
Substance use factors				
Current cigarette smoking	na	1.2 (0.9-1.5)	1.1 (0.9-1.2)	**1.3 (1.1-1.5)**
Current marijuana use	na	1.1 (0.9-1.3)	1.1 (1.0-1.2)	**1.3 (1.2-1.5)**
Binge drinking	na	**1.2 (1.0-1.5)**	0.9 (0.7-1.0)	1.1 (1.0-1.3)
Current alcohol drinking	na	**1.2 (1.0-1.4)**	1.0 (0.9-1.1)	1.1 (1.0-1.2)
Race/ethnicity and language**				
Non-English spoken at home	na	**0.9 (0.8-1.0)**	**1.3 (1.2-1.4)**	**1.6 (1.4-1.8)**
White	na	**1.1 (1.0-1.2)**	**0.7 (0.6-0.7)**	**0.6 (0.5-0.6)**
Hispanic	na	0.9 (0.8-1.0)	**0.8 (0.7-0.9)**	1.1 (0.9-1.2)
American Indian/Alaska Native	na	**1.3 (1.0-1.6)**	1.0 (0.7-1.3)	1.2 (0.8-1.7)
Asian	na	1.0 (0.9-1.2)	**1.9 (1.6-2.2)**	**1.8 (1.5-2.2)**
Black/African American	na	1.1 (0.9-1.3)	**2.4 (2.0-3.0)**	**2.5 (2.0-3.1)**
Pacific Islander	na	1.1 (0.8-1.5)	**1.7 (1.3-2.3)**	**2.0 (1.4-2.9)**

* RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the p <0.05 level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.

3. State Sample Optional Question Takers Compared to All State Sample Respondents

Table 23 shows the differences in prevalence between state sample optional question takers and the prevalence of those all state sample respondents for the same student characteristic questions assessed above.

Of the 51 comparison tests conducted, 23 showed statistically significant differences. Given that some associations are expected to be statistically significant just by chance, these results indicate that respondents who completed the optional questions are different from respondents from the full state sample for some of the characteristics assessed. The results were mixed, with optional question takers sometimes having more risk and sometimes having less risk than all state sample respondents.

- Optional question takers in the state sample were more likely than respondents in the full state sample Feeling unsafe at school (grade 12)
- Low socio-economic variables: low mother/father education status (grade 12), food insecurity (grade 12), and no dental visit in past year (grade 12)
- Cigarette smoking (grade 12), marijuana use (grade 12), and current drinking (grade 8)
- Non-English language spoken at home (grades 10 and 12)

- Being white (grade 8), Asian (grades 10 and 12), Black/African American (grades 10 and 12), and Pacific Islander (grades 10 and 12)

Optional question takers in the state sample were less likely than respondents in the full state sample to report:
- Lower grades in school (grade 8)
- Low socio-economic variables: food insecurity (grade 8) and no dental visit in past year (grade 8)
- Non-English language spoken at home (grade 8)
- Being white (grade 10 and 12) and Hispanic (grade 10)

Table 23: Simulating optional question taking bias with student characteristics among state sample schools, risk ratio (95% confidence interval) by grade.

	Answering Optional Questions Compared to Full State Sample by Grade			
Variable	6 RR (95% CI)*	8 RR (95% CI)*	10 RR (95% CI)*	12 RR (95% CI)*
School factors				
Low grades	na	**0.9 (0.8-1.0)**	1.0 (0.9-1.1)	1.0 (0.9-1.1)
Feeling unsafe at school	na	1.0 (0.9-1.1)	1.0 (0.9-1.2)	**1.2 (1.0-1.3)**
Indicators of low socioeconomic status				
Mother didn't graduate high school	na	0.9 (0.8-1.1)	1.0 (0.9-1.2)	**1.3 (1.1-1.5)**
Father didn't graduate high school	na	1.0 (0.9-1.2)	1.0 (0.9-1.1)	**1.3 (1.1-1.5)**
Food insecurity	na	**0.8 (0.7-0.9)**	1.0 (0.9-1.2)	**1.2 (1.1-1.4)**
No dental visit in last year	na	**0.8 (0.7-0.9)**	1.1 (0.9-1.3)	1.2 (1.0-1.3)
Substance use factors				
Current cigarette smoking	na	1.1 (0.9-1.4)	1.0 (0.9-1.2)	**1.1 (1.0-1.3)**
Current marijuana use	na	1.1 (0.9-1.2)	1.1 (1.0-1.2)	**1.2 (1.1-1.3)**
Binge drinking	na	1.2 (1.0-1.4)	0.9 (0.8-1.1)	1.1 (0.9-1.2)
Current alcohol drinking	na	**1.1 (1.0-1.3)**	1.0 (0.9-1.1)	1.1 (1.0-1.2)
Race/ethnicity and language				
Non-English spoken at home	na	**0.9 (0.8-1.0)**	**1.2 (1.0-1.3)**	**1.3 (1.1-1.4)**
White	na	**1.1 (1.0-1.2)**	**0.8 (0.8-0.9)**	**0.7 (0.7-0.8)**
Hispanic	na	0.9 (0.9-1.0)	**0.9 (0.8-1.0)**	1.0 (0.9-1.1)
American Indian/Alaska Native	na	1.2 (1.0-1.4)	1.0 (0.8-1.2)	1.1 (0.9-1.4)
Asian	na	1.0 (0.9-1.1)	**1.4 (1.3-1.6)**	**1.4 (1.2-1.6)**
Black/African American	na	1.0 (0.9-1.2)	**1.5 (1.3-1.8)**	**1.6 (1.4-1.8)**
Pacific Islander	na	1.1 (0.8-1.4)	**1.4 (1.1-1.7)**	**1.5 (1.2-1.9)**

* RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the p <0.05 level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.

4. Optional Question Participation Rates in All Participating Schools (Census)

Table 24a shows the percent of respondents that took the survey forms that had optional questions (Form A-enhanced or Form B-enhanced). Table 24b shows the percent of "Optional Takers – respondents that took the survey forms that had optional questions and answered at least one optional question (sexual orientation, sexual behavior and/or sexual abuse).

Table 24a: Optional question participation rates for all participating schools (census)

Grade	n	Answered Form with Optional Questions (%)
8	15,235	25.6%
10	20,707	38.3%
12	15,846	39.5%

Table 24b: Percent of Optional Question Takers* for all participating schools (census)

Grade	n	Optional Question Takers* (%)
8	13,553	89.0%
10	19,579	94.6%
12	15,173	95.8%

* Respondents that took the survey forms that had optional questions and answered at least one optional question (sexual orientation, sexual behavior and/or sexual abuse).

For more information about survey non-completion for each individual survey question by grade level and form type, see Appendix A: Non-completion by Form Type and Grade.

5. Optional Question Takers Compared to All Respondents

Table 25 gives risk ratios for characteristics listed above comparing respondents in all participating schools (census) who answered at least one optional question to those who did not.

Of the 51 comparison tests conducted, 25 showed statistically significant differences. Given that some associations are expected to be statistically significant just by chance, these results indicate that respondents who completed optional questions are different from respondents that did not fill out the optional questions for the characteristics assessed. The results were mixed, with optional question takers sometimes having more risk and sometimes having less risk than respondents who did not take the optional questions.

Optional question takers in all schools were more likely to report:
- Feeling unsafe at school (grade 12)
- Low socio-economic variables: low mother education status (grades 10 and 12) and low father education status (grade 12)
- Cigarette smoking (grade 12), marijuana use (grades 10 and 12), binge drinking (grade 12), and current drinking (grade 12)
- Non-English language spoken at home (grade 12)
- Being Hispanic (grade 12), American Indian/Alaska Native (grades 10 and 12), Asian (grade 8), Black/African American (all grades), and Pacific Islander (grades 8 and 12)

Optional question takers in all schools were less likely to report:
- Lower grades in school (grade 8)
- Low socio-economic variables: food insecurity (grades 8 and 10) and no dental visit in past year (grade 8)
- Non-English language spoken at home(grade 10)
- Being white (grades 8 and 12) and Hispanic (grade 8)

Table 25: Answering optional questions and student characteristics for all participating schools (census), risk ratio (95% confidence interval)

| Variable | Answering Optional Questions Compared to those that Did Not Answer Them by Grade | | | |
	6 RR (95% CI)*	8 RR (95% CI)*	10 RR (95% CI)*	12 RR (95% CI)*
School factors				
Low grades	na	**0.9 (0.9-1.0)**	1.0 (0.9-1.0)	1.0 (1.0-1.0)
Feeling unsafe at school	na	1.0 (1.0-1.1)	1.0 (0.9-1.0)	**1.1 (1.0-1.1)**
Indicators of low socioeconomic status				
Mother didn't graduate high school	na	1.0 (0.9-1.1)	**1.1 (1.0-1.1)**	**1.1 (1.1-1.2)**
Father didn't graduate high school	na	1.0 (0.9-1.1)	1.0 (0.9-1.0)	**1.1 (1.1-1.2)**
Food insecurity	na	**0.8 (0.7-0.8)**	**0.9 (0.8-0.9)**	1.0 (1.0-1.1)
No dental visit in last year	na	**0.9 (0.8-0.9)**	1.0 (0.9-1.0)	1.0 (1.0-1.1)
Substance use factors				
Current cigarette smoking	na	1.1 (1.0-1.2)	1.0 (1.0-1.1)	**1.1 (1.0-1.2)**
Current marijuana use	na	1.1 (1.0-1.1)	**1.1 (1.0-1.1)**	**1.1 (1.0-1.1)**
Binge drinking	na	1.0 (0.9-1.1)	1.0 (0.9-1.0)	**1.1 (1.0-1.1)**
Current alcohol drinking	na	1.0 (0.9-1.1)	1.0 (1.0-1.1)	**1.1 (1.0-1.1)**
Race/ethnicity and language				
Non-English spoken at home	na	1.0 (1.0-1.1)	**1.0 (0.9-1.0)**	**1.1 (1.0-1.1)**
White	na	**0.9 (0.9-1.0)**	1.0 (0.9-1.0	**0.9 (0.9-1.0)**
Hispanic	na	**0.9 (0.9-1.0)**	1.0 (0.9-1.0	**1.1 (1.1-1.2)**
American Indian/Alaska Native	na	1.1 (1.0-1.2)	**1.1 (1.0-1.3)**	**1.2 (1.1-1.4)**
Asian	na	**1.3 (1.2-1.4)**	1.1 (1.0-1.1)	1.0 (1.0-1.1)
Black/African American	na	**1.4 (1.3-1.5)**	**1.3 (1.2-1.4)**	**1.3 (1.2-1.4)**
Pacific Islander	na	**1.2 (1.1-1.4)**	1.1 (1.0-1.3)	**1.3 (1.1-1.5)**

* RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the p <0.05 level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.

6. Optional Question Takers Compared to Non-optional Question Takers in All Participating Schools (Census)

Table 26 gives risk ratios for characteristics listed above comparing respondents in all participating schools (census) who answered at least one optional question to those who did not.

Of the 51 comparison tests conducted, 25 showed statistically significant differences. Given that some associations are expected to be statistically significant just by chance, these results indicate that respondents who completed optional questions are different from respondents that did not fill out the optional questions for the characteristics assessed. The results were mixed, with optional question takers sometimes having more risk and sometimes having less risk than all eligible respondents.

Optional question takers in all schools were more likely than all survey respondents (census) to report:
- Low socio-economic variables: low mother/father education status (grade 12)
- Cigarette smoking (grade 12) and marijuana use (grade 12)
- Being Hispanic (grade 12), Asian (grade 8), Black/African American (all grades), and Pacific Islander (grades 8 and 12)

Optional question takers in all schools were less likely than all survey respondents (census) to report:

- Lower grades in school (grade 8)
- Low socio-economic variables: food insecurity (grades 8 and 10) and no dental visit in past year (grade 8)
- Non-English language spoken at home(grade 10)
- Being white (grade 12) and Hispanic (grade 8)

Table 26: Simulating optional question taking bias with student characteristics for all participating schools (census), risk ratio (95% confidence interval) by grade.

Variable	Answering Optional Questions Compared to All Eligible Schools (Census) by Grade			
	6 RR (95% CI)*	8 RR (95% CI)*	10 RR (95% CI)*	12 RR (95% CI)*
School factors				
Low grades	na	**0.9 (0.9-1.0)**	1.0 (0.9-1.0)	1.0 (1.0-1.0)
Feeling unsafe at school	na	1.0 (1.0-1.1)	1.0 (0.9-1.0)	1.0 (1.0-1.1)
Indicators of low socioeconomic status				
Mother didn't graduate high school	na	1.0 (0.9-1.1)	1.0 (1.0-1.1)	**1.1 (1.0-1.1)**
Father didn't graduate high school	na	1.0 (0.9-1.1)	1.0 (0.9-1.0)	**1.1 (1.0-1.1)**
Food insecurity	na	**0.8 (0.8-0.9)**	**0.9 (0.9-1.0)**	1.0 (1.0-1.1)
No dental visit in last year	na	**0.9 (0.8-1.0)**	1.0 (0.9-1.0)	1.0 (0.9-1.1)
Substance use factors				
Current cigarette smoking	na	1.1 (1.0-1.2)	1.0 (1.0-1.1)	**1.1 (1.0-1.1)**
Current marijuana use	na	1.1 (1.0-1.1)	1.0 (1.0-1.1)	**1.1 (1.0-1.1)**
Binge drinking	na	1.0 (0.9-1.1)	1.0 (0.9-1.0)	1.1 (1.0-1.1)
Current alcohol drinking	na	1.0 (0.9-1.1)	1.0 (1.0-1.1)	1.1 (1.0-1.1)
Race/ethnicity and language				
Non-English spoken at home	na	1.0 (0.9-1.0)	1.0 (0.9-1.0)	1.0 (1.0-1.1)
White	na	1.0 (0.9-1.0)	1.0 (1.0-1.0)	**0.9 (0.9-1.0)**
Hispanic	na	**0.9 (0.9-1.0)**	1.0 (0.9-1.0)	**1.1 (1.0-1.1)**
American Indian/Alaska Native	na	1.1 (1.0-1.2)	1.1 (1.0-1.2)	1.1 (1.0-1.2)
Asian	na	**1.2 (1.1-1.3)**	1.0 (1.0-1.1)	1.0 (0.9-1.1)
Black/African American	na	**1.2 (1.1-1.3)**	**1.1 (1.0-1.2)**	**1.1 (1.0-1.2)**
Pacific Islander	na	**1.1 (1.0-1.3)**	1.1 (0.9-1.2)	**1.2 (1.0-1.3)**

* RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the p <0.05 level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.

Findings

Yes, results for the optional questions were biased because not all schools took them.

For the state sample respondents:

1. Optional questions were asked of 28% of 8th graders, 40% of 10th graders and 39% of 12th graders. Over 90% answered at least one optional question and are considered optional question takers.
2. Optional question takers were more likely to report:
   - Not feeling safe at school (grade 12)
   - Mother or father not graduating high school, cutting meals due to finances, and not seeing a dentist (grade 12)
   - Current cigarette smoking and marijuana use (grade 12), and binge drinking and current alcohol drinking (grade 8)
   - Living in a non-English speaking home (grades 10 and 12)
   - Being white (grade 8), American Indian/Alaska Native (grade 8), Asian (grades 10 and 12), Black/African Americans (grades 10 and 12), and Pacific Islander (grades 10 and 12)

   Optional question takers were less likely to report:
   - Getting lower grades (grade 8)
   - Cutting meals due to finances and not seeing a dentist (grade 8)
   - Living in non-English speaking homes (grade 8)
   - Being white (grades 10 and 12) and Hispanic (grade 10)
3. Optional question results may not adequately represent the following students, including those respondents:
   - Getting low grades (grade 8)
   - Cutting meals due to finances and not seeing a dentist (grade 8)
   - Living in non-English speaking homes (grade 8)
   - Being white (grades 10 and 12) and Hispanic (grade 10)

For all eligible respondents (census):

4. Optional questions were asked of 26% of 8th graders, 38% of 10th graders and 40% of 12th graders. About 90% answered at least one optional question and are considered optional question takers.
5. Optional question takers were more likely to report:
   - Not feeling safe at school (grade 12)
   - Mother (grade 10 and 12) or father (grade 12) not graduating high school
   - Current cigarette smoking, binge drinking and current alcohol drinking (grade12), and marijuana use (grades 10 and 12),
   - Living in non-English speaking homes (grade 12)
   - Being Hispanic (grade 12), American Indian/Alaska Native (grades 10 and 12), and Asian (grade 8), Black/African Americans (all grades), and Pacific Islander (grades 8 and 12)

   Optional question takers were less likely to report:
   - Getting lower grades (grade 8)
   - Cutting meals due to finances (grades 8 and 10) and not seeing a dentist (grade 8)
   - Living in non-English speaking homes (grade 8)
   - Being white (grades 8 and 12) and Hispanic (grade 8)
6. Optional question results may not adequately represent the following students, including respondents including those:
   - Getting low grades (grade 8)
   - Cutting meals due to finances (grades 8 and 10) and not seeing a dentist (grade 8)
   - Being white (grade 12) and Hispanic (grade 8)

There were some differences, but overall, respondents who took the optional questions from the state sampled schools were similar to respondents who did not complete the survey from all eligible schools (census). The student level differences between those who took and did not take the optional questions appear to be due to survey non-completion.

