



2014 Iowa Youth Survey Special Report

THE IOWA CONSORTIUM FOR SUBSTANCE ABUSE RESEARCH AND EVALUATION

**Student-Reported Past 30 Day Drinking
Behavior Predicted by Forty-Four
Selected Iowa Youth Survey Questions
March 2016**

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EXECUTIVE SUMMARY

This report examines the relationship between self-reported drinking behaviors and perceptions of peer, family, school, neighborhood, and community environments among 6th, 8th and 11th grade students across Iowa. The purpose of this report is to identify predictors of two distinct drinking behaviors:

1. Drinking at least one alcoholic beverage within the last 30 days.
2. Drinking five or more alcoholic beverages in a couple of hours within the last 30 days.

Data are from the 2014 Iowa Youth Survey (IYS) which was completed during the fall of 2014 by students in 6th, 8th and 11th grades in the State of Iowa. The dataset contains validated records from 75,687 students attending public school districts and 1,452 students attending non-public schools, representing all 99 counties in Iowa. Records were from 287 of Iowa's 338 public school districts (85%), and from 22 of the 189 non-public schools (12%) serving students in grades 6, 8, or 11. Forty-four questions were selected to represent potential predictors of self-reported drinking behaviors that measure tobacco and drug use, perceptions of peer, family, school, neighborhood and community environments, risk taking behavior and mental health.

Methods of analyses included cross-tabulations and logistic regression. The relationships between both self-reported drinking behaviors (drinking at least one drink in the past 30 days and drinking five or more drinks in a couple of hours in the past 30 days) and each of the 44 selected IYS questions are assessed individually. The results are illustrated in a series of bar graphs and tables. Logistic regression models were used to test whether the relationships were statistically significant. Finally, since many of the IYS questions may provide similar information, a multivariate logistic regression examined which combination of the 44 selected IYS indicators best predicted student-reported drinking within the last 30 days.

Significant Findings

- Each of the 44 selected IYS questions successfully predicted both drinking at least one drink in the past 30 days and drinking five or more drinks in a couple of hours within the past 30 days.
 1. Questions related to values and perceptions surrounding alcohol use have a strong relationship with past 30 day alcohol use.
 - Less alcohol consumption was reported among students who indicated that they felt that their peers, parents/guardians or adults in the neighborhood/community believe it is wrong for the students to drink alcoholic beverages.
 - Students who felt that consuming three or more drinks of alcohol nearly every day would be a "slight risk" to their health reported more alcohol consumption than students who thought drinking three or more drinks posed "no risk".

2. Behaviors students reported engaging in such as skipping classes, gambling, damaging property, using violence, and cigarette, e-cigarette and marijuana use are strongly associated with past 30 day alcohol use.
 - Reports of alcohol consumption in the past 30 days increased with successively higher incidences of using threats or physical violence, bullying others, damaging property, and skipping classes or school days.
 - Students who reported using cigarettes or e-cigarettes reported substantially higher levels of alcohol consumption than those who did not use cigarettes or e-cigarettes: even if they had only used cigarettes on one or two days within the past 30 days.
 3. For each of the 44 IYS questions, the relationship between the question and student-reported past 30 day drinking significantly differs by student's grade level.
- Twenty-five of the 44 IYS questions provide non-redundant information that predicted student reports of drinking at least one alcoholic beverage within the past 30 days.
 - Twenty-one of the 44 IYS questions provide non-redundant information that predicted student reports of drinking five or more alcoholic drinks in a couple of hours within the past 30 days.
 - The statement: "It is against my values to use alcohol and drugs as a teenager" was the most significant predictor in both models of self-reported drinking behaviors.
 - Several of the "School Questions" in Section E of the IYS survey provided redundant information in both models.

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BACKGROUND

Project Overview

This special report analyzes associations between selected question responses from the 2014 Iowa Youth Survey (IYS) and students' reported drinking behaviors within the past 30 days. The two behaviors of interest are drinking at least one alcoholic beverage in the past 30 days and drinking five or more alcoholic beverages within a couple of hours in the past 30 days.

Data. From September 29, 2014 through November 7, 2014, the Iowa Department of Public Health (IDPH) collaborated with schools in Iowa to conduct the 2014 IYS. The 2014 IYS is the 15th in a series of surveys completed every two or three years since 1975. Students in grades 6, 8, and 11 attending Iowa public and private schools take the survey. The IYS includes questions about students' behaviors, attitudes, and beliefs, as well as their perceptions of peer, family, school, neighborhood, and community environments.

The dataset contains validated records from 75,687 students attending public school districts, and 1,452 students attending non-public schools. Records were from 287 of Iowa's 338 public school districts (85%), and from 22 of the 189 non-public schools (12%) serving students in grades 6, 8, or 11. These records may represent additional districts (e.g., when districts whole grade share, when multiple districts reported the same district number, when districts shared their unique SurveyMonkey URLs, etc.). The validated records represented all 99 counties in Iowa. All Iowa counties have at least 55 IYS records.

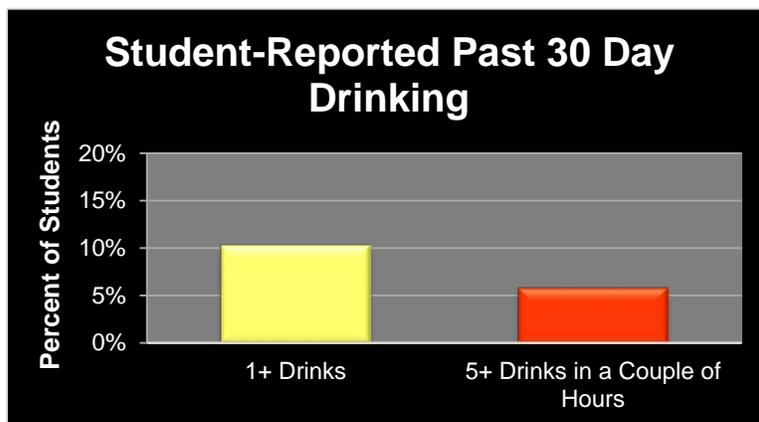
Analyses. Forty-four questions were selected to represent students' drug and risk taking behaviors, mental health and perceptions of peer, school, family and neighborhood environments. The relationship between the 44 selected questions and the two student-reported drinking behaviors are individually illustrated and examined throughout the report. The denominator for each percentage in the graphs and tables is the total number of students in a response category of an IYS question. The numerator is the total number of students within the response category who reported drinking at least one drink or five or more drinks in a couple hours within the past 30 days. Thus the resulting percentages represent the proportion of students within each response category who report drinking in the past 30 days. These percentages *do not* total to 100% because the denominator (i.e. the number of students in each response category per IYS question) is different for each percentage.