8. School-level and Student Level Conclusions

School Participation Bias

Alternative Schools

In previous survey administrations, alternative schools were less likely to participate in HYS. In 2014, alternative schools in the state sample were just as likely to participate in HYS, but all eligible alternatives schools (census) were less likely to participate. Very few alternative schools were selected for the state sample making it difficult to detect a difference in participation.

School Enrollment

State sample schools that participated in HYS were similar to non-participating schools for most variables assessed, except for grade-level enrollment size. Participating state sampled schools were larger than those that did not participate. The mean grade-level enrollment for state sample schools that did not participate ranged from 52 to 94. This was also true for all eligible schools (census). The mean grade-level enrollment for all eligible schools that did not participate ranged from 38 to 49.

Academic Achievement

State sample schools that participated in HYS had higher math and reading indices than non-participating schools (grade 8). This was also true for all eligible schools (census); participating schools had higher math level indices (grades 6 and 8) and higher reading level indices (grades 6, 8 and 10). State sample schools that participated had similar on-time graduation rates to non-participating schools. All eligible participating schools (census) had higher graduation rates than non-participating schools.

Urban/Rural Locations

State sample schools that participated in HYS were less likely to be urban locations than non-participating schools (grades 6 and 8). This was also true for all eligible schools (census, grades 6, 8, 10 and 12).

Summary of Participation Bias

The 2014 HYS results may underrepresent students from alternative schools, students who attend small schools, students from schools with academic achievement issues, and students in non-urban areas. The 2014 HYS results may over-represent students from traditional schools, students from schools with large grade-level enrollment, students from schools with fewer academic achievement issues, and students from schools in urban areas.

For the state sample and all participating schools (census), schools that were the least likely to participate in the 2014 HYS were alternative, "small", and in non-urban areas. These finding could be due to the fact that alternative schools and schools in non-urban areas are "small" and larger schools may have more resources to implement the survey. Larger schools might also be more likely to participate because reliable results would be available to them based on their size. Additional efforts to support "small" schools to participate in the future may prove useful in making the results more representative of all students statewide. Schools with academic achievement issues were also less likely to participate in the 2014 HYS. These schools may be more focused on improving academic achievement and may have less time to spend on optional activities like the HYS and could also use additional support to participate in the future.

Student Non-completion Bias

Students who fully finished the Healthy Youth Survey differed in how they answered questions early in the survey from those who did not finish the survey; the prevalence estimates that come from the final questions on the survey are potentially subject to bias. The 2014 HYS state sample results may underrepresent students getting low grades in schools, whose mother didn't graduate from high school, who had to cut meals due to finances, who did not see a dentist, who live in non-English speaking homes, who are Hispanic, and who are Black/African American.

The 2014 HYS results for all participants (census) may underrepresent students getting low grades in schools, who don't feel safe at school, whose mother or father didn't graduate high school, who had to cut meals due to finances, who did not see a dentist, who smoke cigarettes, who use marijuana, who binge drink, who live in non-English speaking homes, and who are Hispanic, American Indian/Alaska Native, or Black/African American.

School and Student Optional Question Administration Bias

School-level

State sample schools that asked optional questions had similar school demographics to those that did not ask optional questions. The 2014 state sample optional question results may underrepresent schools with lower minority enrollment (grade 12). The 2014 optional question results for all participating schools (census) may underrepresent schools with lower minority enrollment (grades 8, 10 and 12), lower free and reduced lunch (grade 8), and schools in urban areas (grades 8, 10 and 12).

Student-level

Among state sample schools and all participating schools (census), respondents who answered the optional questions answered selected questions on the main part of the survey differently compared to those who did not answer the optional questions. The differences were very mixed – sometimes optional question takers were more at risk (like low grades in school) and other times they were less at risk (like feeling safe at school). Four of the seven optional questions are found at the end of the survey, so it is possible that the differences between optional questions takers and non-optional question takers were affected by non-completion bias. Once we removed the non-completers and compared the prevalence of the responses for each of the optional questions between survey completers and the full state sample, we did not find any significant differences.

Summary of Optional Question Bias

While there are some school and student-level differences between optional survey takers and non-optional survey takers, for state sampled schools and all participating schools (census) the results from optional questions are likely representative of students in Washington State.

Appendix A: Non-Completion by Form Type and Grade

The analysis of student-level characteristics showed survey non-completion as the primary potential source of bias among schools in the state sample. The analysis showed that respondents finishing the survey are different in some respects from respondents who stopped earlier in the survey. If the respondents differ in a characteristic that influences how they would answer survey questions at the end of the survey, then percentages derived from those questions might not accurately reflect the true percentage.

An important consideration for determining the potential impact of non-completion bias is what percentage of respondents did not complete the survey, and where in the survey they stopped answering questions. For each administration of HYS, the Healthy Youth Survey Planning Committee tries to adjust the length of the survey to try to keep non-completion under 15%.

Table 1: Number of questions on each survey form

Survey Form	Number of Survey Questions	
	Core Survey	Enhanced Survey
Form A	138	139
Form B	116	122
Form C	76	76

Figures 1a-e gives the proportion of students who answered each question on each survey form. The dropout rate is the highest for 8th graders taking A.

Figure 1a: Question non-completion over the course of Form C, grade 6 for the state sample
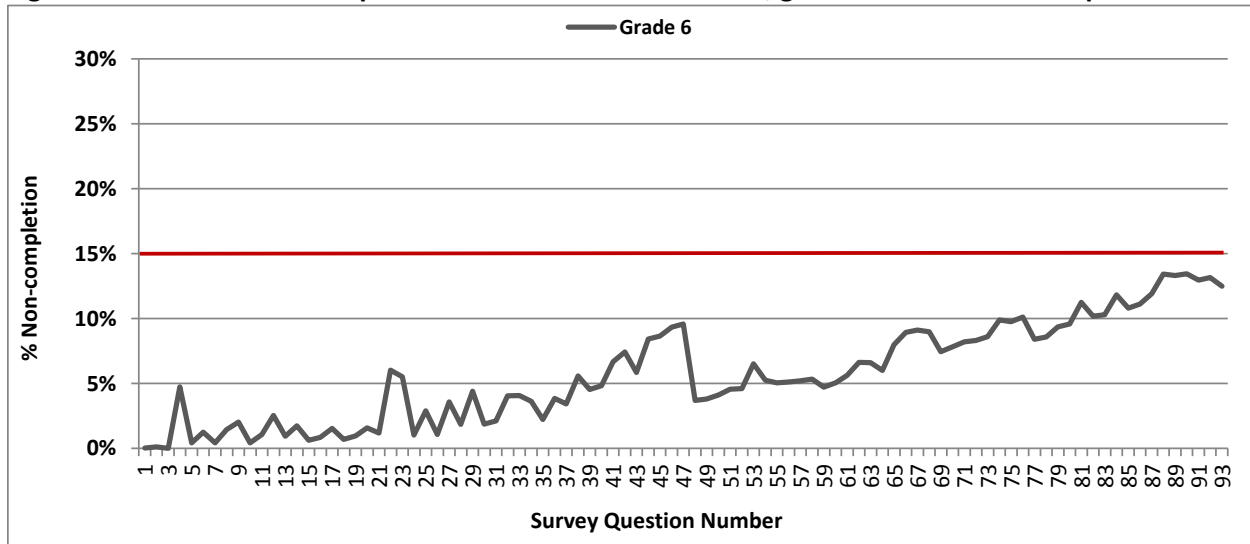
Figure 1b: Question non-completion over the course of Form A by grade for the state sample
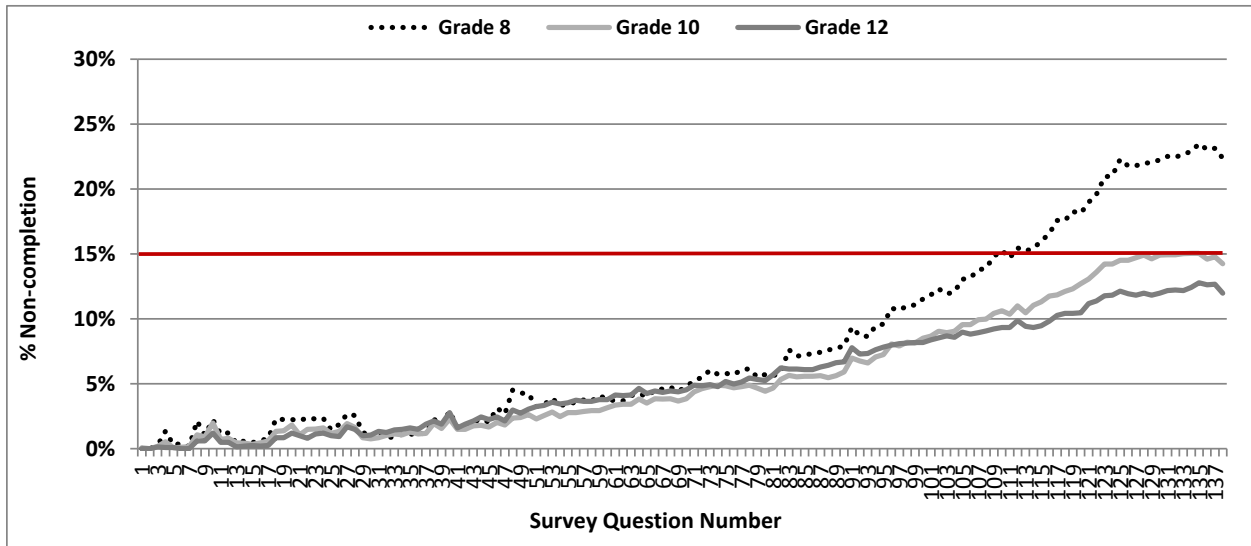
Figure 1c: Question non-completion over the course of Form A-enhanced by grade for the state sample
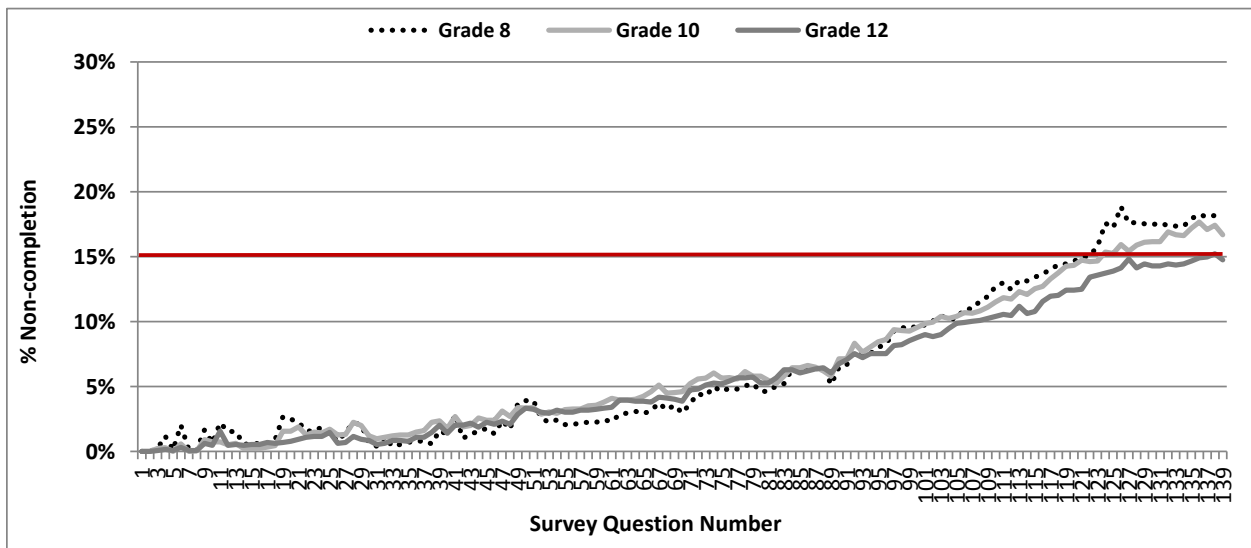
Figure 1d: Question non-completion over the course of Form B by grade for the state sample
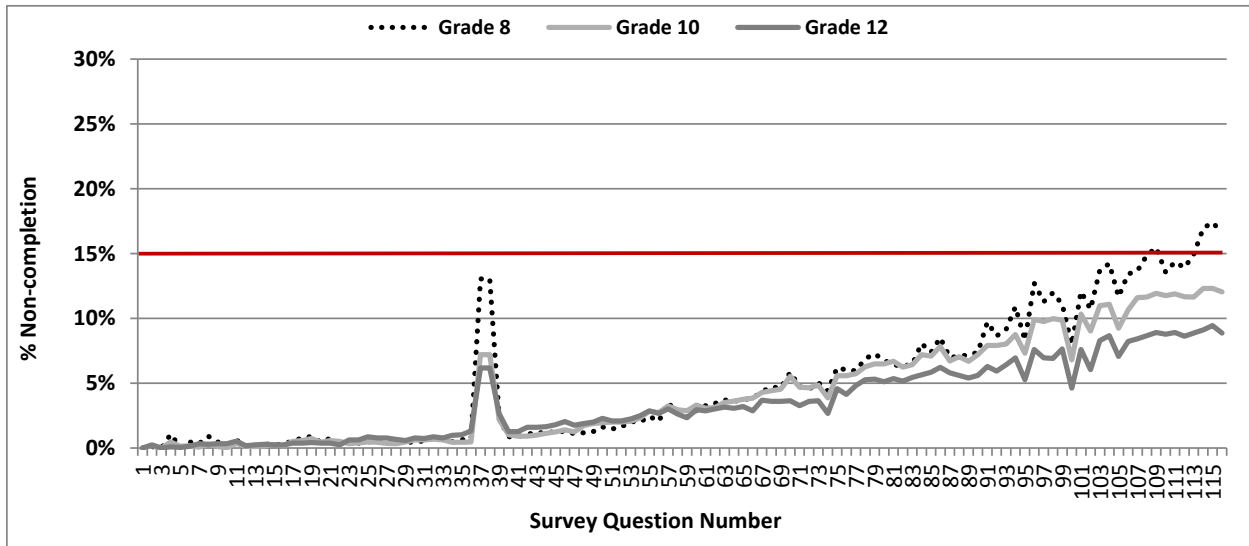
Figure 1e: Question completion over the course of Form B-enhanced by grade for the state sample
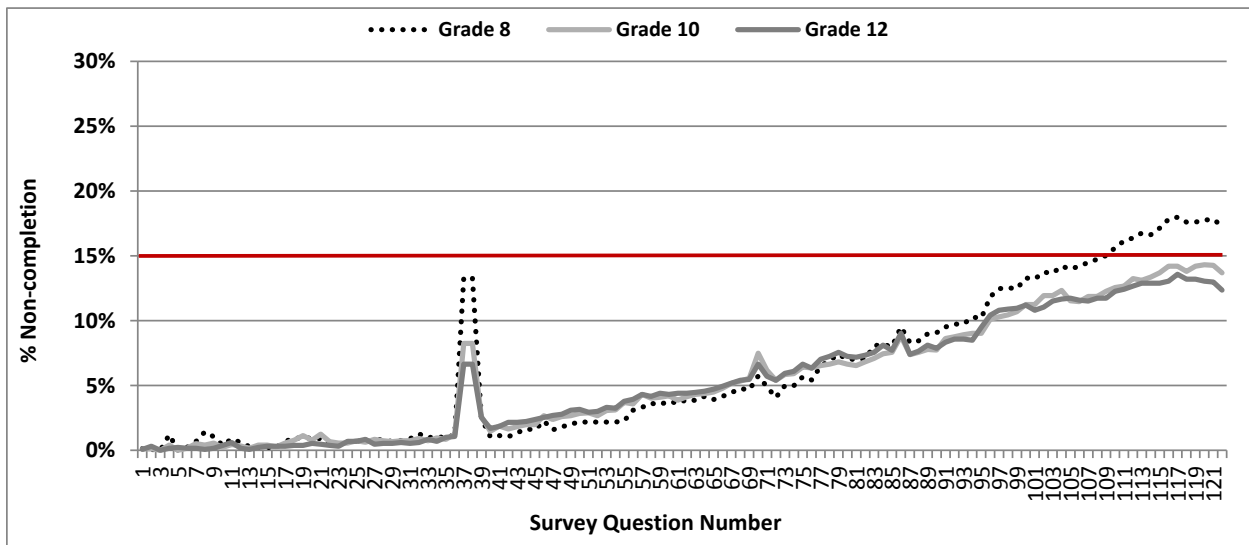
Appendix B: Questions at the End of the Survey

Respondents who answered all the last 30 questions at the end of Form A/A-enhanced or Form B/B-enhanced were considered to have "completed" the survey. The following is a list of topics that were asked about at the end of both forms.

The last 30 questions asked of 8th, 10th and 12th graders included the following topics:
- Alcohol and marijuana use and consequences
- Asthma
- Family risk factor - poor family management
- Food insecurity
- Peer-individual risk and protective factors - interaction with prosocial peers and friends use of drugs, and social skills
- Physical, emotional and sexual abuse (sexual abuse questions were optional)
- Quality of life
- School support
- Secondhand smoke exposure
- Sexual behavior (optional questions)
- Sexuality education
- Social and emotional learning
- Worrying and anxiousness

An 85% completion rate is desired for all HYS questions. The following questions were not completed by 85% of 8th graders. If certain types of 8th graders don't complete the survey, the results from these questions may not be representative of 8th graders.

8th Grader non-completion rate fell below the desired 85% mark for the following questions:
- Sexuality education
  - Last year in school, were you taught about abstinence (not having sex) to prevent sexually transmitted diseases (STDs) and pregnancy?
  - Last year in school, were you taught about ways other than abstinence to prevent sexually transmitted diseases (STDs) and pregnancy?
- Social and emotional learning
  - I know how to disagree without starting a fight or argument.
  - When I have problems at school, I am good at finding ways to solve them.
  - When I make a decision, I think about what might happen afterward.
  - I get along well with students who are different from me.
  - I try to understand how other people feel and think.
- Worrying and anxiousness
  - How often over the last 2 weeks were you bothered by: Feeling nervous, anxious or on edge?
  - How often over the last 2 weeks were you bothered by: Not being able to stop or control worrying?
- Family risk factor - poor family management
  - If you drank some beer, wine, or liquor (for example vodka, whiskey, or gin) without your parent's permission, would you be caught by them?
  - Would your parents know if you did not come home on time?
  - If you carried a handgun without your parent's permission, would you be caught by them?

- o If you skipped school, would you be caught by your parents?
- Alcohol and marijuana use and consequences
  - o During the past 30 days, on how many days did you have at least one drink of alcohol on school property?
  - o During the past 30 days, on how many days did you use marijuana on school property?
  - o During the past 30 days, how did you get alcohol (beer, wine or hard liquor)? Choose all that apply.
  - o During the past 30 days, what type of alcohol did you usually drink?
  - o During the past 30 days, how did you get marijuana? Choose all that apply.
  - o During the past 30 days, if you used marijuana, how did you usually use it?
  - o Does anyone who lives with you now use marijuana?
  - o In the past year, which of the following happened because you drank alcohol or used drugs? Choose all that apply:
- Peer-individual protective factor - interaction with prosocial peers
  - o Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have:
  - o Participated in clubs, organizations or activities at school?
    - ▪ Made a commitment to stay drug–free?
    - ▪ Liked school?
    - ▪ Regularly attended religious services?
    - ▪ Tried to do well in school?
- Peer-individual risk factor - friends use of drugs
  - o Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have:
    - ▪ Smoked cigarettes?
    - ▪ Tried beer, wine, or hard liquor (for example vodka, whiskey, or gin) when their parents didn't know about it?
    - ▪ Used marijuana?
    - ▪ Used LSD, cocaine, amphetamines, or other illegal drugs?
- Peer norms around substance use
  - o How wrong do your friends feel it would be for you to:
    - ▪ Have one or two drinks of an alcoholic beverage nearly every day?
    - ▪ Use tobacco?
    - ▪ Use marijuana?
    - ▪ Use prescription drugs not prescribed to you?
- Peer-individual protective factor - social skills
  - o You're looking at CDs in a music store with a friend. You look up and see her slip a CD under her coat. She smiles and says, "Which one do you want? Go ahead, take it while nobody's around." There is nobody in sight, no employees, and no other customers. What would you do now?
  - o You are visiting another part of town and you don't know any of the people your age there. You are walking down the street and some teenager you don't know is walking toward you. He is about your size. As he is about to pass you, he deliberately bumps into you and you almost lose your balance. What would you say or do?
  - o You are at a party at someone's house and one of your friends offers you a drink containing alcohol. What would you say or do?

An 85% completion rate is desired for all HYS questions. The following questions were not completed by 85% of 10th graders. If certain types of 10th graders don't complete the survey, the results from these questions may not be representative of 10th graders.

10th Grader non-completion rate fell below the desired 85% mark for the following questions:

- Peer-individual protective factor - interaction with prosocial peers
  - Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have:
    - Made a commitment to stay drug–free?
    - Liked school?
    - Regularly attended religious services?
    - Tried to do well in school?
- Peer-individual risk factor - friends use of drugs
  - Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have:
    - Smoked cigarettes?
    - Tried beer, wine, or hard liquor (for example vodka, whiskey, or gin) when their parents didn't know about it?
    - Used marijuana?
    - Used LSD, cocaine, amphetamines, or other illegal drugs?
- Peer norms around substance use
  - How wrong do your friends feel it would be for you to:
    - Have one or two drinks of an alcoholic beverage nearly every day?
    - Use tobacco?
    - Use marijuana?
    - Use prescription drugs not prescribed to you?
- Peer-individual protective factor - social skills
  - You're looking at CDs in a music store with a friend. You look up and see her slip a CD under her coat. She smiles and says, "Which one do you want? Go ahead, take it while nobody's around." There is nobody in sight, no employees, and no other customers. What would you do now?
  - You are visiting another part of town and you don't know any of the people your age there. You are walking down the street and some teenager you don't know is walking toward you. He is about your size. As he is about to pass you, he deliberately bumps into you and you almost lose your balance. What would you say or do?
  - You are at a party at someone's house and one of your friends offers you a drink containing alcohol. What would you say or do?

An 85% completion rate is desired for all HYS questions. The following question was not completed by 85% of 12th graders. If certain types of 12th graders don't complete the survey, the results from this question may not be representative of 12th graders.

12th Grader non-completion rate fell below the desired 85% mark for the following questions:

- Peer-individual protective factor - social skills
  - You are at a party at someone's house and one of your friends offers you a drink containing alcohol. What would you say or do?

The following is a list of the optional questions on the enhanced survey forms. Since 31% of 8th, 41% of 10th and 43% of 12th grade state sampled schools selected to ask these questions, the results from these questions may not be representable. See Section 8. Student-Level Optional Question Bias for more details.

8th, 10th and 12th Grader only completed the following questions if their school chose to take the optional survey questions.

- Sexual orientation
    - Which of the following best describes you? (Heterosexual (straight), Gay or lesbian, Bisexual, Not sure)
- Sexual behavior
    - How old were you when you had sexual intercourse for the first time?
    - During your life, with whom have you had sexual contact?
    - With how many people have you ever had sexual intercourse?
    - The last time you had sexual intercourse, did you or your partner use a condom?
- Physical, emotional and sexual abuse
    - Have you ever been in a situation where someone made you engage in kissing, sexual touch or intercourse when you did not want to?
    - In the past 12 months, have you been in a situation where someone made you engage in kissing, sexual touch or intercourse when you did not want to?

Appendix C: Student Characteristics by Completion

Methods

Risk ratio tables comparing student characteristics of survey non-completers (respondents who did not answer the last 3 questions) to completers (those that answered all of the last 30 questions) are provided in Section 7. Student-level Completion Bias. Differences in respondent characteristics show if respondents who do not complete the survey are different from those that do complete it. Differences may indicate that questions towards the end of the survey have non-completion bias.

Risk ratio tables comparing all survey respondents to completers are also provided in Section 7., Student-level Completion Bias. Comparing all respondents to completers shows the potential magnitude of the non-completion bias on the actual survey results.

Instead of presenting risk ratios, Tables 1-4 show the differences in prevalence for selected student characteristic questions by grade for:
   a. Non-completers versus completers in the state sample
   b. All respondents versus completers in the state sample
   c. Non-completers versus completers in all participating schools (census)
   d. All respondents versus completers in all eligible participating schools (census)

Results

Non-completion among 6th Grade
   a. Non-completers in the state sample were more likely to report low grades in school, not feeling safe at school, current cigarette smoking, current marijuana use, current alcohol drinking, and living in a home were English isn't usually spoken. Non-completers were less likely to be white, and more likely to be Hispanic or Black/African American.
   b. All respondents in the state sample were more likely to report low grades in school and living in a home where English isn't usually spoken. All respondents were less likely to be white and more likely to be Black/African American.
   c. Non-completers in all participating schools (census) were more likely to report low grades in school, not feeling safe at school, current cigarette smoking, current marijuana use, binge drinking, current alcohol drinking, and living in a home where English isn't usually spoken. Non-completers were less likely to be white, and more likely to be Hispanic or Black/African American.
   d. All respondents to completers in all participating schools (census) were more likely to report low grades in school, not feeling safe at school, current cigarette smoking, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic or Black/African American.

Table 1a: Comparison of student characteristics among 6th grade non-completers to completers in the state sample.

Question	Options	Non-completers Percent (±CI)	Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	77.8 (2.4)	86.5 (0.8)	**0.0000**
	Mostly Cs, Ds or Fs	22.2 (2.4)	13.5 (0.8)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	84.7 (2.0)	89.6 (0.7)	**0.0000**
	no/mostly & NO/def not true	15.3 (2.0)	10.4 (0.7)	
During the past 30 days, on how many days did you smoke cigarettes?	None	97.7 (0.9)	99.1 (0.2)	**0.0000**
	At least 1 day	2.3 (0.9)	0.9 (0.2)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	97.3 (1.0)	99.0 (0.2)	**0.0000**
	At least 1 day	2.7 (1.0)	1.0 (0.2)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	97.6 (1.0)	97.7 (0.4)	0.7804
	At least once	2.4 (1.0)	2.3 (0.4)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	96.9 (1.1)	98.0 (0.3)	**0.0195**
	At least 1 day	3.1 (1.1)	2.0 (0.3)	
What language is usually spoken at home?	English	72.6 (2.4)	82.3 (0.9)	**0.0000**
	Other language	27.4 (2.4)	17.7 (0.9)	
How do you describe yourself? (Select one or more responses.)	White	29.3 (2.5)	41.4 (1.2)	**0.0000**
	Hispanic	18.0 (2.1)	14.4 (0.8)	**0.0012**
	American Indian/Alaska Native	6.2 (1.3)	5.8 (0.5)	0.5119
	Asian	10.3 (1.7)	9.4 (0.7)	0.3003
	Black/African American	7.7 (1.5)	4.1 (0.5)	**0.0000**
	Pacific Islander	1.7 (0.7)	1.5 (0.3)	0.6590

* 95% confidence interval, p-value significant if less than 0.05

Table 1b: Comparison of student characteristics among all 6th grade respondents to completers in the state sample.

Question	Options	All Respondents Percent (±CI)	All Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	85.1 (0.7)	86.5 (0.8)	**0.0148**
	Mostly Cs, Ds or Fs	14.9 (0.7)	13.5 (0.8)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	88.8 (0.6)	89.6 (0.7)	0.0928
	no/mostly & NO/def not true	11.2 (0.6)	10.4 (0.7)	
During the past 30 days, on how many days did you smoke cigarettes?	None	98.9 (0.2)	99.1 (0.2)	0.2778
	At least 1 day	1.1 (0.2)	0.9 (0.2)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	98.8 (0.2)	99.0 (0.2)	0.1284
	At least 1 day	1.3 (0.2)	1.0 (0.2)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	97.7 (0.3)	97.7 (0.4)	0.8059
	At least once	2.3 (0.3)	2.3 (0.4)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	97.9 (0.3)	98.0 (0.3)	0.6837
	At least 1 day	2.1 (0.3)	2.0 (0.3)	
What language is usually spoken at home?	English	80.7 (0.8)	82.3 (0.9)	**0.0099**
	Other language	19.3 (0.8)	17.7 (0.9)	
How do you describe yourself? (Select one or more responses.)	White	39.1 (1.0)	41.4 (1.2)	**0.0039**
	Hispanic	14.9 (0.7)	14.4 (0.8)	0.4581
	American Indian/Alaska Native	5.9 (0.5)	5.8 (0.5)	0.7363
	Asian	9.7 (0.6)	9.4 (0.7)	0.5690
	Black/African American	4.8 (0.5)	4.1 (0.5)	**0.0371**
	Pacific Islander	1.6 (0.3)	1.5 (0.3)	0.5914

95% confidence interval, p-value significant if less than 0.05

Table 1c: Comparison of student characteristics among 6th grade non-completers to completers in all participating schools (census).

Question	Options	Non-completers Percent (±CI)	Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	78.0 (0.8)	87.1 (0.3)	**0.0000**
	Mostly Cs, Ds or Fs	22.0 (0.8)	12.9 (0.3)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	85.9 (0.7)	89.5 (0.3)	**0.0000**
	no/mostly & NO/def not true	14.1 (0.7)	10.5 (0.3)	
During the past 30 days, on how many days did you smoke cigarettes?	None	98.5 (0.3)	99.2 (0.1)	**0.0000**
	At least 1 day	1.5 (0.3)	0.8 (0.1)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	98.4 (0.3)	99.0 (0.1)	**0.0000**
	At least 1 day	1.6 (0.3)	1.0 (0.1)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	97.0 (0.4)	97.8 (0.1)	**0.0000**
	At least once	3.0 (0.4)	2.2 (0.1)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	97.4 (0.4)	98.1 (0.1)	**0.0001**
	At least 1 day	2.6 (0.4)	1.9 (0.1)	
What language is usually spoken at home?	English	74.1 (0.8)	81.6 (0.4)	**0.0000**
	Other language	26.0 (0.8)	18.4 (0.4)	
How do you describe yourself? (Select one or more responses.)	White	29.2 (0.9)	40.4 (0.5)	**0.0000**
	Hispanic	21.6 (0.8)	15.4 (0.3)	**0.0000**
	American Indian/Alaska Native	6.8 (0.5)	5.5 (0.2)	**0.0000**
	Asian	7.5 (0.5)	9.8 (0.3)	**0.0000**
	Black/African American	6.4 (0.5)	4.4 (0.2)	**0.0000**
	Pacific Islander	1.9 (0.3)	1.8 (0.1)	0.9350

* 95% confidence interval, p-value significant if less than 0.05

Table 1d: Comparison of student characteristics among all 6th grade respondents to completers in all participating schools (census).

Question	Options	All Respondents Percent (±CI)	All Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	85.3 (0.3)	87.1 (0.3)	**0.0000**
	Mostly Cs, Ds or Fs	14.7 (0.3)	12.9 (0.3)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	88.8 (0.3)	89.5 (0.3)	**0.0003**
	no/mostly & NO/def not true	11.2 (0.3)	10.5 (0.3)	
During the past 30 days, on how many days did you smoke cigarettes?	None	99.1 (0.1)	99.2 (0.1)	**0.0222**
	At least 1 day	0.9 (0.1)	0.8 (0.1)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	98.9 (0.1)	99.0 (0.1)	0.0912
	At least 1 day	1.2 (0.1)	1.0 (0.1)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	97.7 (0.1)	97.8 (0.1)	0.2128
	At least once	2.3 (0.1)	2.2 (0.1)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	98.0 (0.1)	98.1 (0.1)	0.3761
	At least 1 day	2.0 (0.1)	1.9 (0.1)	
What language is usually spoken at home?	English	80.2 (0.3)	81.6 (0.4)	**0.0000**
	Other language	19.9 (0.3)	18.4 (0.4)	
How do you describe yourself? (Select one or more responses.)	White	38.0 (0.4)	40.4 (0.5)	**0.0000**
	Hispanic	16.5 (0.3)	15.4 (0.3)	**0.0000**
	American Indian/Alaska Native	5.8 (0.2)	5.5 (0.2)	0.0560
	Asian	9.4 (0.2)	9.8 (0.3)	**0.0347**
	Black/African American	4.9 (0.2)	4.4 (0.2)	**0.0008**
	Pacific Islander	1.9 (0.1)	1.8 (0.1)	0.8018

* 95% confidence interval, p-value significant if less than 0.05

Non-completion among 8th Grade

a. Non-completers in the state sample were more likely to report low grades in school, not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic, American Indian/Alaska Native or Black/African American.

b. All respondents in the state sample were more likely to report low grades in school, skipping/cutting meals due to finances, not seeing a dentist, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic.

c. Non-completers in all participating schools (census) were more likely to report low grades in school, not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, current cigarette smoking, current marijuana use, binge drinking, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic, American Indian/Alaska Native or Black/African American.

d. All respondents compared to completers in all participating schools (census) were more likely to report low grades in school, not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, current cigarette smoking, current marijuana use, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic, American Indian/Alaska Native or Black/African American.