Because the two drinking behavior questions were highly correlated (Kendall's $\tau_b = 0.73$, $p < 0.0001$), the patterns of responses to the past-30 day alcohol use questions, drinking one or more drinks and drinking five or more drinks in a couple of hours, will appear similar. All of the graphics are on the same scale (zero to 90%). Graphics containing the largest bars represent questions with the strongest relationships between the selected IYS question and the reported drinking behavior while graphics with shorter bars show weaker relationships.

Question B16 (In the past 30 days, have you had at least one drink of alcohol (glass, bottle or can of beer, glass of wine, liquor, or mixed drink?)) of the IYS was used to indicate student report of drinking at least one drink in the past 30 days. All other students were considered as not reporting drinking. Drinking five or more drinks in a couple of hours was based on any positive response on the single IYS question B17 (During the last 30 days, on how many days did you have 5 or more drinks of alcohol (glasses, bottles, or cans of beer, glasses of wine, liquor, mixed drinks) in a row, that is within a couple of hours?). Just over 10% of all students



reported drinking at least one alcoholic beverage within the past 30 days (n=7,903) and over one in twenty (5.84%) reported drinking five or more alcoholic beverages in a couple of hours within the past 30 days (n=4,460).

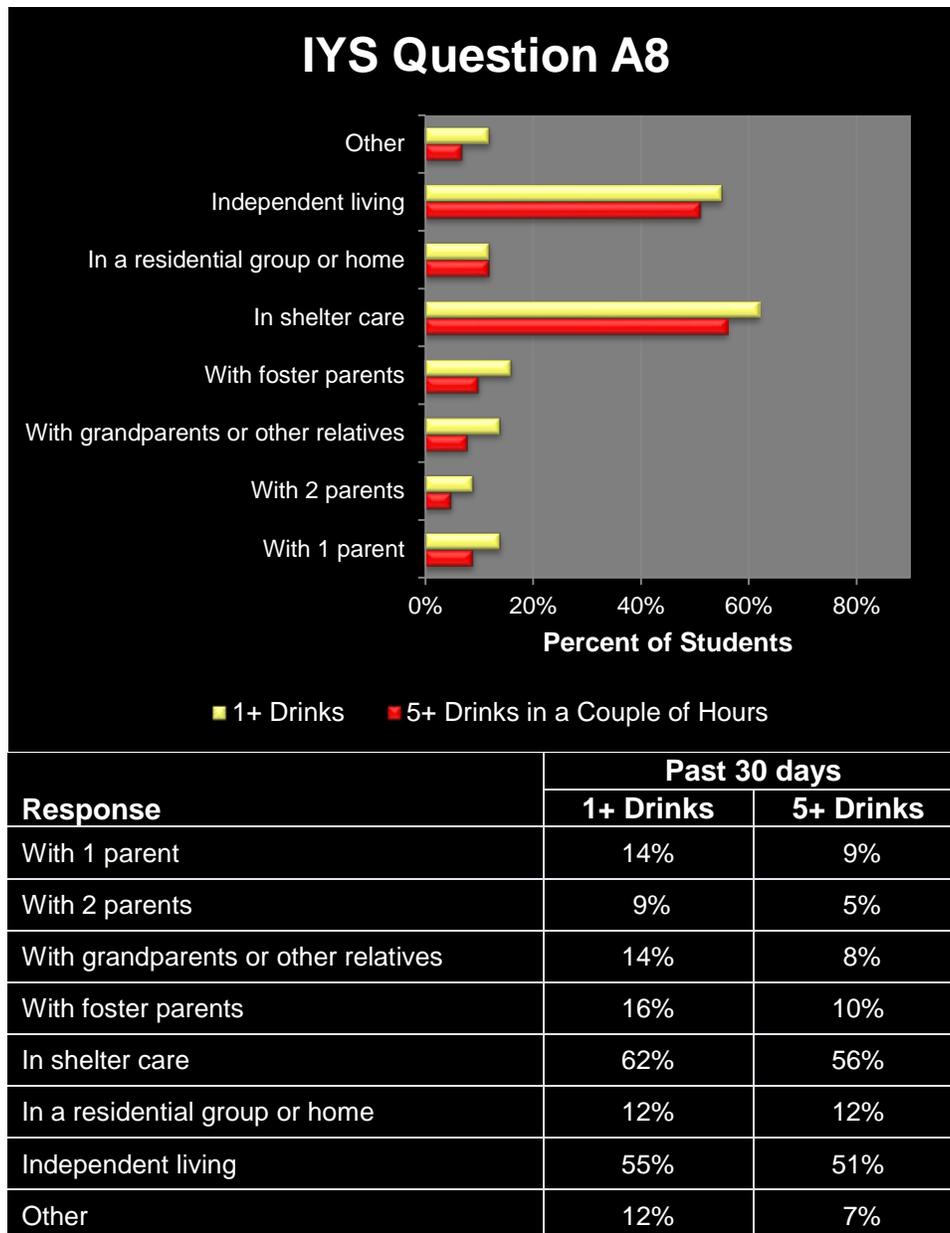


Multiple logistic regression analyses were used to predict reported drinking behavior. For each of the 44 selected questions, two multiple logistic regression models were fit, one for 30-day drinking and one for drinking five or more drinks in a couple of hours. Each model included the student's grade, the IYS question, and their interaction. The statistical test for grade assessed whether alcohol use differed by grade. The test for the IYS question assessed whether or not responses to that question predicted the drinking behavior. The final test, the interaction, tests whether or not the pattern of responses (shown in the graph) varies for different grades. Since almost without exception all tests were highly significantly different (Wald χ^2 , $p < 0.01$), these models' tests are shown in Appendix 1 rather than discussed after each figure.