Table 2a: Comparison of student characteristics among 8th grade non-completers to completers in the state sample.

Question	Options	Completers Percent (±CI)	Non-completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	70.1 (2.1)	82.8 (0.8)	**0.0000**
	Mostly Cs, Ds or Fs	29.9 (2.1)	17.2 (0.8)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	84.7 (1.5)	86.6 (0.8)	**0.0247**
	no/mostly & NO/def not true	15.3 (1.5)	13.5 (0.8)	
How far did your mother get in school?	Graduated HS or more	85.4 (2.0)	88.4 (0.8)	**0.0031**
	Didn't graduate HS	14.6 (2.0)	11.6 (0.8)	
How far did your father get in school?	Graduated HS or more	84.4 (2.1)	87.9 (0.8)	**0.0013**
	Didn't graduate HS	15.6 (2.1)	12.1 (0.8)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	81.8 (1.8)	90.6 (0.6)	**0.0000**
	At least once	18.2 (1.8)	9.4 (0.6)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	69.0 (3.2)	78.7 (1.3)	**0.0000**
	More than a year ago	31.0 (3.2)	21.3 (1.3)	
During the past 30 days, on how many days did you smoke cigarettes?	None	96.3 (0.8)	96.0 (0.4)	0.6479
	At least 1 day	3.8 (0.8)	4.0 (0.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	92.0 (1.2)	93.0 (0.6)	0.1355
	At least 1 day	8.0 (1.2)	7.0 (0.6)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	95.1 (1.0)	95.6 (0.5)	0.2814
	At least once	4.9 (1.0)	4.4 (0.5)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	91.5 (1.2)	92.2 (0.6)	0.2758
	At least 1 day	8.5 (1.2)	7.8 (0.6)	
What language is usually spoken at home?	English	76.4 (1.8)	80.3 (0.9)	**0.0000**
	Other language	23.7 (1.8)	19.7 (0.9)	
How do you describe yourself? (Select one or more responses.)	White	40.9 (2.0)	52.0 (1.1)	**0.0000**
	Hispanic	23.8 (1.8)	15.9 (0.8)	**0.0000**
	American Indian/Alaska Native	4.1 (0.8)	2.9 (0.4)	**0.0077**
	Asian	6.8 (1.0)	10.8 (0.7)	**0.0000**
	Black/African American	5.7 (1.0)	3.5 (0.4)	**0.0000**
	Pacific Islander	1.3 (0.5)	1.7 (0.3)	0.1439

* 95% confidence interval, p-value significant if less than 0.05

Table 2b: Comparison of student characteristics among all 8th grade respondents to completers in the state sample.

Question	Options	All Respondents Percent (±CI)	All Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	80.3 (0.8)	82.8 (0.8)	**0.0000**
	Mostly Cs, Ds or Fs	19.7 (0.8)	17.2 (0.8)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	86.1 (0.7)	86.6 (0.8)	0.3296
	no/mostly & NO/def not true	14.0 (0.7)	13.5 (0.8)	
How far did your mother get in school?	Graduated HS or more	87.8 (0.7)	88.4 (0.8)	0.2842
	Didn't graduate HS	12.2 (0.7)	11.6 (0.8)	
How far did your father get in school?	Graduated HS or more	87.2 (0.8)	87.9 (0.8)	0.2546
	Didn't graduate HS	12.8 (0.8)	12.1 (0.8)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	88.9 (0.6)	90.6 (0.6)	**0.0001**
	At least once	11.1 (0.6)	9.4 (0.6)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	76.9 (1.2)	78.7 (1.3)	**0.0422**
	More than a year ago	23.1 (1.2)	21.3 (1.3)	
During the past 30 days, on how many days did you smoke cigarettes?	None	96.0 (0.4)	96.0 (0.4)	0.9806
	At least 1 day	4.0 (0.4)	4.0 (0.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	92.7 (0.5)	93.0 (0.6)	0.4233
	At least 1 day	7.3 (0.5)	7.0 (0.6)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	95.5 (0.4)	95.6 (0.5)	0.5930
	At least once	4.5 (0.4)	4.4 (0.5)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	91.9 (0.5)	92.2 (0.6)	0.5048
	At least 1 day	8.1 (0.5)	7.8 (0.6)	
What language is usually spoken at home?	English	79.5 (0.8)	80.3 (0.9)	0.1662
	Other language	20.5 (0.8)	19.7 (0.9)	
How do you describe yourself? (Select one or more responses.)	White	49.3 (1.0)	52.0 (1.1)	**0.0004**
	Hispanic	17.7 (0.7)	15.9 (0.8)	**0.0009**
	American Indian/Alaska Native	3.3 (0.3)	2.9 (0.4)	0.1967
	Asian	9.9 (0.6)	10.8 (0.7)	**0.0493**
	Black/African American	4.1 (0.4)	3.5 (0.4)	0.0519
	Pacific Islander	1.7 (0.2)	1.7 (0.3)	0.6836

* 95% confidence interval, p-value significant if less than 0.05

Table 2c: Comparison of student characteristics among 8th grade non-completers to completers in all participating schools (census).

Question	Options	Non-completers Percent (±CI)	Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	68.6 (0.9)	80.3 (0.4)	**0.0000**
	Mostly Cs, Ds or Fs	31.4 (0.9)	19.7 (0.4)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	82.4 (0.6)	84.4 (0.4)	**0.0000**
	no/mostly & NO/def not true	17.6 (0.6)	15.6 (0.4)	
How far did your mother get in school?	Graduated HS or more	82.8 (0.9)	87.1 (0.4)	**0.0000**
	Didn't graduate HS	17.2 (0.9)	12.9 (0.4)	
How far did your father get in school?	Graduated HS or more	81.7 (0.9)	86.2 (0.4)	**0.0000**
	Didn't graduate HS	18.3 (0.9)	13.9 (0.4)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	82.0 (0.7)	89.3 (0.3)	**0.0000**
	At least once	18.0 (0.7)	10.7 (0.3)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	67.6 (1.3)	78.1 (0.5)	**0.0000**
	More than a year ago	32.4 (1.3)	21.9 (0.5)	
During the past 30 days, on how many days did you smoke cigarettes?	None	95.4 (0.4)	96.2 (0.2)	**0.0001**
	At least 1 day	4.6 (0.4)	3.8 (0.2)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	91.3 (0.5)	92.5 (0.3)	**0.0000**
	At least 1 day	8.7 (0.5)	7.5 (0.3)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	94.3 (0.4)	95.0 (0.2)	**0.0046**
	At least once	5.7 (0.4)	5.0 (0.2)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	91.1 (0.5)	91.4 (0.3)	0.3565
	At least 1 day	8.9 (0.5)	8.6 (0.3)	
What language is usually spoken at home?	English	75.6 (0.8)	80.5 (0.4)	**0.0000**
	Other language	24.4 (0.8)	19.5 (0.4)	
How do you describe yourself? (Select one or more responses.)	White	40.3 (0.8)	50.7 (0.5)	**0.0000**
	Hispanic	22.1 (0.7)	16.6 (0.4)	**0.0000**
	American Indian/Alaska Native	4.6 (0.4)	3.3 (0.2)	**0.0000**
	Asian	6.3 (0.4)	9.7 (0.3)	**0.0000**
	Black/African American	6.4 (0.4)	4.0 (0.2)	**0.0000**
	Pacific Islander	2.1 (0.2)	1.9 (0.1)	0.2602

* 95% confidence interval, p-value significant if less than 0.05

Table 2d: Comparison of student characteristics among all 8th grade respondents to completers in all participating schools (census).

Question	Options	All Respondents Percent (±CI)	All Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	77.7 (0.4)	80.3 (0.4)	**0.0000**
	Mostly Cs, Ds or Fs	22.4 (0.4)	19.7 (0.4)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	83.8 (0.3)	84.4 (0.4)	**0.0071**
	no/mostly & NO/def not true	16.2 (0.3)	15.6 (0.4)	
How far did your mother get in school?	Graduated HS or more	86.2 (0.3)	87.1 (0.4)	**0.0001**
	Didn't graduate HS	13.8 (0.3)	12.9 (0.4)	
How far did your father get in school?	Graduated HS or more	85.2 (0.4)	86.2 (0.4)	**0.0004**
	Didn't graduate HS	14.8 (0.4)	13.9 (0.4)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	87.8 (0.3)	89.3 (0.3)	**0.0000**
	At least once	12.3 (0.3)	10.7 (0.3)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	76.0 (0.5)	78.1 (0.5)	**0.0000**
	More than a year ago	24.0 (0.5)	21.9 (0.5)	
During the past 30 days, on how many days did you smoke cigarettes?	None	95.9 (0.2)	96.2 (0.2)	**0.0229**
	At least 1 day	4.1 (0.2)	3.8 (0.2)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	92.1 (0.2)	92.5 (0.3)	**0.0158**
	At least 1 day	7.9 (0.2)	7.5 (0.3)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	94.7 (0.2)	95.0 (0.2)	0.0829
	At least once	5.3 (0.2)	5.0 (0.2)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	91.2 (0.2)	91.4 (0.3)	0.2159
	At least 1 day	8.8 (0.2)	8.6 (0.3)	
What language is usually spoken at home?	English	79.3 (0.3)	80.5 (0.4)	**0.0000**
	Other language	20.7 (0.3)	19.5 (0.4)	
How do you describe yourself? (Select one or more responses.)	White	48.0 (0.4)	50.7 (0.5)	**0.0000**
	Hispanic	18.1 (0.3)	16.6 (0.4)	**0.0000**
	American Indian/Alaska Native	3.6 (0.2)	3.3 (0.2)	**0.0012**
	Asian	8.8 (0.2)	9.7 (0.3)	**0.0000**
	Black/African American	4.6 (0.2)	4.0 (0.2)	**0.0000**
	Pacific Islander	2.0 (0.1)	1.9 (0.1)	0.4944

* 95% confidence interval, p-value significant if less than 0.05

Non-completion among 10th Grade

a. Non-completers in the state sample were more likely to report low grades in school, not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, current marijuana use, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic, American Indian/Alaska Native or Black/African American.

b. All respondents in the state sample were more likely to report low grades in school and having a mother that didn't graduate high school. Non-completers were less likely to be white and more likely to be Hispanic.

c. Non-completers in all participating schools (census) were more likely to report low grades in school, not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, current cigarette smoking, current marijuana use, binge drinking, current alcohol use, living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic, American Indian/Alaska Native, Black/African American or Pacific Islander.

d. All respondents to completers in all participating schools (census) were more likely to report low grades in school, not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, current cigarette smoking, current marijuana use, binge drinking, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic, American Indian/Alaska Native or Black/African American.

Table 3a: Comparison of student characteristics among 10th grade non-completers to completers in the state sample.

Question	Options	Completers Percent (±CI)	Non-completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	60.2 (3.0)	75.8 (1.0)	**0.0000**
	Mostly Cs, Ds or Fs	39.8 (3.0)	24.2 (1.0)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	80.8 (2.1)	85.6 (0.8)	**0.0000**
	no/mostly & NO/def not true	19.2 (2.1)	14.4 (0.8)	
How far did your mother get in school?	Graduated HS or more	78.2 (2.8)	88.1 (0.8)	**0.0000**
	Didn't graduate HS	21.8 (2.8)	11.9 (0.8)	
How far did your father get in school?	Graduated HS or more	79.5 (2.9)	87.3 (0.9)	**0.0000**
	Didn't graduate HS	20.5 (2.9)	12.7 (0.9)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	82.0 (2.4)	87.5 (0.8)	**0.0000**
	At least once	18.0 (2.4)	12.5 (0.8)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	72.2 (4.1)	80.2 (1.3)	**0.0001**
	More than a year ago	27.8 (4.1)	19.8 (1.3)	
During the past 30 days, on how many days did you smoke cigarettes?	None	91.0 (1.6)	92.5 (0.6)	0.0750
	At least 1 day	9.0 (1.6)	7.5 (0.6)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	77.6 (2.4)	82.5 (0.9)	**0.0000**
	At least 1 day	22.4 (2.4)	17.5 (0.9)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	88.2 (1.9)	89.8 (0.7)	0.1044
	At least once	11.8 (1.9)	10.2 (0.7)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	77.6 (2.4)	79.7 (0.9)	0.1073
	At least 1 day	22.4 (2.4)	20.4 (0.9)	
What language is usually spoken at home?	English	77.4 (2.4)	82.8 (0.9)	**0.0000**
	Other language	22.6 (2.4)	17.2 (0.9)	
How do you describe yourself? (Select one or more responses.)	White	46.9 (2.6)	58.0 (1.2)	**0.0000**
	Hispanic	22.5 (2.2)	12.6 (0.8)	**0.0000**
	American Indian/Alaska Native	3.7 (1.0)	2.1 (0.3)	**0.0004**
	Asian	5.6 (1.2)	10.1 (0.7)	**0.0000**
	Black/African American	6.5 (1.3)	4.5 (0.5)	**0.0015**
	Pacific Islander	2.0 (0.7)	2.2 (0.4)	0.6026

* 95% confidence interval, p-value significant if less than 0.05

Table 3b: Comparison of student characteristics among all 10th grade respondents to completers in the state sample.

Question	Options	All Respondents Percent (±CI)	All Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	73.6 (0.9)	75.8 (1.0)	**0.0014**
	Mostly Cs, Ds or Fs	26.4 (0.9)	24.2 (1.0)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	84.6 (0.8)	85.6 (0.8)	0.0821
	no/mostly & NO/def not true	15.4 (0.8)	14.4 (0.8)	
How far did your mother get in school?	Graduated HS or more	86.8 (0.8)	88.1 (0.8)	**0.0211**
	Didn't graduate HS	13.3 (0.8)	11.9 (0.8)	
How far did your father get in school?	Graduated HS or more	86.2 (0.8)	87.3 (0.9)	0.0590
	Didn't graduate HS	13.8 (0.8)	12.7 (0.9)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	86.8 (0.7)	87.5 (0.8)	0.1669
	At least once	13.2 (0.7)	12.5 (0.8)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	79.1 (1.2)	80.2 (1.3)	0.2076
	More than a year ago	21.0 (1.2)	19.8 (1.3)	
During the past 30 days, on how many days did you smoke cigarettes?	None	92.1 (0.6)	92.5 (0.6)	0.3187
	At least 1 day	7.9 (0.6)	7.5 (0.6)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	81.9 (0.8)	82.5 (0.9)	0.2759
	At least 1 day	18.1 (0.8)	17.5 (0.9)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	89.4 (0.6)	89.8 (0.7)	0.5232
	At least once	10.6 (0.6)	10.2 (0.7)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	79.4 (0.9)	79.7 (0.9)	0.6998
	At least 1 day	20.6 (0.9)	20.4 (0.9)	
What language is usually spoken at home?	English	82.0 (0.8)	82.8 (0.9)	0.1957
	Other language	18.0 (0.8)	17.2 (0.9)	
How do you describe yourself? (Select one or more responses.)	White	56.0 (1.0)	58.0 (1.2)	**0.0113**
	Hispanic	14.3 (0.7)	12.6 (0.8)	**0.0019**
	American Indian/Alaska Native	2.4 (0.3)	2.1 (0.3)	0.1988
	Asian	9.3 (0.6)	10.1 (0.7)	0.1202
	Black/African American	4.9 (0.5)	4.5 (0.5)	0.2158
	Pacific Islander	2.2 (0.3)	2.2 (0.4)	0.7861

* 95% confidence interval, p-value significant if less than 0.05

Table 3c: Comparison of student characteristics among 10th grade non-completers to completers in all participating schools (census).

Question	Options	Non-completers Percent (±CI)	Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	60.9 (1.2)	75.0 (0.4)	0.0000
	Mostly Cs, Ds or Fs	39.1 (1.2)	25.0 (0.4)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	79.9 (0.9)	85.1 (0.3)	0.0000
	no/mostly & NO/def not true	20.1 (0.9)	14.9 (0.3)	
How far did your mother get in school?	Graduated HS or more	80.1 (1.1)	86.6 (0.3)	0.0000
	Didn't graduate HS	20.0 (1.1)	13.4 (0.3)	
How far did your father get in school?	Graduated HS or more	78.2 (1.2)	85.2 (0.4)	0.0000
	Didn't graduate HS	21.8 (1.2)	14.8 (0.4)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	79.3 (1.0)	86.9 (0.3)	0.0000
	At least once	20.7 (1.0)	13.1 (0.3)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	69.6 (1.8)	78.7 (0.5)	0.0000
	More than a year ago	30.4 (1.8)	21.3 (0.5)	
During the past 30 days, on how many days did you smoke cigarettes?	None	89.5 (0.7)	92.1 (0.3)	0.0000
	At least 1 day	10.5 (0.7)	7.9 (0.3)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	78.3 (1.0)	82.0 (0.4)	0.0000
	At least 1 day	21.7 (1.0)	18.0 (0.4)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	86.6 (0.8)	88.5 (0.3)	0.0000
	At least once	13.4 (0.8)	11.5 (0.3)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	77.2 (1.0)	79.3 (0.4)	0.0001
	At least 1 day	22.8 (1.0)	20.7 (0.4)	
What language is usually spoken at home?	English	73.8 (1.0)	82.2 (0.4)	0.0000
	Other language	26.2 (1.0)	17.8 (0.4)	
How do you describe yourself? (Select one or more responses.)	White	43.8 (1.1)	56.9 (0.5)	0.0000
	Hispanic	25.3 (0.9)	15.9 (0.4)	0.0000
	American Indian/Alaska Native	3.0 (0.4)	2.3 (0.1)	0.0000
	Asian	6.0 (0.5)	8.5 (0.3)	0.0000
	Black/African American	6.9 (0.5)	3.9 (0.2)	0.0000
	Pacific Islander	2.3 (0.3)	1.9 (0.1)	0.0352

* 95% confidence interval, p-value significant if less than 0.05

Table 4d: Comparison of student characteristics among all 10th grade respondents to completers in all participating schools (census).

Question	Options	All Respondents Percent (±CI)	All Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	73.1 (0.4)	75.0 (0.4)	**0.0000**
	Mostly Cs, Ds or Fs	26.9 (0.4)	25.0 (0.4)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	84.2 (0.3)	85.1 (0.3)	**0.0000**
	no/mostly & NO/def not true	15.8 (0.3)	14.9 (0.3)	
How far did your mother get in school?	Graduated HS or more	85.7 (0.3)	86.6 (0.3)	**0.0001**
	Didn't graduate HS	14.3 (0.3)	13.4 (0.3)	
How far did your father get in school?	Graduated HS or more	84.2 (0.4)	85.2 (0.4)	**0.0000**
	Didn't graduate HS	15.8 (0.4)	14.8 (0.4)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	85.8 (0.3)	86.9 (0.3)	**0.0000**
	At least once	14.2 (0.3)	13.1 (0.3)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	77.6 (0.5)	78.7 (0.5)	**0.0022**
	More than a year ago	22.4 (0.5)	21.3 (0.5)	
During the past 30 days, on how many days did you smoke cigarettes?	None	91.6 (0.2)	92.1 (0.3)	**0.0030**
	At least 1 day	8.5 (0.2)	7.9 (0.3)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	81.4 (0.3)	82.0 (0.4)	**0.0082**
	At least 1 day	18.6 (0.3)	18.0 (0.4)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	88.0 (0.3)	88.5 (0.3)	**0.0225**
	At least once	12.0 (0.3)	11.5 (0.3)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	78.8 (0.4)	79.3 (0.4)	0.0897
	At least 1 day	21.2 (0.4)	20.7 (0.4)	
What language is usually spoken at home?	English	80.9 (0.3)	82.2 (0.4)	**0.0000**
	Other language	19.2 (0.3)	17.8 (0.4)	
How do you describe yourself? (Select one or more responses.)	White	54.6 (0.4)	56.9 (0.5)	**0.0000**
	Hispanic	17.6 (0.3)	15.9 (0.4)	**0.0000**
	American Indian/Alaska Native	2.5 (0.1)	2.3 (0.1)	0.1284
	Asian	8.1 (0.2)	8.5 (0.3)	**0.0240**
	Black/African American	4.4 (0.2)	3.9 (0.2)	**0.0001**
	Pacific Islander	2.0 (0.1)	1.9 (0.1)	0.5917

* 95% confidence interval, p-value significant if less than 0.05

Non-completion among 12th Grade

a. Non-completers in the state sample were more likely to report low grades in school, having a mother and father that didn't graduate high school, not seeing a dentist, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic or Black/African American.

b. All respondents in the state sample were less likely to be white.

c. Non-completers in all participating schools (census) were more likely to report low grades in school, not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, current cigarette smoking, current marijuana use, binge drinking, current alcohol drinking, and living in a home where English isn't usually spoken. Non-completers were less likely to be white or Asian, and more likely to be Hispanic, American Indian/Alaska Native or Black/African American.

d. All respondents compared to completers in all participating schools (census) were more likely to report low grades in school, not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, and living in a home where English isn't usually spoken. Non-completers were less likely to be white, and more likely to be Hispanic or Black/African American.

Table 4a: Comparison of student characteristics among 12th grade non-completers to completers in the state sample.

Question	Options	Completers Percent (±CI)	Non-completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	63.0 (3.9)	71.0 (1.2)	**0.0000**
	Mostly Cs, Ds or Fs	37.0 (3.9)	29.0 (1.2)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	86.4 (2.4)	87.4 (0.9)	0.3993
	no/mostly & NO/def not true	13.6 (2.4)	12.6 (0.9)	
How far did your mother get in school?	Graduated HS or more	83.0 (3.3)	87.9 (0.9)	**0.0014**
	Didn't graduate HS	17.0 (3.3)	12.1 (0.9)	
How far did your father get in school?	Graduated HS or more	80.8 (3.6)	86.4 (1.0)	**0.0009**
	Didn't graduate HS	19.2 (3.6)	13.6 (1.0)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	83.6 (2.9)	86.3 (0.9)	0.0571
	At least once	16.4 (2.9)	13.7 (0.9)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	70.0 (5.5)	76.3 (1.5)	**0.0217**
	More than a year ago	30.0 (5.5)	23.7 (1.5)	
During the past 30 days, on how many days did you smoke cigarettes?	None	84.9 (2.6)	87.5 (0.9)	0.0572
	At least 1 day	15.1 (2.6)	12.5 (0.9)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	71.7 (3.4)	73.8 (1.2)	0.2290
	At least 1 day	28.3 (3.4)	26.2 (1.2)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	79.5 (3.1)	81.4 (1.0)	0.2207
	At least once	20.5 (3.1)	18.6 (1.0)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	66.6 (3.5)	67.6 (1.2)	0.5953
	At least 1 day	33.4 (3.5)	32.4 (1.2)	
What language is usually spoken at home?	English	77.4 (3.1)	83.8 (1.0)	**0.0000**
	Other language	22.6 (3.1)	16.2 (1.0)	
How do you describe yourself? (Select one or more responses.)	White	49.5 (3.3)	60.6 (1.3)	**0.0000**
	Hispanic	21.2 (2.7)	13.6 (0.9)	**0.0000**
	American Indian/Alaska Native	2.8 (1.1)	1.9 (0.4)	0.0926
	Asian	6.7 (1.7)	8.9 (0.7)	**0.0340**
	Black/African American	6.5 (1.6)	4.5 (0.5)	**0.0122**
	Pacific Islander	1.9 (0.9)	1.9 (0.4)	0.9347

* 95% confidence interval, p-value significant if less than 0.05

Table 4b: Comparison of student characteristics among all 12th grade respondents to completers in the state sample.

Question	Options	All Respondents Percent (±CI)	All Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	70.2 (1.1)	71.0 (1.2)	0.3372
	Mostly Cs, Ds or Fs	29.8 (1.1)	29.0 (1.2)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	87.0 (0.8)	87.4 (0.9)	0.5110
	no/mostly & NO/def not true	13.0 (0.8)	12.6 (0.9)	
How far did your mother get in school?	Graduated HS or more	87.3 (0.9)	87.9 (0.9)	0.2856
	Didn't graduate HS	12.8 (0.9)	12.1 (0.9)	
How far did your father get in school?	Graduated HS or more	85.9 (0.9)	86.4 (1.0)	0.4172
	Didn't graduate HS	14.1 (0.9)	13.6 (1.0)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	85.8 (0.9)	86.3 (0.9)	0.3907
	At least once	14.2 (0.9)	13.7 (0.9)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	75.5 (1.5)	76.3 (1.5)	0.4829
	More than a year ago	24.5 (1.5)	23.7 (1.5)	
During the past 30 days, on how many days did you smoke cigarettes?	None	87.0 (0.8)	87.5 (0.9)	0.4060
	At least 1 day	13.1 (0.8)	12.5 (0.9)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	73.3 (1.1)	73.8 (1.2)	0.5423
	At least 1 day	26.7 (1.1)	26.2 (1.2)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	80.8 (1.0)	81.4 (1.0)	0.3660
	At least once	19.2 (1.0)	18.6 (1.0)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	67.2 (1.1)	67.6 (1.2)	0.6214
	At least 1 day	32.9 (1.1)	32.4 (1.2)	
What language is usually spoken at home?	English	82.8 (0.9)	83.8 (1.0)	0.1433
	Other language	17.2 (0.9)	16.2 (1.0)	
How do you describe yourself? (Select one or more responses.)	White	58.8 (1.2)	60.6 (1.3)	**0.0433**
	Hispanic	14.8 (0.9)	13.6 (0.9)	0.0616
	American Indian/Alaska Native	2.1 (0.3)	1.9 (0.4)	0.5930
	Asian	8.6 (0.7)	8.9 (0.7)	0.5453
	Black/African American	4.9 (0.5)	4.5 (0.5)	0.3059
	Pacific Islander	2.0 (0.3)	1.9 (0.4)	0.8466

* 95% confidence interval, p-value significant if less than 0.05

Table 4c: Comparison of student characteristics among 12th grade non-completers to completers in all participating schools (census).

Question	Options	Non-completers Percent (±CI)	Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	61.3 (0.5)	72.2 (0.0)	**0.0000**
	Mostly Cs, Ds or Fs	38.7 (0.5)	27.8 (0.0)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	83.5 (0.4)	87.4 (0.0)	**0.0000**
	no/mostly & NO/def not true	16.5 (0.4)	12.6 (0.0)	
How far did your mother get in school?	Graduated HS or more	81.0 (0.4)	86.3 (0.0)	**0.0000**
	Didn't graduate HS	19.0 (0.4)	13.7 (0.0)	
How far did your father get in school?	Graduated HS or more	78.8 (0.4)	84.5 (0.0)	**0.0000**
	Didn't graduate HS	21.2 (0.4)	15.5 (0.0)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	79.8 (0.4)	86.0 (0.0)	**0.0000**
	At least once	20.2 (0.4)	14.1 (0.0)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	67.9 (0.6)	76.5 (0.0)	**0.0000**
	More than a year ago	32.1 (0.6)	23.5 (0.0)	
During the past 30 days, on how many days did you smoke cigarettes?	None	84.3 (0.4)	87.1 (0.0)	**0.0000**
	At least 1 day	15.7 (0.4)	12.9 (0.0)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	71.3 (0.5)	74.5 (0.0)	**0.0000**
	At least 1 day	28.7 (0.5)	25.5 (0.0)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	78.7 (0.4)	81.3 (0.0)	**0.0001**
	At least once	21.4 (0.4)	18.7 (0.0)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	65.5 (0.5)	67.4 (0.0)	**0.0187**
	At least 1 day	34.5 (0.5)	32.6 (0.0)	
What language is usually spoken at home?	English	75.5 (0.4)	82.6 (0.0)	**0.0000**
	Other language	24.5 (0.4)	17.4 (0.0)	
How do you describe yourself? (Select one or more responses.)	White	48.4 (0.5)	59.5 (0.0)	**0.0000**
	Hispanic	22.7 (0.4)	15.8 (0.0)	**0.0000**
	American Indian/Alaska Native	2.6 (0.1)	2.0 (0.0)	**0.0051**
	Asian	6.6 (0.3)	8.4 (0.0)	**0.0000**
	Black/African American	7.3 (0.2)	3.8 (0.0)	**0.0000**
	Pacific Islander	2.1 (0.1)	1.8 (0.0)	0.1525

* 95% confidence interval, p-value significant if less than 0.05

Table 4d: Comparison of student characteristics among all 12th grade respondents to completers in all participating schools (census).

Question	Options	All Respondents Percent (±CI)	All Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	71.1 (0.5)	72.2 (0.5)	**0.0005**
	Mostly Cs, Ds or Fs	29.0 (0.5)	27.8 (0.5)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	86.8 (0.3)	87.4 (0.4)	**0.0115**
	no/mostly & NO/def not true	13.3 (0.3)	12.6 (0.4)	
How far did your mother get in school?	Graduated HS or more	85.8 (0.4)	86.3 (0.4)	**0.0341**
	Didn't graduate HS	14.2 (0.4)	13.7 (0.4)	
How far did your father get in school?	Graduated HS or more	83.9 (0.4)	84.5 (0.4)	**0.0427**
	Didn't graduate HS	16.1 (0.4)	15.5 (0.4)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	85.2 (0.4)	86.0 (0.4)	**0.0028**
	At least once	14.8 (0.4)	14.1 (0.4)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	75.6 (0.6)	76.5 (0.6)	**0.0424**
	More than a year ago	24.4 (0.6)	23.5 (0.6)	
During the past 30 days, on how many days did you smoke cigarettes?	None	86.7 (0.3)	87.1 (0.4)	0.0981
	At least 1 day	13.3 (0.3)	12.9 (0.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	74.0 (0.4)	74.5 (0.5)	0.1258
	At least 1 day	26.0 (0.4)	25.5 (0.5)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	80.9 (0.4)	81.3 (0.4)	0.1137
	At least once	19.1 (0.4)	18.7 (0.4)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	67.1 (0.5)	67.4 (0.5)	0.4167
	At least 1 day	32.9 (0.5)	32.6 (0.5)	
What language is usually spoken at home?	English	81.6 (0.4)	82.6 (0.4)	**0.0011**
	Other language	18.4 (0.4)	17.4 (0.4)	
How do you describe yourself? (Select one or more responses.)	White	57.9 (0.5)	59.5 (0.5)	**0.0000**
	Hispanic	16.8 (0.4)	15.8 (0.4)	**0.0003**
	American Indian/Alaska Native	2.0 (0.1)	2.0 (0.1)	0.4736
	Asian	8.2 (0.3)	8.4 (0.3)	0.2010
	Black/African American	4.3 (0.2)	3.8 (0.2)	**0.0010**
	Pacific Islander	1.9 (0.1)	1.8 (0.1)	0.6108

* 95% confidence interval, p-value significant if less than 0.05

Appendix D: Student Characteristics by Optional Questions

Methods

Risk ratio tables comparing student characteristics of respondents who answered optional questions compared to those that did not are provided in Section 8. Student-Level Optional Question Bias. Differences in student characteristics show if respondents who took the optional questions are different from those that did not take them. Differences may indicate that the optional questions results may have bias.

Risk ratio tables comparing all survey respondents to optional question takers are also provided in Section 8., Student-Level Optional Question Bias. Comparing all respondents to optional question takers shows the potential magnitude of the bias on the actual optional survey question results.

Instead of presenting risk ratios, Tables 1-3 show the differences in prevalence for selected student characteristic questions by grade for:
   a. Non-optional question takers versus optional question takers in the state sample
   b. All respondents versus optional question takers in the state sample
   c. Non-optional question takers versus optional question takers in all participating schools (census)
   d. All respondents versus optional question takers in all participating schools (census)

Results

Non-completion among 8th Grade
Compared to optional question takers:
   a. Non-optional question takers in the state sample were more likely to report low grades in school, skipping/cutting meals due to finances, not seeing a dentist, and less likely to report current alcohol drinking. Non-optional question takers were less likely to be American Indian/Alaska Native.
   b. All respondents in the state sample were more likely to report low grades in school, skipping/cutting meals due to finances, not seeing a dentist, and living in a home where English isn't usually spoken. Non-optional question takers were less likely to be white.
   c. Non-optional question takers in all participating schools (census) were more likely to report low grades in school, skipping/cutting meals due to finances, and not seeing a dentist. Non-optional questions were more likely to be white or Hispanic, and less likely to be Asian, Black/African American, or Pacific Islander.
   d. All respondents in all participating schools (census) were more likely to report low grades in school, skipping/cutting meals due to finances, and not seeing a dentist. Non-optional question were more likely to be Hispanic, and less likely to be Asian, Black/African American, or Pacific Islander.

Table 1a: Comparison of student characteristics among 8th grade non-optional question takers to optional question takers in the state sample.