Two final multivariate logistic regressions were conducted predicting each of the two drinking behaviors. All 44 IYS questions and the student's grade were initially entered. At each iteration, the least informative question was removed until only informative questions remained. The criteria for removal was when the question's p-value was less than 0.01. Results appear in Appendix 2.

Figure 1 illustrates students' living arrangements by the percentage of students who reported alcohol usage in the past 30 days. Drinking was most associated with living independently or in shelter care. Over half of students living independently or in shelter care reported drinking at least one alcoholic beverage or five or more alcoholic beverages in a couple of hours within the past 30 days. Students living with two parents reported the least drinking.

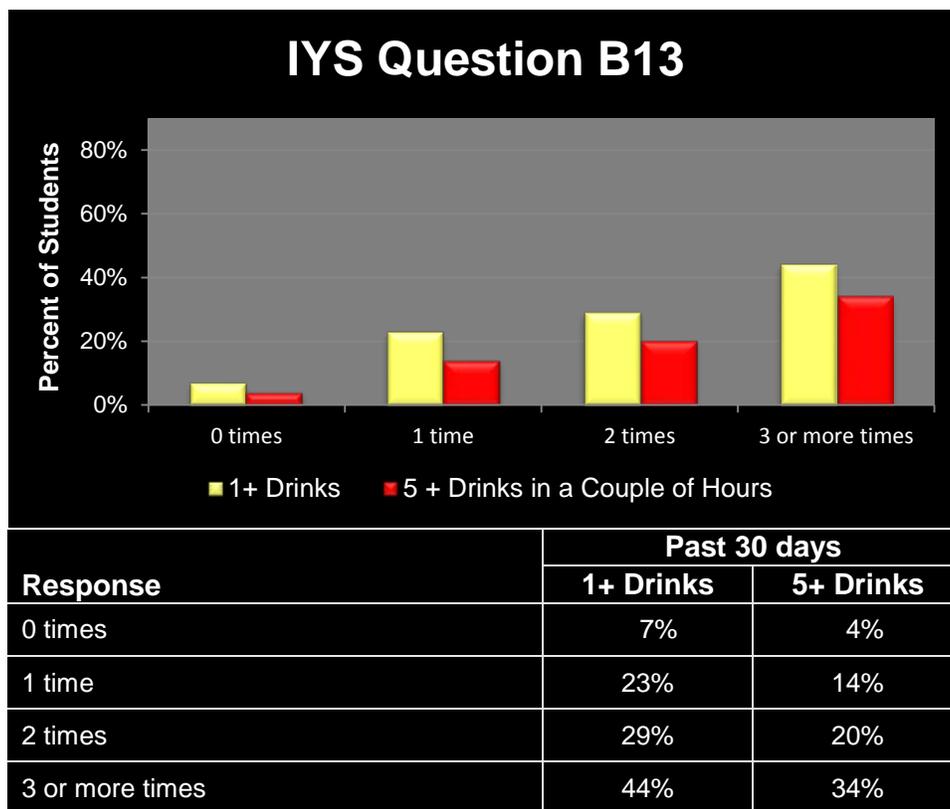
Figure 1. IYS Question A8 – Living Arrangements by Student-Reported Past 30 Day Drinking



IYS Question A8: Where are you now living?

Figure 2 shows the number of times students reported skipping classes or school days during the last 30 days by the percentage of students who reported consuming alcoholic beverages within the past 30 days. Drinking increased with the number of times the student reported skipping school. Less than one in ten (7%) students who did not skip classes within the past month reported drinking at least one drink in the past 30 days. In contrast, over two-fifths (44%) of students who skipped class or school days three or more times indicated that they drank at least one alcoholic beverage within the last 30 days.

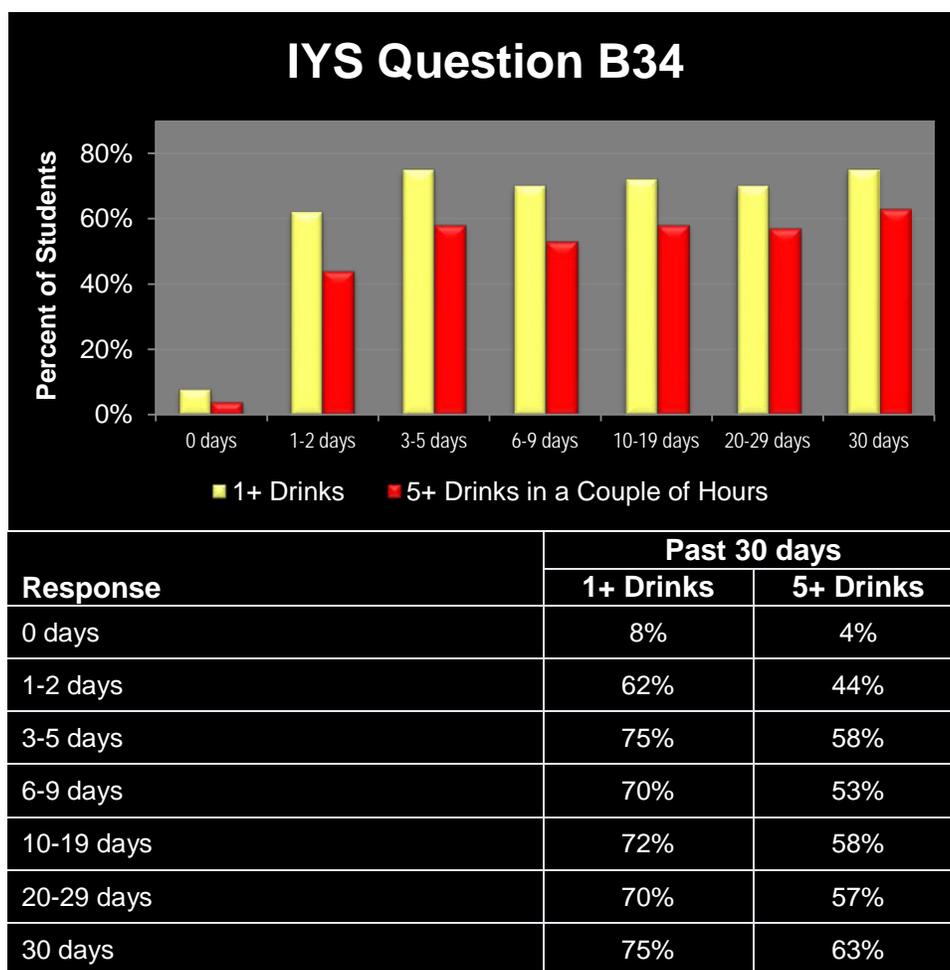
Figure 2. IYS Question B13 – Student Truancy in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question B13: During the last 30 days, how many times have you skipped or “cut” classes or school days?