Question	Options	Did Not Administered Optional Questions Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	79.4 (0.9)	82.6 (1.4)	**0.0003**
	Mostly Cs, Ds or Fs	20.6 (0.9)	17.4 (1.4)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	85.9 (0.8)	86.3 (1.2)	0.5863
	no/mostly & NO/def not true	14.1 (0.8)	13.7 (1.2)	
How far did your mother get in school?	Graduated HS or more	87.6 (0.9)	88.3 (1.4)	0.4359
	Didn't graduate HS	12.4 (0.9)	11.8 (1.4)	
How far did your father get in school?	Graduated HS or more	87.5 (0.9)	86.5 (1.5)	0.2650
	Didn't graduate HS	12.5 (0.9)	13.5 (1.5)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	87.9 (0.7)	91.3 (1.0)	**0.0000**
	At least once	12.1 (0.7)	8.7 (1.0)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	76.1 (1.4)	79.4 (2.2)	**0.0153**
	More than a year ago	23.9 (1.4)	20.6 (2.2)	
During the past 30 days, on how many days did you smoke cigarettes?	None	96.2 (0.4)	95.6 (0.7)	0.1587
	At least 1 day	3.8 (0.4)	4.4 (0.7)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	92.8 (0.6)	92.3 (1.0)	0.4181
	At least 1 day	7.2 (0.6)	7.7 (1.0)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	95.7 (0.5)	94.8 (0.8)	0.0562
	At least once	4.3 (0.5)	5.2 (0.8)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	92.3 (0.6)	91.0 (1.0)	**0.0392**
	At least 1 day	7.7 (0.6)	9.0 (1.0)	
What language is usually spoken at home?	English	79.1 (0.9)	80.5 (1.4)	0.0947
	Other language	21.0 (0.9)	19.5 (1.4)	
How do you describe yourself? (Select one or more responses.)	White	48.7 (1.1)	50.8 (1.8)	0.0525
	Hispanic	17.9 (0.9)	17.3 (1.4)	0.5097
	American Indian/Alaska Native	3.0 (0.4)	3.9 (0.7)	**0.0304**
	Asian	9.9 (0.7)	9.8 (1.1)	0.9234
	Black/African American	3.9 (0.4)	4.5 (0.7)	0.2065
	Pacific Islander	1.6 (0.3)	1.7 (0.5)	0.7746

* 95% confidence interval, p-value significant if less than 0.05

Table 1b: Comparison of student characteristics among all 8th grader to optional question takers in the state sample.

Question	Options	Did Not Administered Optional Questions Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	80.3 (0.8)	82.4 (1.4)	**0.0134**
	Mostly Cs, Ds or Fs	19.7 (0.8)	17.6 (1.4)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	86.1 (0.7)	85.8 (1.3)	0.7680
	no/mostly & NO/def not true	14.0 (0.7)	14.2 (1.3)	
How far did your mother get in school?	Graduated HS or more	87.8 (0.7)	88.4 (1.4)	0.4296
	Didn't graduate HS	12.2 (0.7)	11.6 (1.4)	
How far did your father get in school?	Graduated HS or more	87.2 (0.8)	86.7 (1.5)	0.5435
	Didn't graduate HS	12.8 (0.8)	13.3 (1.5)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	88.9 (0.6)	91.4 (1.1)	**0.0002**
	At least once	11.1 (0.6)	8.7 (1.1)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	76.9 (1.2)	81.2 (2.3)	**0.0022**
	More than a year ago	23.1 (1.2)	18.8 (2.3)	
During the past 30 days, on how many days did you smoke cigarettes?	None	96.0 (0.4)	95.6 (0.8)	0.2690
	At least 1 day	4.0 (0.4)	4.5 (0.8)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	92.7 (0.5)	92.3 (1.0)	0.5162
	At least 1 day	7.3 (0.5)	7.7 (1.0)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	95.5 (0.4)	94.8 (0.8)	0.1162
	At least once	4.5 (0.4)	5.3 (0.8)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	91.9 (0.5)	90.9 (1.1)	0.0930
	At least 1 day	8.1 (0.5)	9.1 (1.1)	
What language is usually spoken at home?	English	79.5 (0.8)	81.4 (1.5)	**0.0244**
	Other language	20.5 (0.8)	18.6 (1.5)	
How do you describe yourself? (Select one or more responses.)	White	49.3 (1.0)	51.9 (1.9)	**0.0166**
	Hispanic	17.7 (0.7)	16.8 (1.4)	0.2368
	American Indian/Alaska Native	3.3 (0.3)	3.8 (0.7)	0.1572
	Asian	9.9 (0.6)	10.0 (1.1)	0.8476
	Black/African American	4.1 (0.4)	4.2 (0.7)	0.8111
	Pacific Islander	1.7 (0.2)	1.8 (0.5)	0.7058

* 95% confidence interval, p-value significant if less than 0.05

Table 1c: Comparison of student characteristics among 8th grade non-optional question takers to optional question takers in all participating schools (census).

Question	Options	Did Not Administered Optional Questions Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	77.4 (0.4)	78.7 (0.7)	**0.0019**
	Mostly Cs, Ds or Fs	22.6 (0.4)	21.3 (0.7)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	83.8 (0.4)	83.5 (0.6)	0.4069
	no/mostly & NO/def not true	16.2 (0.4)	16.5 (0.6)	
How far did your mother get in school?	Graduated HS or more	86.2 (0.4)	86.2 (0.7)	0.9949
	Didn't graduate HS	13.8 (0.4)	13.8 (0.7)	
How far did your father get in school?	Graduated HS or more	85.3 (0.4)	85.2 (0.7)	0.9314
	Didn't graduate HS	14.7 (0.4)	14.8 (0.7)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	87.2 (0.3)	89.5 (0.5)	**0.0000**
	At least once	12.8 (0.3)	10.5 (0.5)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	75.8 (0.6)	78.0 (1.1)	**0.0005**
	More than a year ago	24.2 (0.6)	22.0 (1.1)	
During the past 30 days, on how many days did you smoke cigarettes?	None	96.0 (0.2)	95.7 (0.4)	0.0969
	At least 1 day	4.0 (0.2)	4.3 (0.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	92.2 (0.3)	91.7 (0.5)	0.0650
	At least 1 day	7.9 (0.3)	8.4 (0.5)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	94.8 (0.2)	94.6 (0.4)	0.4862
	At least once	5.3 (0.2)	5.4 (0.4)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	91.2 (0.3)	91.1 (0.5)	0.8407
	At least 1 day	8.8 (0.3)	8.9 (0.5)	
What language is usually spoken at home?	English	79.5 (0.4)	79.4 (0.7)	0.8884
	Other language	20.5 (0.4)	20.6 (0.7)	
How do you describe yourself? (Select one or more responses.)	White	48.7 (0.5)	47.2 (0.8)	**0.0033**
	Hispanic	18.2 (0.4)	17.1 (0.6)	**0.0043**
	American Indian/Alaska Native	3.5 (0.2)	3.8 (0.3)	0.0927
	Asian	8.4 (0.3)	10.4 (0.5)	**0.0000**
	Black/African American	4.2 (0.2)	5.7 (0.4)	**0.0000**
	Pacific Islander	1.9 (0.1)	2.3 (0.3)	**0.0052**

* 95% confidence interval, p-value significant if less than 0.05

Table 1d: Comparison of student characteristics among all 10th graders to optional question takers in all participating schools (census).

Question	Options	All Respondents Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	78.7 (0.7)	77.9 (0.3)	**0.0099**
	Mostly Cs, Ds or Fs	22.4 (0.4)	21.3 (0.7)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	83.8 (0.3)	83.5 (0.6)	0.4468
	no/mostly & NO/def not true	16.2 (0.3)	16.5 (0.6)	
How far did your mother get in school?	Graduated HS or more	86.2 (0.3)	86.2 (0.7)	0.9131
	Didn't graduate HS	13.8 (0.3)	13.8 (0.7)	
How far did your father get in school?	Graduated HS or more	85.2 (0.4)	85.2 (0.7)	0.9417
	Didn't graduate HS	14.8 (0.4)	14.8 (0.7)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	87.8 (0.3)	89.5 (0.5)	**0.0000**
	At least once	12.3 (0.3)	10.5 (0.5)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	76.0 (0.5)	78.0 (1.1)	**0.0011**
	More than a year ago	24.0 (0.5)	22.0 (1.1)	
During the past 30 days, on how many days did you smoke cigarettes?	None	95.9 (0.2)	95.7 (0.4)	0.1687
	At least 1 day	4.1 (0.2)	4.3 (0.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	92.1 (0.2)	91.7 (0.5)	0.1180
	At least 1 day	7.9 (0.2)	8.4 (0.5)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	94.7 (0.2)	94.6 (0.4)	0.5509
	At least once	5.3 (0.2)	5.4 (0.4)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	91.2 (0.2)	91.1 (0.5)	0.8297
	At least 1 day	8.8 (0.2)	8.9 (0.5)	
What language is usually spoken at home?	English	79.3 (0.3)	79.4 (0.7)	0.6933
	Other language	20.7 (0.3)	20.6 (0.7)	
How do you describe yourself? (Select one or more responses.)	White	48.0 (0.4)	47.2 (0.8)	0.1161
	Hispanic	18.1 (0.3)	17.1 (0.6)	**0.0096**
	American Indian/Alaska Native	3.6 (0.2)	3.8 (0.3)	0.2417
	Asian	8.8 (0.2)	10.4 (0.5)	**0.0000**
	Black/African American	4.6 (0.2)	5.7 (0.4)	**0.0000**
	Pacific Islander	2.0 (0.1)	2.3 (0.3)	**0.0477**

* 95% confidence interval, p-value significant if less than 0.05

Non-completion among 10th Grade

Compared to optional question takers:

a. Non-optional question takers in the state sample were less likely to report current marijuana use and living in a home where English isn't usually spoken, and more likely to report binge drinking. Non-optional question takers were more likely to be white or Hispanic, and less likely to be Asian, Black/African American, or Pacific Islander.

b. All respondents in the state sample were more likely to report living in a home where English isn't usually spoken. Non-optional question takers were more likely to be white or Hispanic, and less likely to be Asian, Black/African American, or Pacific Islander.

c. Non-optional question takers in all participating schools (census) were less likely to report having a mother that didn't graduate high school and current marijuana use, and more likely to report skipping/cutting meals due to finances and living in a home where English isn't usually spoken. Non-optional questions were less likely to be American Indian/Alaska Native or Black/African American.

d. All respondents in all participating schools (census) were more likely to report skipping/cutting meals due to finances. Non-optional question were more less likely to be Black/African American.

Table 2a: Comparison of student characteristics among 10th grade non-optional question takers to optional question takers in the state sample.

Question	Options	Non-completers Percent (±CI)	Completers Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	73.7 (1.2)	73.4 (1.5)	0.7864
	Mostly Cs, Ds or Fs	26.3 (1.2)	26.6 (1.5)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	84.9 (1.0)	84.1 (1.2)	0.2874
	no/mostly & NO/def not true	15.1 (1.0)	15.9 (1.2)	
How far did your mother get in school?	Graduated HS or more	87.2 (1.0)	86.1 (1.3)	0.1664
	Didn't graduate HS	12.8 (1.0)	13.9 (1.3)	
How far did your father get in school?	Graduated HS or more	86.1 (1.1)	86.3 (1.3)	0.7689
	Didn't graduate HS	13.9 (1.1)	13.7 (1.3)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	87.0 (0.9)	86.4 (1.2)	0.4328
	At least once	13.0 (0.9)	13.6 (1.2)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	80.0 (1.5)	77.6 (2.0)	0.0610
	More than a year ago	20.0 (1.5)	22.4 (2.0)	
During the past 30 days, on how many days did you smoke cigarettes?	None	92.2 (0.7)	91.9 (0.9)	0.6422
	At least 1 day	7.8 (0.7)	8.1 (0.9)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	82.6 (0.8)	80.8 (1.4)	**0.0316**
	At least 1 day	17.4 (0.8)	19.2 (1.4)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	88.9 (0.6)	90.3 (1.0)	**0.0341**
	At least once	11.1 (0.6)	9.7 (1.0)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	79.6 (1.1)	79.2 (1.4)	0.6314
	At least 1 day	20.4 (1.1)	20.9 (1.4)	
What language is usually spoken at home?	English	83.7 (1.0)	79.6 (1.4)	**0.0000**
	Other language	16.3 (1.0)	20.5 (1.4)	
How do you describe yourself? (Select one or more responses.)	White	60.1 (1.3)	49.8 (1.7)	**0.0000**
	Hispanic	15.0 (1.0)	13.3 (1.1)	**0.0242**
	American Indian/Alaska Native	2.4 (0.4)	2.4 (0.5)	0.9142
	Asian	7.2 (0.7)	12.5 (1.1)	**0.0000**
	Black/African American	3.2 (0.5)	7.5 (0.9)	**0.0000**
	Pacific Islander	1.7 (0.4)	2.8 (0.5)	**0.0005**

Table 2b: Comparison of student characteristics among all 10th grader to optional question takers in the state sample.

Question	Options	Did Not Administered Optional Questions Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	73.6 (0.9)	74.1 (1.5)	0.5798
	Mostly Cs, Ds or Fs	26.4 (0.9)	25.9 (1.5)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	84.6 (0.8)	84.1 (1.3)	0.5547
	no/mostly & NO/def not true	15.4 (0.8)	15.9 (1.3)	
How far did your mother get in school?	Graduated HS or more	86.8 (0.8)	86.4 (1.3)	0.6465
	Didn't graduate HS	13.3 (0.8)	13.6 (1.3)	
How far did your father get in school?	Graduated HS or more	86.2 (0.8)	86.2 (1.4)	0.9919
	Didn't graduate HS	13.8 (0.8)	13.8 (1.4)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	86.8 (0.7)	86.3 (1.2)	0.5239
	At least once	13.2 (0.7)	13.7 (1.2)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	79.1 (1.2)	77.5 (2.1)	0.2121
	More than a year ago	21.0 (1.2)	22.5 (2.1)	
During the past 30 days, on how many days did you smoke cigarettes?	None	92.1 (0.6)	91.8 (1.0)	0.5948
	At least 1 day	7.9 (0.6)	8.2 (1.0)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	81.9 (0.8)	81.0 (1.4)	0.2687
	At least 1 day	18.1 (0.8)	19.0 (1.4)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	89.4 (0.6)	90.2 (1.0)	0.2285
	At least once	10.6 (0.6)	9.8 (1.0)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	79.4 (0.9)	79.2 (1.4)	0.8159
	At least 1 day	20.6 (0.9)	20.8 (1.4)	
What language is usually spoken at home?	English	82.0 (0.8)	79.8 (1.4)	**0.0060**
	Other language	18.0 (0.8)	20.2 (1.4)	
How do you describe yourself? (Select one or more responses.)	White	56.0 (1.0)	50.5 (1.7)	**0.0000**
	Hispanic	14.3 (0.7)	12.8 (1.2)	**0.0305**
	American Indian/Alaska Native	2.4 (0.3)	2.4 (0.5)	0.9227
	Asian	9.3 (0.6)	12.9 (1.2)	**0.0000**
	Black/African American	4.9 (0.5)	7.4 (0.9)	**0.0000**
	Pacific Islander	2.2 (0.3)	2.9 (0.6)	**0.0163**

* 95% confidence interval, p-value significant if less than 0.05

Table 2c: Comparison of student characteristics among 10th grade non-optional question takers to optional question takers in all participating schools (census).

Question	Options	Did Not Administered Optional Questions Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	73.1 (0.5)	73.4 (0.6)	0.3619
	Mostly Cs, Ds or Fs	27.0 (0.5)	26.6 (0.6)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	84.0 (0.4)	84.6 (0.5)	0.0607
	no/mostly & NO/def not true	16.0 (0.4)	15.4 (0.5)	
How far did your mother get in school?	Graduated HS or more	86.1 (0.4)	85.3 (0.5)	**0.0208**
	Didn't graduate HS	13.9 (0.4)	14.7 (0.5)	
How far did your father get in school?	Graduated HS or more	84.1 (0.5)	84.3 (0.6)	0.5487
	Didn't graduate HS	15.9 (0.5)	15.7 (0.6)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	85.2 (0.4)	86.8 (0.5)	**0.0000**
	At least once	14.8 (0.4)	13.2 (0.5)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	77.5 (0.6)	78.0 (0.9)	0.3567
	More than a year ago	22.5 (0.6)	22.0 (0.9)	
During the past 30 days, on how many days did you smoke cigarettes?	None	91.6 (0.3)	91.5 (0.4)	0.6867
	At least 1 day	8.4 (0.3)	8.5 (0.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	81.7 (0.4)	80.8 (0.5)	**0.0175**
	At least 1 day	18.3 (0.4)	19.2 (0.5)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	87.9 (0.4)	88.1 (0.5)	0.5069
	At least once	12.1 (0.4)	11.9 (0.5)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	78.9 (0.5)	78.6 (0.6)	0.3315
	At least 1 day	21.1 (0.5)	21.4 (0.6)	
What language is usually spoken at home?	English	80.7 (0.4)	81.5 (0.5)	**0.0313**
	Other language	19.3 (0.4)	18.5 (0.5)	
How do you describe yourself? (Select one or more responses.)	White	55.2 (0.5)	54.3 (0.7)	0.0519
	Hispanic	17.4 (0.4)	17.4 (0.5)	0.8122
	American Indian/Alaska Native	2.3 (0.2)	2.6 (0.2)	**0.0301**
	Asian	8.0 (0.3)	8.3 (0.4)	0.2322
	Black/African American	4.0 (0.2)	4.9 (0.3)	**0.0000**
	Pacific Islander	1.9 (0.1)	2.1 (0.2)	0.1271

* 95% confidence interval, p-value significant if less than 0.05

Table 2d: Comparison of student characteristics among all 10th graders to optional question takers in all participating schools (census).

Question	Options	All Respondents Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	73.1 (0.4)	73.4 (0.6)	0.3452
	Mostly Cs, Ds or Fs	26.9 (0.4)	26.6 (0.6)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	84.2 (0.3)	84.6 (0.5)	0.1230
	no/mostly & NO/def not true	15.8 (0.3)	15.4 (0.5)	
How far did your mother get in school?	Graduated HS or more	85.7 (0.3)	85.3 (0.5)	0.1865
	Didn't graduate HS	14.3 (0.3)	14.7 (0.5)	
How far did your father get in school?	Graduated HS or more	84.2 (0.4)	84.3 (0.6)	0.6683
	Didn't graduate HS	15.8 (0.4)	15.7 (0.6)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	85.8 (0.3)	86.8 (0.5)	**0.0005**
	At least once	14.2 (0.3)	13.2 (0.5)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	77.6 (0.5)	78.0 (0.9)	0.3808
	More than a year ago	22.4 (0.5)	22.0 (0.9)	
During the past 30 days, on how many days did you smoke cigarettes?	None	91.6 (0.2)	91.5 (0.4)	0.7457
	At least 1 day	8.5 (0.2)	8.5 (0.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	81.4 (0.3)	80.8 (0.5)	0.1140
	At least 1 day	18.6 (0.3)	19.2 (0.5)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	88.0 (0.3)	88.1 (0.5)	0.6850
	At least once	12.0 (0.3)	11.9 (0.5)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	78.8 (0.4)	78.6 (0.6)	0.4695
	At least 1 day	21.2 (0.4)	21.4 (0.6)	
What language is usually spoken at home?	English	80.9 (0.3)	81.5 (0.5)	0.0584
	Other language	19.2 (0.3)	18.5 (0.5)	
How do you describe yourself? (Select one or more responses.)	White	54.6 (0.4)	54.3 (0.7)	0.4924
	Hispanic	17.6 (0.3)	17.4 (0.5)	0.5094
	American Indian/Alaska Native	2.5 (0.1)	2.6 (0.2)	0.2104
	Asian	8.1 (0.2)	8.3 (0.4)	0.3135
	Black/African American	4.4 (0.2)	4.9 (0.3)	**0.0023**
	Pacific Islander	2.0 (0.1)	2.1 (0.2)	0.3304

* 95% confidence interval, p-value significant if less than 0.05

Non-completion among 12th Grade

Compared to optional question takers:

a. Non-optional question takers in the state sample were less likely to report not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, not seeing a dentist, current cigarette smoking, current marijuana use, current drinking, and living in a home where English isn't usually spoken. Non-optional question takers were more likely to be white, and less likely to be Asian, Black/African American, or Pacific Islander.

b. All respondents in the state sample were less likely to report not feeling safe at school, having a mother and father that didn't graduate high school, skipping/cutting meals due to finances, current cigarette smoking, current marijuana use, and living in a home where English isn't usually spoken. Non-optional question takers were more likely to be white, and less likely to be Asian, Black/African American, or Pacific Islander.

c. Non-optional question takers in all participating schools (census) were less likely to report not feeling safe at school, having a mother and father that didn't graduate high school, current cigarette smoking, current marijuana use, binge drinking, current drinking, and living in a home where English isn't usually spoken. Non-optional question takers were more likely to be white, and less likely to be Hispanic, American Indian/Alaska Native, Black/African American, or Pacific Islander.

d. All respondents in all participating schools (census) were less likely to report having a mother and father that didn't graduate high school, current cigarette smoking, current marijuana use, binge drinking, and current drinking. Non-optional question takers were more likely to be white, and less likely to be Hispanic, Black/African American, or Pacific Islander.

Table 3a: Comparison of student characteristics among 12th grade non-optional question takers to optional question takers in the state sample.

Question	Options	Did Not Administered Optional Questions Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	70.5 (1.4)	69.8 (1.8)	0.5287
	Mostly Cs, Ds or Fs	29.5 (1.4)	30.2 (1.8)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	88.0 (1.0)	85.4 (1.4)	**0.0022**
	no/mostly & NO/def not true	12.0 (1.0)	14.6 (1.4)	
How far did your mother get in school?	Graduated HS or more	89.1 (1.0)	84.2 (1.5)	**0.0000**
	Didn't graduate HS	10.9 (1.0)	15.8 (1.5)	
How far did your father get in school?	Graduated HS or more	87.9 (1.1)	82.4 (1.6)	**0.0000**
	Didn't graduate HS	12.1 (1.1)	17.6 (1.6)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	87.1 (1.0)	83.6 (1.5)	**0.0001**
	At least once	12.9 (1.0)	16.4 (1.5)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	77.5 (1.8)	72.3 (2.5)	**0.0009**
	More than a year ago	22.5 (1.8)	27.7 (2.5)	
During the past 30 days, on how many days did you smoke cigarettes?	None	88.0 (1.0)	85.3 (1.4)	**0.0019**
	At least 1 day	12.0 (1.0)	14.7 (1.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	75.4 (1.4)	70.1 (1.8)	**0.0000**
	At least 1 day	24.6 (1.4)	29.9 (1.8)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	81.5 (1.2)	79.7 (1.6)	0.0803
	At least once	18.5 (1.2)	20.3 (1.6)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	68.1 (1.5)	65.7 (1.9)	**0.0406**
	At least 1 day	31.9 (1.5)	34.4 (1.9)	
What language is usually spoken at home?	English	85.4 (1.1)	78.7 (1.6)	**0.0000**
	Other language	14.6 (1.1)	21.3 (1.6)	
How do you describe yourself? (Select one or more responses.)	White	64.1 (1.5)	50.4 (1.9)	**0.0000**
	Hispanic	14.5 (1.1)	15.3 (1.4)	0.3768
	American Indian/Alaska Native	1.9 (0.4)	2.3 (0.6)	0.3643
	Asian	6.8 (0.8)	11.4 (1.2)	**0.0000**
	Black/African American	3.2 (0.5)	7.6 (1.0)	**0.0000**
	Pacific Islander	1.4 (0.4)	2.8 (0.6)	**0.0001**

Table 3b: Comparison of student characteristics among all 12th grader to optional question takers in the state sample.

Question	Options	Did Not Administered Optional Questions Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	70.2 (1.1)	69.6 (1.8)	0.5775
	Mostly Cs, Ds or Fs	29.8 (1.1)	30.4 (1.8)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	87.0 (0.8)	85.2 (1.4)	**0.0273**
	no/mostly & NO/def not true	13.0 (0.8)	14.8 (1.4)	
How far did your mother get in school?	Graduated HS or more	87.3 (0.9)	84.2 (1.5)	**0.0004**
	Didn't graduate HS	12.8 (0.9)	15.8 (1.5)	
How far did your father get in school?	Graduated HS or more	85.9 (0.9)	82.4 (1.7)	**0.0002**
	Didn't graduate HS	14.1 (0.9)	17.6 (1.7)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	85.8 (0.9)	83.5 (1.5)	**0.0064**
	At least once	14.2 (0.9)	16.5 (1.5)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	75.5 (1.5)	72.7 (2.6)	0.0616
	More than a year ago	24.5 (1.5)	27.3 (2.6)	
During the past 30 days, on how many days did you smoke cigarettes?	None	87.0 (0.8)	85.3 (1.4)	**0.0470**
	At least 1 day	13.1 (0.8)	14.7 (1.4)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	73.3 (3.4)	70.0 (1.2)	**0.0021**
	At least 1 day	26.7 (3.4)	30.0 (1.2)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	80.8 (1.0)	79.9 (1.6)	0.3401
	At least once	19.2 (1.0)	20.1 (1.6)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	67.2 (1.1)	65.8 (1.9)	0.2318
	At least 1 day	32.9 (1.1)	34.2 (1.9)	
What language is usually spoken at home?	English	82.8 (0.9)	78.9 (1.6)	**0.0000**
	Other language	17.2 (0.9)	21.1 (1.6)	
How do you describe yourself? (Select one or more responses.)	White	58.8 (1.2)	50.2 (2.0)	**0.0000**
	Hispanic	14.8 (0.9)	15.2 (1.4)	0.6714
	American Indian/Alaska Native	2.1 (0.3)	2.3 (0.6)	0.5193
	Asian	8.6 (0.7)	11.7 (1.3)	**0.0000**
	Black/African American	4.9 (0.5)	7.6 (1.1)	**0.0000**
	Pacific Islander	2.0 (0.3)	2.9 (0.7)	**0.0093**

* 95% confidence interval, p-value significant if less than 0.05

Table 3c: Comparison of student characteristics among 12th grade non-optional question takers to optional question takers in all participating schools (census).

Question	Options	Did Not Administered Optional Questions Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	71.1 (0.6)	71.1 (0.7)	0.9487
	Mostly Cs, Ds or Fs	28.9 (0.6)	28.9 (0.7)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	87.1 (0.4)	86.3 (0.5)	**0.0237**
	no/mostly & NO/def not true	12.9 (0.4)	13.7 (0.5)	
How far did your mother get in school?	Graduated HS or more	86.4 (0.5)	85.0 (0.6)	**0.0002**
	Didn't graduate HS	13.6 (0.5)	15.0 (0.6)	
How far did your father get in school?	Graduated HS or more	84.6 (0.5)	83.0 (0.6)	**0.0001**
	Didn't graduate HS	15.4 (0.5)	17.1 (0.6)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	85.2 (0.5)	85.1 (0.6)	0.7626
	At least once	14.8 (0.5)	14.9 (0.6)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	75.9 (0.8)	75.5 (1.0)	0.4616
	More than a year ago	24.1 (0.8)	24.5 (1.0)	
During the past 30 days, on how many days did you smoke cigarettes?	None	87.2 (0.4)	86.0 (0.5)	**0.0010**
	At least 1 day	12.8 (0.4)	14.0 (0.5)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	74.6 (0.5)	73.1 (0.7)	**0.0010**
	At least 1 day	25.4 (0.5)	26.9 (0.7)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	81.4 (0.5)	80.0 (0.6)	**0.0010**
	At least once	18.6 (0.5)	20.0 (0.6)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	67.8 (0.6)	66.0 (0.8)	**0.0003**
	At least 1 day	32.2 (0.6)	34.0 (0.8)	
What language is usually spoken at home?	English	82.2 (0.5)	81.1 (0.6)	**0.0062**
	Other language	17.8 (0.5)	18.9 (0.6)	
How do you describe yourself? (Select one or more responses.)	White	59.2 (0.6)	56.5 (0.8)	**0.0000**
	Hispanic	16.1 (0.5)	17.6 (0.6)	**0.0002**
	American Indian/Alaska Native	1.9 (0.2)	2.2 (0.2)	**0.0350**
	Asian	8.2 (0.4)	8.2 (0.4)	0.9074
	Black/African American	3.9 (0.2)	4.8 (0.3)	**0.0000**
	Pacific Islander	1.7 (0.2)	2.2 (0.2)	**0.0012**

* 95% confidence interval, p-value significant if less than 0.05

Table 3d: Comparison of student characteristics among all 12th graders to optional question takers in all participating schools (census).

Question	Options	All Respondents Percent (±CI)	Administered Optional Questions Percent (±CI)	Difference p-value
Putting them all together, what were your grades like last year?	Mostly A's or B's	71.1 (0.5)	71.1 (0.7)	0.8678
	Mostly Cs, Ds or Fs	29.0 (0.5)	28.9 (0.7)	
I feel safe at my school.	Yes!/Mostly & yes/def. true	86.8 (0.3)	86.3 (0.5)	0.1407
	no/mostly & NO/def not true	13.3 (0.3)	13.7 (0.5)	
How far did your mother get in school?	Graduated HS or more	85.8 (0.4)	85.0 (0.6)	**0.0244**
	Didn't graduate HS	14.2 (0.4)	15.0 (0.6)	
How far did your father get in school?	Graduated HS or more	83.9 (0.4)	83.0 (0.6)	**0.0149**
	Didn't graduate HS	16.1 (0.4)	17.1 (0.6)	
How often in the past 12 months did you or your family have to cut meal size or skip meals because there wasn't enough money for food?	None	85.2 (0.4)	85.1 (0.6)	0.7842
	At least once	14.8 (0.4)	14.9 (0.6)	
When was the last time you saw a dentist for a check–up, exam, teeth cleaning, or other dental work?	In the past year	75.6 (0.6)	75.5 (1.0)	0.8526
	More than a year ago	24.4 (0.6)	24.5 (1.0)	
During the past 30 days, on how many days did you smoke cigarettes?	None	86.7 (0.3)	86.0 (0.5)	**0.0265**
	At least 1 day	13.3 (0.3)	14.0 (0.5)	
During the past 30 days, on how many days did you: Use marijuana or hashish (weed, hash, pot)?	None	74.0 (0.4)	73.1 (0.7)	**0.0251**
	At least 1 day	26.0 (0.4)	26.9 (0.7)	
Think back over the last 2 weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)	None	80.9 (0.4)	80.0 (0.6)	**0.0253**
	At least once	19.1 (0.4)	20.0 (0.6)	
During the past 30 days, on how many days did you: Drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?	None	67.1 (0.5)	66.0 (0.8)	**0.0125**
	At least 1 day	32.9 (0.5)	34.0 (0.8)	
What language is usually spoken at home?	English	81.6 (0.4)	81.1 (0.6)	0.1483
	Other language	18.4 (0.4)	18.9 (0.6)	
How do you describe yourself? (Select one or more responses.)	White	57.9 (0.5)	56.5 (0.8)	**0.0016**
	Hispanic	16.8 (0.4)	17.6 (0.6)	**0.0395**
	American Indian/Alaska Native	2.0 (0.1)	2.2 (0.2)	0.2260
	Asian	8.2 (0.3)	8.2 (0.4)	0.9897
	Black/African American	4.3 (0.2)	4.8 (0.3)	**0.0097**
	Pacific Islander	1.9 (0.1)	2.2 (0.2)	**0.0301**

* 95% confidence interval, p-value significant if less than 0.05

Appendix E: Small School District Pilot School-Level Participation Bias

Methods

In 2014, the HYS included a Small School District Pilot project (Pilot). The intent of the Pilot was to increase the number of survey participants in schools from "small" school districts and produce Combined Middle School (grades 6, 7 and 8) and Combined High School (grades 9, 10, 11 and 12) results.

A total of 339 schools were eligible to participate in the Small School District Pilot. These schools were from school districts that were determined to be eligible for the Pilot because they had less than 150 students in at least one grade 6, 8, 10 or 12.

Among those eligible, a total of 140 schools and 11,938 students participated in the Pilot from grades 6, 8, 10, and 12. An additional 71 schools and 7,565 students participated in HYS, but did not survey any of their additional grades 7, 9, 11 – so their results are not included in the Pilot and they are considered to be non-Pilot participants.

For more information on the 2014 Pilot, see the Small School District Pilot Report online at http://www.askhys.net/Reports/Additional.

In order to assess bias related to differences among schools that were eligible to participate in the Pilot and did participate compared to those that did not survey any additional grades (participated in HYS, but not the Pilot), we assessed the following school characteristics, available from the Office of Superintendent of Public Instruction at www.k12.wa.us/dataadmin:
- School participation rates by sampling status
- School type - Alternative school status
- School Demographics
  - Percent minority enrollment
  - Percent of students receiving free or reduced price lunch
  - School enrollment by grade
  - Math level indices (for schools with grades 6 and 8) and reading level indices (for schools with grades 6, 8 and 10)
  - On-time graduation rate (for schools with grades 10 and 12)
  - School rural or urban designation based on geographic setting codes

We compared the above characteristics for schools that participated in the Pilot and those that did not. We conducted separate analyses for grades 6, 8, 10 and 12.