Figure 3 shows the number of days students reported smoking cigarettes within the past 30 days by the percentage of students who reported drinking alcohol within the last 30 days. Students who did not smoke cigarettes in the past 30 days reported considerably less drinking than students who smoked one or more cigarettes. Less than one in ten (8%) of students who did not smoke cigarettes in the past 30 days reported drinking alcohol during the same time period. However, of those who smoked on one or two days in the past 30 days, 62% consumed at least one alcoholic beverage in the past 30 days and 44% drank five or more alcoholic drinks in a couple of hours within the past 30 days. The percentage of students reporting consumption of alcohol in the past 30 days remained relatively steady among those who reported smoking on three to five days or more.

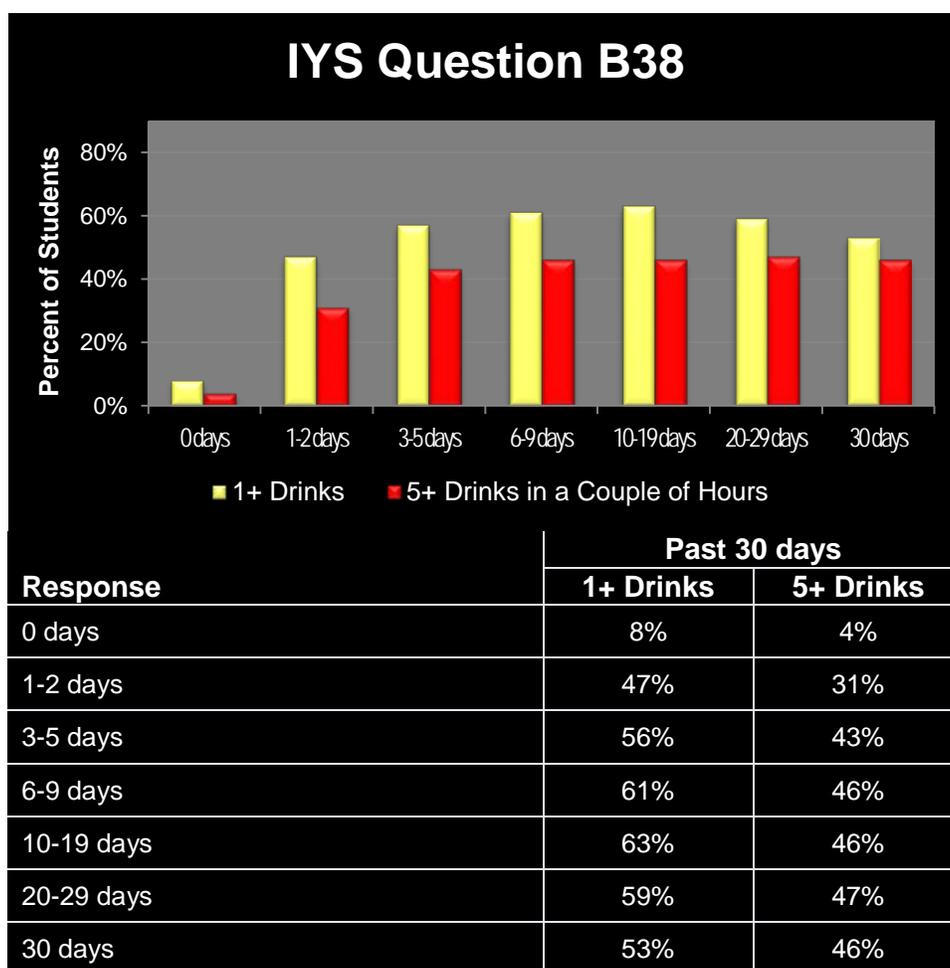
Figure 3. IYS Question B34 – Cigarette Usage in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question B34: In the past 30 days, on how many days have you: Smoked cigarettes?

Figure 4 illustrates the number of days students reported using electronic cigarettes within the past 30 days by the percentage of students who reported drinking alcohol within the past 30 days. Students who did not use electronic cigarettes reported the lowest percentage of alcohol use. The relationship between electronic cigarette use and drinking at least one alcoholic beverage in the past 30 days increased among those who reported using electronic cigarettes on one to two days to 10-19 days. However, the percentage of students who reported drinking at least one drink decreased among students who used electronic cigarettes twenty or more days within the past 30 days. The percentage of students who drank five or more drinks in a row within the last 30 days remained steady among students who indicated that they used electronic cigarettes on at least three to five days.

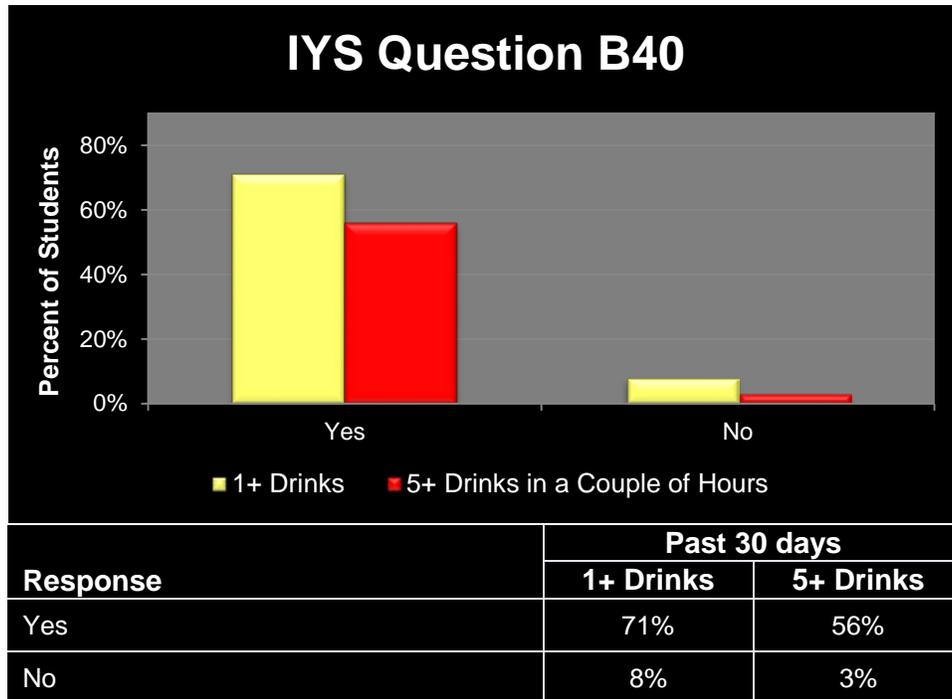
Figure 4. IYS Question B38 – Electronic Cigarette Usage in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question B38: In the past 30 days, on how many days have you use electronic cigarettes or e-cigarettes (battery-powered cigarettes)?

Figure 5 shows whether or not students reported using marijuana in the past 30 days by the percentage of students who reported drinking alcohol within the last 30 days. Over 70% of students who reported marijuana use in the last 30 days drank alcohol in the last 30 days. Over half of students who used marijuana (56%) also reported drinking five or more drinks in a couple of hours within the last 30 days.

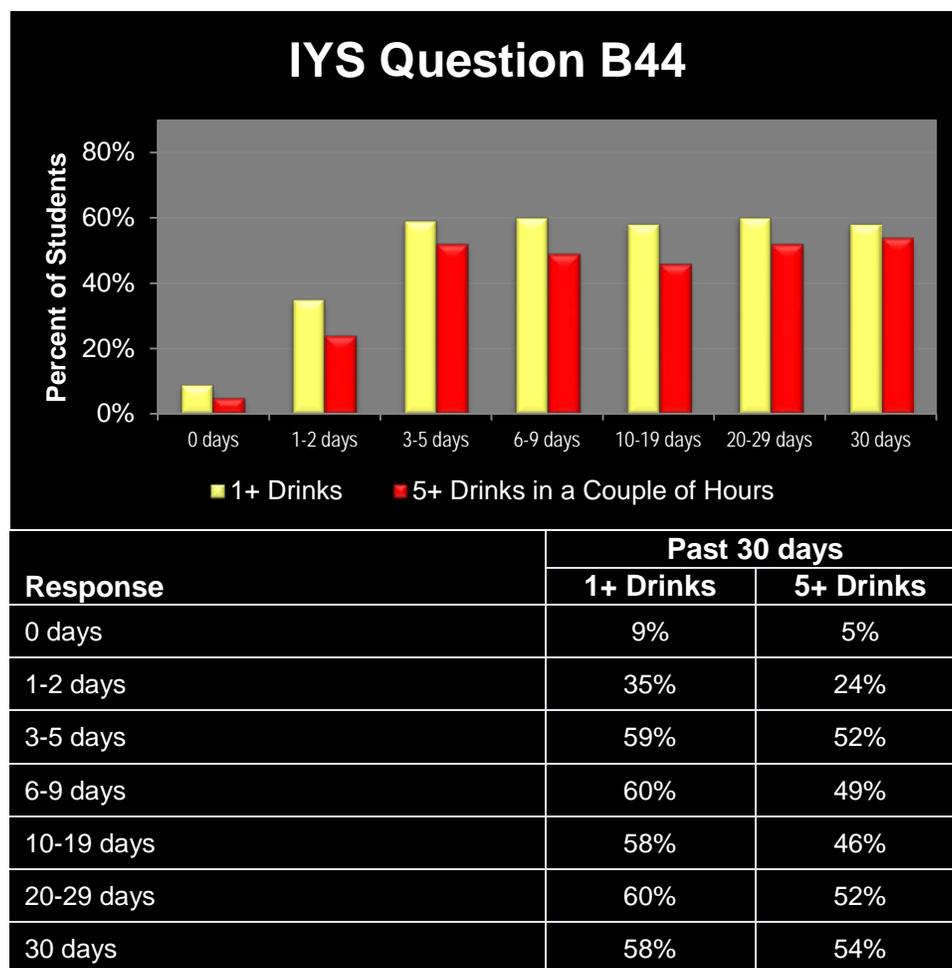
Figure 5. IYS Question B40 – Marijuana Usage in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question B40: In the past 30 days, have you used marijuana (pot, grass, hash, bud, weed)?

Figure 6 illustrates the number of days within the last 30 days that students used prescription medications that were not prescribed for them by the percentage of students who indicated that they consumed alcoholic beverages within the last 30 days. Students who used prescription medication not prescribed for them by their doctor also tended to drink alcohol. The percentage of students who reported drinking at least one drink in the past 30 days remained relatively steady among those who reported using medication not prescribed to the student for three or more days in the past 30 days. For example, between 58% and 60% of students who reported using medication that was not prescribed to them by their doctor from three to five days to every day within the past 30 days also reported drinking at least one alcoholic beverage within the last 30 days.