For these analyses we used t-test, Fisher's exact and Chi-square to compare schools by participation status. We used Chi-square and Fisher's exact test to compare schools by alternative status. Fisher's exact was used if cell sizes were five or fewer and Chi-square used otherwise. We used t-test to compare schools on percent minority enrollment, percent of students receiving free or reduced price lunch, math and reading level indices, on-time graduation rate, and grade-level school enrollment. Comparisons were considered statistically significant if the p-value was less than 0.05 (that is, a difference of the size found would be expected to occur by chance less than 5 times in 100).

Results

School Participation Rates by Participation in the Pilot

Sixth and 8th grade schools in the state sample were significantly more likely to participate than 6th and 8th grade schools that were not sampled (Table 2a). There was not a significant difference in participation for sampled 10th and 12th grade schools. Higher participation rates for state sampled schools are expected, because state sample schools were contacted multiple times to solicit their participation, whereas volunteer non-sampled schools were not contacted. Table 1b shows participation status for all eligible schools – census schools (state sample plus volunteer non-sampled schools); the number of schools in each category is the sum of those in Tables 2a-b.

Among schools eligible for the Pilot, participation rates varied from 54% among 6th grade to 64% among 10th and 12th grades (Table 1a).

Table 1a: HYS Participation status by grade for schools eligible for the Pilot

Grade	Participated in HYS	Eligible for Pilot	Participation Rate of Schools from Small Districts (%)
6	106	198	53.5%
8	108	178	60.7%
10	110	173	63.6%
12	110	173	63.6%

Among schools that participated in the Pilot, participation rates varied from 38% among 6th grade to 42% among 10th and 12th grades (Table 1b).

Table 1b: Pilot Participation status by grade for schools eligible for the Pilot

Grade	Participated in Pilot	Eligible for Pilot	Participation Rate of Schools in the Pilot (%)
6	76	198	38.4%
8	76	178	42.7%
10	73	173	42.2%
12	73	173	42.2%

School Type– Alternative and Non-Alternative Schools

OSPI assigns each public school a school type code. For this analysis schools were considered to be alternative schools if they had a school type code of "A", "C", "R", "S", "T", "V", or "Z". Some of these alternative schools were not considered eligible for participation in HYS because they do not have an environment where students can anonymously take the survey, e.g., online schools. Alternative schools in this analysis included 127 type "A", 1 type "R", 5 type "S", 6 type "T", and 6 type "V". Schools were considered to be non-alternative schools if they had the school type "P". Non-alternative schools in this analysis included 1,050 type "P".

Schools with less than 15 students per grade were not included in the state sampling frame, but were considered eligible to participate in the survey. Often alternative schools have small school enrollments, so they may be less likely to be included in the state sample.

Alternative schools in the state sample were just as likely to participate in the Pilot as traditional schools (Table 2). Very few alternative schools were eligible for the Pilot, possibly making it difficult to detect a difference in participation.

Table 2: Participation by alternative school status for schools eligible for the Pilot.

Grade	School Type	Participated in Pilot %, (n)	Did Not Participate in Pilot %, (n)	Difference *(p-value)**
6	Alternative	33.3% (n=2)	66.7% (n=4)	**1.0000**
	Non-Alternative	36.5% (n=70)	63.5% (n=122)	
8	Alternative	25.0% (n=2)	75.0% (n=6)	**0.4690**
	Non-Alternative	43.5% (n=74)	56.5% (n=96)	
10	Alternative	33.3% (n=9)	66.7% (n=18)	**0.3100**
	Non-Alternative	43.8% (n=64)	56.2% (n=82)	
12	Alternative	32.1% (n=9)	67.9% (n=19)	**0.2390**
	Non-Alternative	15.4% (n=8)	84.6% (n=44)	

*Fisher exact for grades 6 and 8

School Demographics

Comparing schools eligible for the Pilot, schools that participated in the Pilot were similar to non-Pilot participating schools on most variables assessed, except Pilot participating schools had higher grade 6 school enrollment and lower grade 10 reading level indices than non-Pilot participating schools (Tables 3a-d)

Table 3a: Mean school and grade-level variables by participation for schools eligible for the 6th grade Pilot.

School/Grade-level Variables	Participated in Pilot Mean, ±95% CI, (n)	Did Not Participate in Pilot Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	33.4 ±7.1 (n=65)	28.7 ±4.9 (n=118)	30.4 ±4.1 (n=183)	0.270
% Free/reduced lunch	59.6 ±4.8 (n=71)	54.3 ±4.6 (n=124)	56.2 ±3.4 (n=195)	0.148
Grade-level enrollment	54.2 ±10.0 (n=65)	37.3 ±6.9 (n=118)	43.3 ±5.8 (n=183)	**0.006**
Math level index	2.4 ±0.2 (n=25)	2.5 ±0.1 (n=57)	2.5 ±0.1 (n=82)	0.083
Reading level index	2.7 ±0.1 (n=25)	2.7 ±0.1 (n=57)	2.7 ±0.1 (n=82)	0.385

Table 3b: Mean school and grade-level variables by participation for schools eligible for the 8th grade Pilot.

School/Grade-level Variables	Participated in Pilot Mean, ±95% CI, (n)	Did Not Participate in Pilot Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	31.6 ±6.7 (n=74)	30.5 ±5.4 (n=95)	31.0 ±4.2 (n=169)	0.804
% Free/reduced lunch	59.2 ±4.8 (n=75)	55.2 ±4.5 (n=101)	56.9 ±3.3 (n=176)	0.237
Grade-level enrollment	56.1 ±9.7 (n=74)	44.8 ±9.3 (n=95)	49.8 ±6.8 (n=169)	0.103
Math level index	2.2 ±0.2 (n=23)	2.3 ±0.1 (n=40)	2.3 ±0.1 (n=63)	0.135
Reading level index	2.8 ±0.1 (n=24)	2.9 ±0.1 (n=40)	2.8 ±0.1 (n=64)	0.855

Table 3c: Mean school and grade-level variables by participation for schools eligible for the 10th grade Pilot.

School/Grade-level Variables	Participated in Pilot Mean, ±95% CI, (n)	Did Not Participate in Pilot Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	32.2 ±6.8 (n=72)	30.9 ±5.4 (n=97)	31.5 ±4.2 (n=169)	0.763
% Free/reduced lunch	56.0 ±4.7 (n=71)	53.9 ±4.7 (n=100)	54.8 ±3.3 (n=171)	0.533
Grade-level enrollment	52.0 ±9.9 (n=72)	48.7 ±9.6 (n=97)	50.1 ±7.0 (n=169)	0.643
Reading level index	3.0 ±0.1 (n=43)	3.1 ±0.1 (n=47)	3.1 ±0.1 (n=90)	**0.024**
On-time Graduation	81.0 ±4.2 (n=72)	79.5 ±4.9 (n=98)	80.1 ±3.3 (n=170)	0.661

Table 3d: Mean school and grade-level variables by participation for schools eligible for the 12th grade Pilot.

School/Grade-level Variables	Participated in Pilot Mean, ±95% CI, (n)	Did Not Participate in Pilot Mean, ±95% CI, (n)	Overall Mean, ±95% CI, (n)	Difference *(p-value)*
% Minority enrollment	29.9 ±6.4 (n=72)	30.6 ±5.3 (n=100)	30.3 ±4.1 (n=172)	0.873
% Free/reduced lunch	56.0 ±4.7 (n=71)	54.3 ±4.6 (n=100)	55.0 ±3.3 (n=171)	0.606
Grade-level enrollment	53.3 ±9.9 (n=72)	47.5 ±9.0 (n=100)	49.9 ±6.7 (n=172)	0.397
On-time Graduation	81.0 ±4.2 (n=72)	78.8 ±5.1 (n=99)	79.7 ±3.4 (n=171)	0.536

Community Demographics

Schools were designated as urban and non-urban based on the school building zip code and the associated rural-urban commuting area codes (RUCA), provided by the Washington State Department of Social and Health Services' Research and Data Analysis Division. Schools with a RUCA of 1 were classified as urban.

Among schools eligible for the Pilot, 6th grade small town schools were more likely to participate than isolated/rural schools (Table 4).

Table 4: Participation by rural/urban designation for schools eligible for the Pilot.

Grade	School Type	Participated in Pilot %, (n)	Did Not Participate in Pilot %, (n)	Difference *(p-value)*
6	Urban	66.7% (n=6)	33.3% (n=3)	0.4320
	Sub-Urban	50.0% (n=29)	50.0% (n=29)	**0.0250**
	Small Town	76.0% (n=19)	24.0% (n=6)	0.4320
	Isolated/Rural	67.9% (n=72)	32.1% (n=34)	-
8	Urban	57.1% (n=4)	42.9% (n=3)	0.8470
	Sub-Urban	48.0% (n=24)	52.0% (n=26)	0.1390
	Small Town	62.5% (n=15)	37.5% (n=9)	0.8800
	Isolated/Rural	60.8% (n=59)	39.2% (n=38)	-
10	Urban	100.0% (n=5)	0.0% (n=0)	na
	Sub-Urban	48.9% (n=23)	51.1% (n=24)	0.2010
	Small Town	56.5% (n=13)	43.5% (n=10)	0.7460
	Isolated/Rural	60.2% (n=59)	39.8% (n=39)	-
12	Urban	100.0% (n=5)	0.0% (n=0)	na
	Sub-Urban	47.8% (n=22)	52.2% (n=24)	0.7190
	Small Town	56.5% (n=13)	43.5% (n=10)	0.1500
	Isolated/Rural	60.6% (n=60)	39.4% (n=39)	-

Appendix F: Small School District Pilot Student-level Bias

Methods

We developed risk ratios to assess differences between categories of participants – comparing respondents from Pilot eligible schools that participated in the Pilot compared to respondents from eligible schools that did not participate in the Pilot. The intent of the analysis is to determine if respondents from eligible participating schools that received Pilot results were different from eligible schools that did not participate.

The same risk ratios were calculate to look at other types of student level bias. A risk ratio compares rates among groups. For example, if 15% of Pilot participants and 30% of non-Pilot participants reported getting low grades, we would report a risk ratio of 0.5, meaning that completers were half as likely as non-completers to have low grades. For every risk ratio, we also provide a "95% confidence interval," which gives the range that should contain the true population value 95% of the time. The confidence interval is not a measure of how "confident" we are in the estimate; instead, it describes the range of values that we might reasonably expect to include the actual risk ratio among all Washington State students. If the confidence interval includes 1, the two groups are not statistically significantly different.

We compared respondents based on questions assessing personal characteristics found early in the survey according to their completion status by grade. Systematic differences in responses to these questions increase the likelihood of bias for questions toward the end of the survey. The characteristics for student-level comparisons include student reports of:
- School factors
  - Low grades (mostly Cs, Ds or Fs at school)
  - Feeling unsafe at school (answers of "definitely no" or "mostly no" to a question about feeling safe at school)
- Indicators of low socioeconomic status
  - Mother not completing high school
  - Father not completing high school
  - Food insecurity (family cutting meal size or skipping meals in past 12 months due of lack of money)
  - No recent dental visit (not visiting dentist for a check-up in past two years)
- Behavioral factors
  - Cigarette smoking (any cigarette smoking in the past 30 days)
  - Marijuana smoking (having ever smoked marijuana)
  - Binge drinking (drinking 5 or more drinks on any one occasion in the past two weeks)
  - Drinking alcohol (drinking any alcohol in the past 30 days)
- Race and ethnicity
  - Race and Hispanic ethnicity
  - Non-English language spoken at home

Results

Number of Pilot Participants and Non-Pilot Participants

Table 1 shows the percent of respondents from schools that participated in the Pilot and schools that were eligible for the Pilot but did not survey their additional grades. Pilot participation was higher for all grades than non-Pilot participation.

Table 1: Pilot participation by grade for schools eligible for the Pilot.

Grade	n	Pilot Participants (%)	Eligible but Non-Pilot Participants (%)
6	4,883	65.4%	35.6%
8	5,173	65.3%	34.7%
10	5,289	56.0%	44.0%
12	4,158	57.8%	42.2%

Pilot Participants Compared to Non-Pilot Participants

Table 2 gives risk ratios for characteristics listed above for respondents in the state sample who participated in the Pilot to those who did not. Of the 64 comparison tests conducted, 20 showed statistically significant differences. Given that some associations are expected to be statistically significant just by chance, these results indicate that respondents who participated in the Pilot are different from respondents who were eligible to participate but did not survey their extra grade levels for the characteristics assessed.

Pilot participants were more likely than non-Pilot participants to report:
- Feeling unsafe in school (grade 8 and 10)
- Variables indicating low economic status - mother didn't graduate high school (grades 10 and 12), father didn't graduate high school (grade 10), food insecurity (grades 8 and 10), and no dental visits in past year (grade 10)
- Higher current marijuana use (grade 8), binge drinking (grade 8), and current alcohol use (grades 6 and 8)
- Being Hispanic (grades 6 and 12) and American Indian/Alaska Native (grades 8, 10 and 12)

Pilot participants were less likely than non-Pilot participants to report:
- Being white (grades 10 and 12) and Black/African American (grade 12)

Table 2: Pilot participation and student characteristics for schools eligible for the Pilot, risk ratio (95% confidence interval)

Variable	Pilot Participants Compared to Non-Pilot Participants by Grade			
	6 **RR (95% CI)***	**8** **RR (95% CI)***	**10** **RR (95% CI)***	**12** **RR (95% CI)***
School factors				
Low grades	0.9 (0.8-1.1)	0.9 (0.8-1.1)	1.0 (0.9-1.2)	1.0 (0.9-1.2)
Feeling unsafe at school	1.2 (1.0-1.4)	**1.3 (1.1-1.5)**	**1.2 (1.0-1.3)**	1.2 (1.0-1.4)
Indicators of low socioeconomic status				
Mother didn't graduate high school	na	1.2 (1.0-1.4)	**1.2 (1.0-1.4)**	**1.3 (1.1-1.5)**
Father didn't graduate high school	na	1.1 (0.9-1.3)	**1.2 (1.0-1.4)**	1.2 (1.0-1.4)
Food insecurity	na	**1.2 (1.0-1.5)**	**1.3 (1.1-1.6)**	1.0 (0.8-1.1)
No dental visit in last year	na	1.1 (0.9-1.4)	**1.2 (1.0-1.4)**	1.0 (0.8-1.2)
Substance use factors				
Current cigarette smoking	0.8 (0.5-1.3)	1.1 (0.8-1.4)	1.1 (1.0-1.4)	0.9 (0.7-1.0)
Current marijuana use	0.8 (0.5-1.3)	**1.3 (1.1-1.7)**	1.1 (0.9-1.2)	1.1 (1.0-1.3)
Binge drinking	1.0 (0.7-1.4)	**1.4 (1.1-1.7)**	1.1 (0.9-1.3)	1.1 (0.9-1.3)
Current alcohol drinking	**1.9 (1.2-3.0)**	**1.3 (1.1-1.6)**	1.0 (0.9-1.2)	1.1 (0.9-1.2)
Race/ethnicity** and language				
Non-English spoken at home	1.0 (0.9-1.2)	0.9 (0.8-1.0)	1.1 (0.9-1.2)	1.1 (0.9-1.3)
White	0.9 (0.8-1.0)	1.0 (0.8-1.1)	**0.8 (0.8-0.9)**	**0.8 (0.7-0.9)**
Hispanic	**1.3 (1.1-1.5)**	1.0 (0.8-1.1)	1.1 (1.0-1.3)	**1.2 (1.0-1.4)**
American Indian/Alaska Native	1.2 (1.0-1.5)	**1.4 (1.1-1.8)**	**1.8 (1.4-2.4)**	**2.1 (1.5-2.9)**
Asian	1.3 (0.8-2.0)	0.8 (0.5-1.2)	0.7 (0.5-1.1)	1.0 (0.6-1.5)
Black/African American	1.0 (0.6-1.6)	0.7 (0.5-1.1)	0.7 (0.5-1.0)	**0.6 (0.3-1.0)**
Pacific Islander	0.9 (0.5-1.7)	1.1 (0.6-1.9)	1.2 (0.7-2.0)	1.1 (0.5-2.2)

* RR: risk ratio; 95% CI: 95% confidence interval; bolded values are statistically significant at the $p < 0.05$ level (that is, the 95% CI does not include 1.0). A risk ratio less than 1 indicates that the characteristic is less common among respondents completing the survey.

**Race/ethnic groups only include respondents who selected a single race, except for Hispanic. For example, if a respondent only selected Asian then they are reported as Asian. If a respondent selected Asian and Hispanic then they are reported as Hispanic.