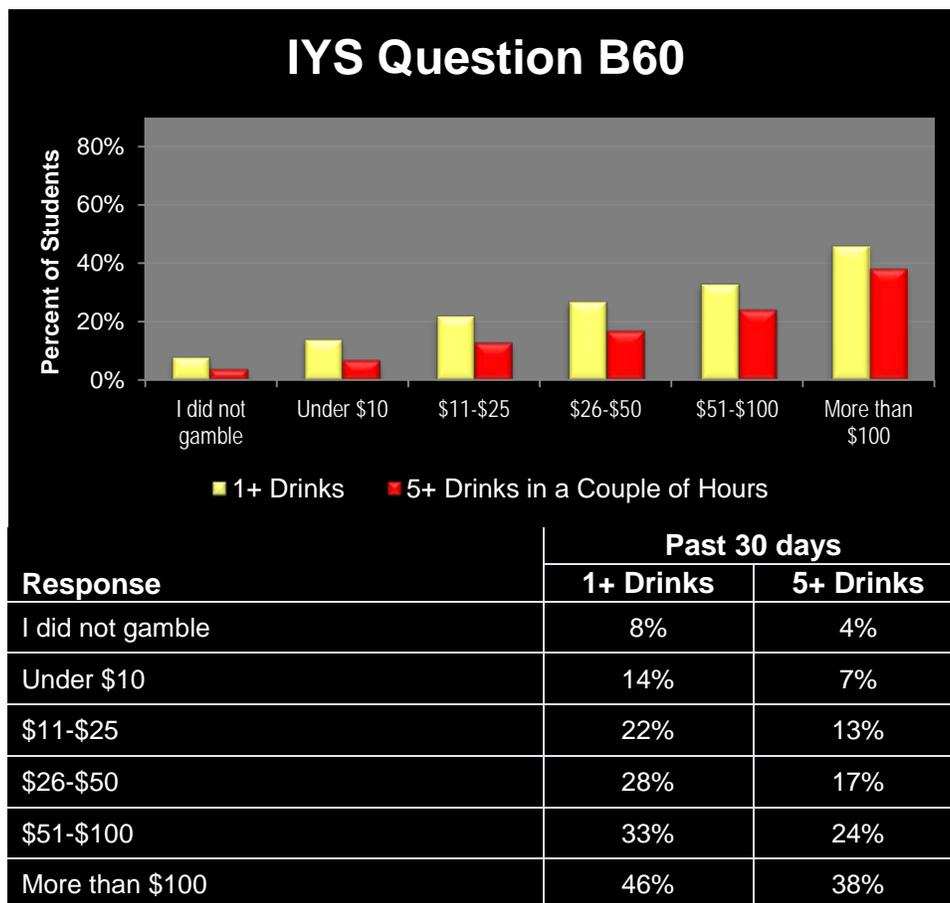
Figure 6. IYS Question B44 –Use of Medication Prescribed to Someone Other Than Student in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question B44: In the past 30 days, on how many days have you: Used prescription medications that were not prescribed for you by your doctor?

Figure 7 shows the amount of money students reported winning or losing while gambling in one day within the past 12 months by the percentage who reported consuming alcohol within the past 30 days. Dollars won or lost while gambling was strongly correlated with both drinking at least one drink and drinking more than five drinks in a couple of hours. The percentage of students reporting either drinking behavior increased as the dollar amount that students won or lost in a day due to gambling increased. Nearly half (46%) of students who reported winning or losing more than \$100 within the past year drank at least one alcoholic beverage within the past 30 days. In comparison, less than one in ten (8%) of students who did not gamble in the past 12 months consumed one or more drinks in the past 30 days.

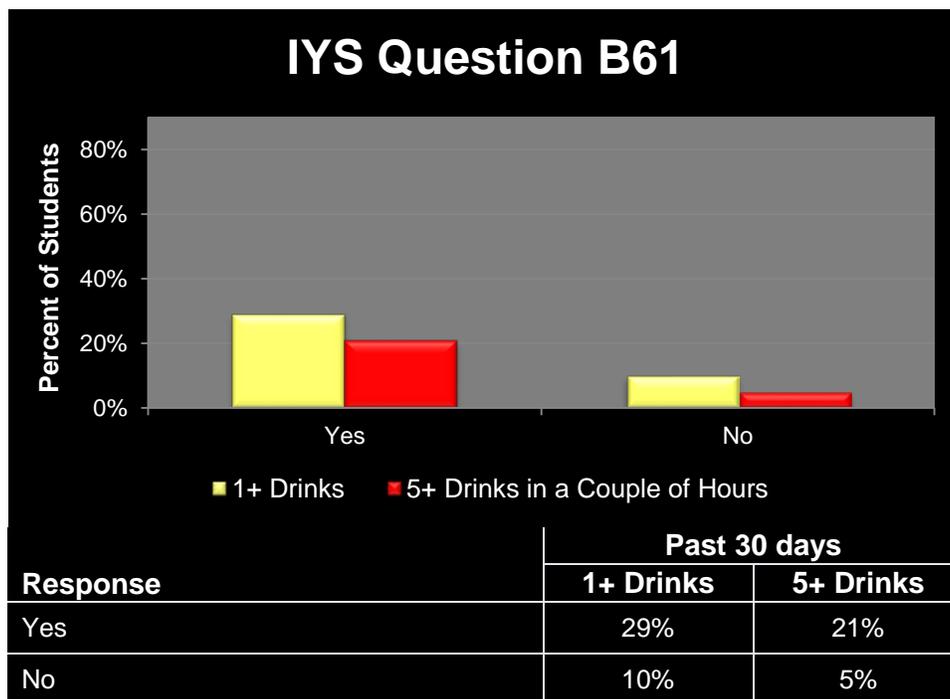
Figure 7. IYS Question B60 – Dollars Won or Lost While Gambling in the Past 12 Months by Student-Reported Past 30 Day Drinking



IYS Question B60: *In the past 12 months, what is the largest amount of money you have won or lost in a single day while gambling (betting)?*

Figure 8 illustrates whether or not students reported arguing with family, friends or others due to the students' gambling in the past 12 months by the percentage of students who report drinking alcohol within the last 30 days. Students who had an argument with family, friends, or others about gambling tended to drink more than those who did not have an argument. Twenty-nine percent and 21% of students who indicated that they argued with a family, friend, or other about gambling in the past 12 months also reported drinking one or more drinks within the past 30 days and five or more drinks in a couple of hours within the past 30 days, respectively. Only 10% of students who did not report getting into an argument about gambling within the past year drank at least one drink in the past 30 days.

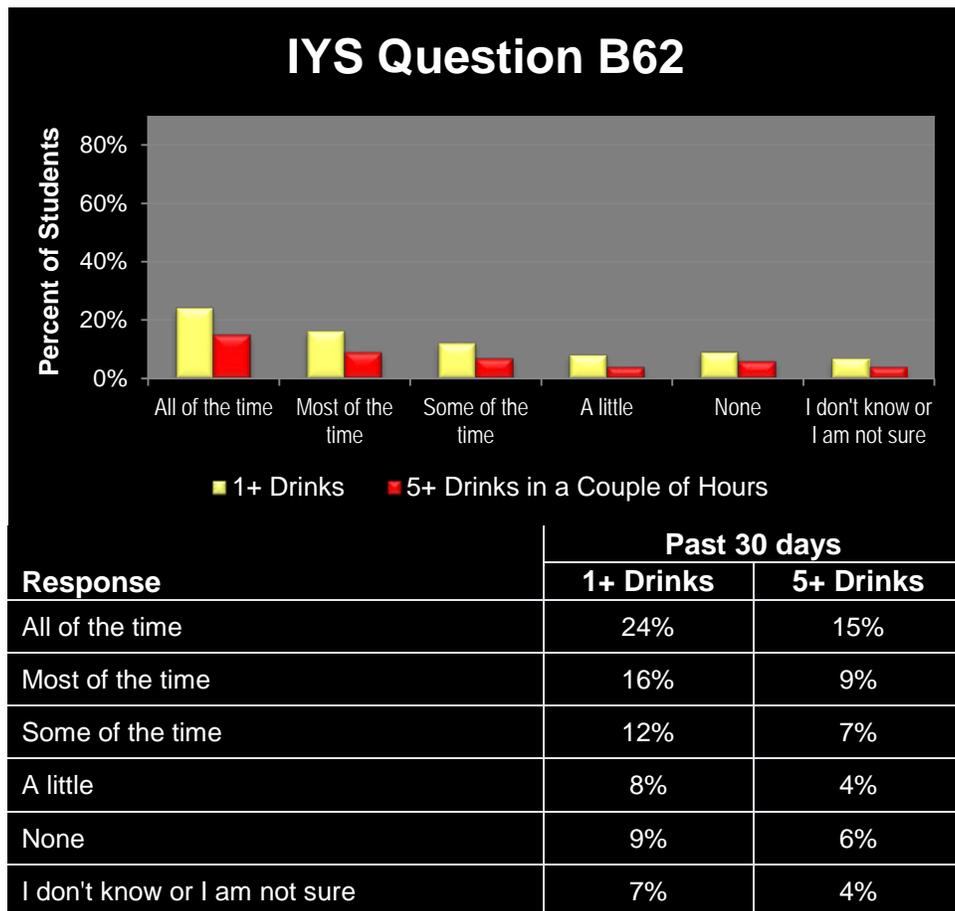
Figure 8. IYS Question B61 – Arguments Due to Gambling in the Past 12 Months by Student-Reported Past 30 Day Drinking



IYS Question B61: *In the past 12 months, have you argued with family, friends or others because of your gambling (betting)?*

Figure 9 illustrates how often students reported feeling nervous in the past 30 days by the percentage of students who reported drinking within the past 30 days. Students' frequency of feeling nervous was correlated with increased drinking. Among students who reported feeling nervous all of the time, nearly one-quarter (24%) drank at least one alcoholic beverage in the past 30 days and 15% drank five or more drinks in a row in the past 30 days. Student reports of drinking were much lower among those who did not report feeling nervous in the past 30 days. Only 9% of those who reported no feelings of nervousness and 8% of those who reported feeling a little nervous drank one or more drinks in the past 30 days.

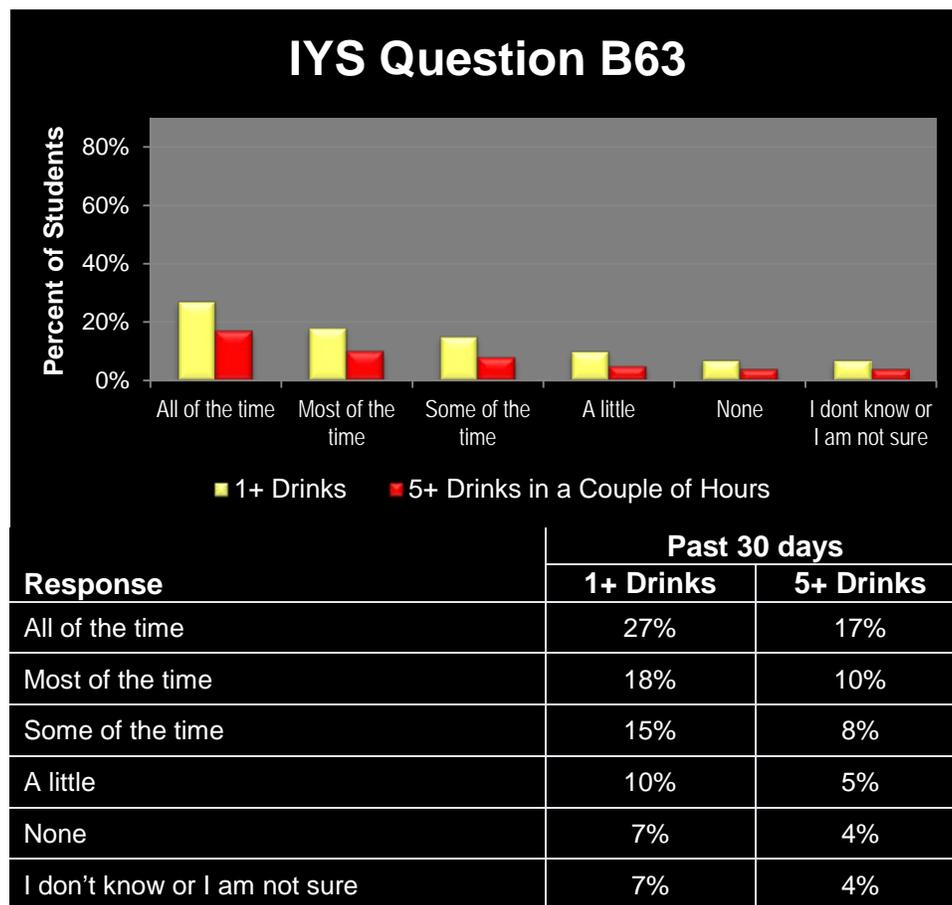
Figure 9. IYS Question B62 – Feeling Nervous in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question B62: About how often during the past 30 days did you feel nervous?

Figure 10 shows how often students reported feeling worthless in the past 30 days by the percentage of students who reported drinking in the past 30 days. Students' frequency of feeling worthless was correlated with increased drinking. Students who indicated never feeling worthless in the past 30 days were the least likely to drink. Over one-quarter (27%) of students who reported feeling worthless all of the time within the past 30 days indicated that they had drank at least one alcoholic beverage within the past 30 days. Students who indicated that they did not know how often they felt worthless in the past 30 days reported just as much drinking as those who reported that they never felt worthless in the past 30 days.

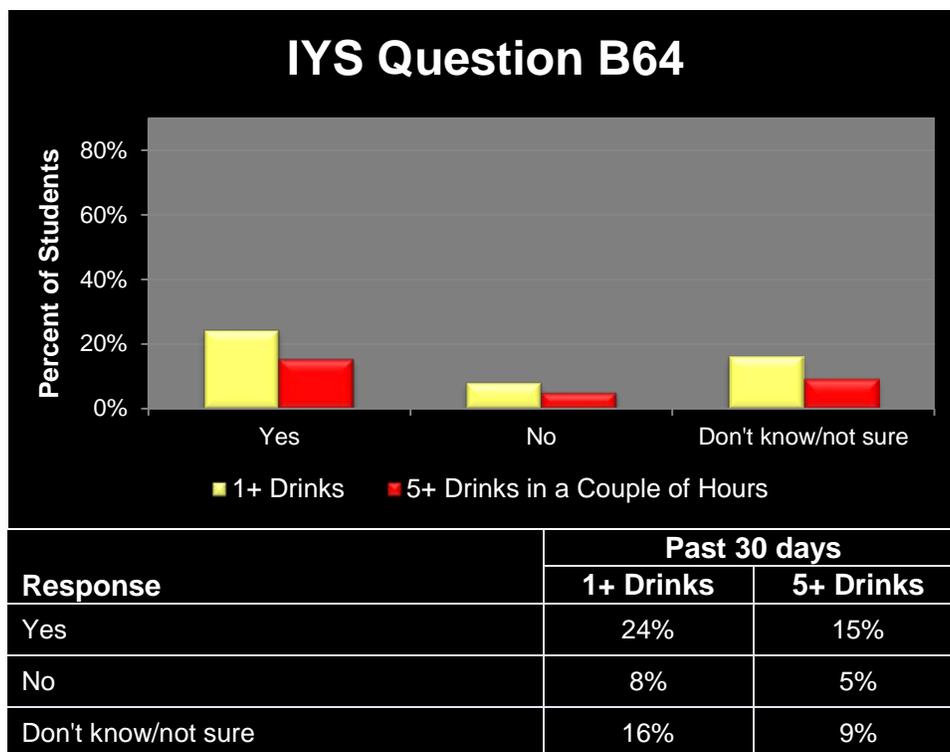
Figure 10. IYS Question B63 – Feeling Worthless in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question B63: During the past 30 days, about how often did you feel worthless?

Figure 11 shows whether or not students indicated that their doctor wanted them to take medications because they felt restless, nervous or sad by the percentage of students who reported drinking alcohol within the past 30 days. Students whose doctors wanted them to take medicine for restlessness, nervousness, or sadness tended to more frequently report drinking. Students who indicated that their doctors did not recommend medication for restlessness, nervousness or sadness reported the lowest percentage of drinking. Nearly one-quarter (24%) of students who indicated that their doctor recommended medications for restlessness, nervousness, or sadness reported consuming at least one alcoholic beverage in the past 30 days. In addition, students who did not know or were not sure whether their doctors had made such recommendations reported drinking behaviors that fell in the middle of these two groups.

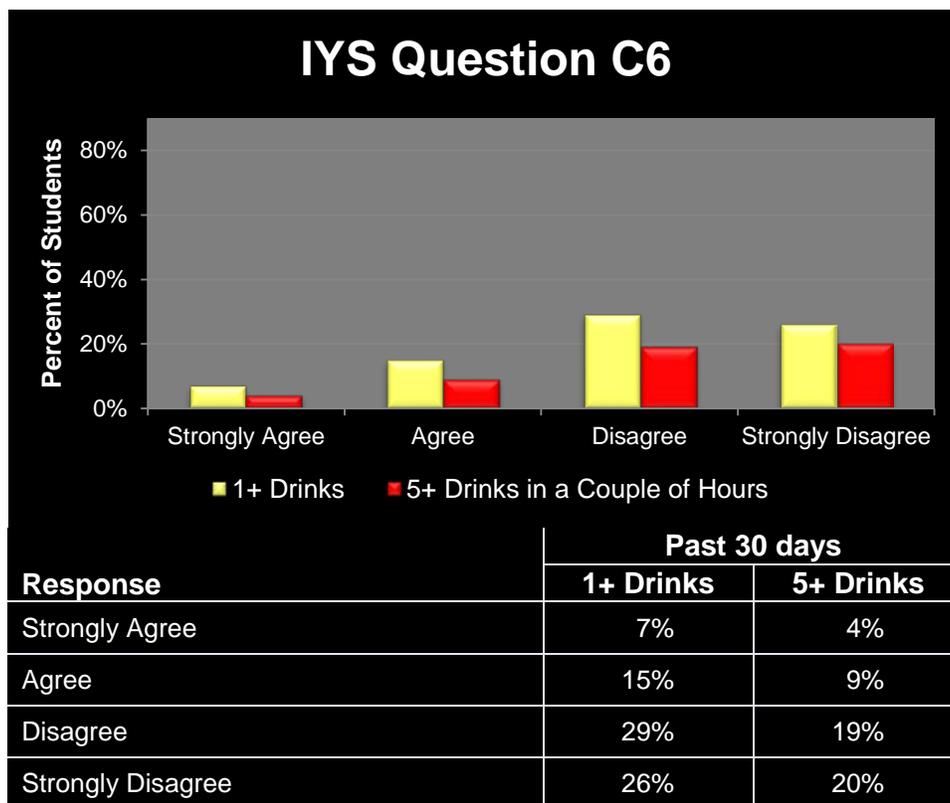
Figure 11. IYS Question B64 – Doctor Recommended Medication for Restlessness, Nervousness, or Sadness by Student-Reported Past 30 Day Drinking



IYS Question B64: Does your doctor want you to take medicine because you feel restless, nervous, or sad?

Figure 12 shows how much students agreed or disagreed that they are able to say “no” when someone wants them to do things that they know are wrong or dangerous by the percentage of students who indicate that they have consumed alcoholic drinks within the past 30 days. Students who agreed with "I can say 'no' when someone wants me to do things I know are wrong or dangerous" less frequently reported drinking. Less than one in twenty (4%) of students who strongly agreed with this statement and 20% who strongly disagreed with this statement drank five or more drinks in a couple of hours within the past 30 days.

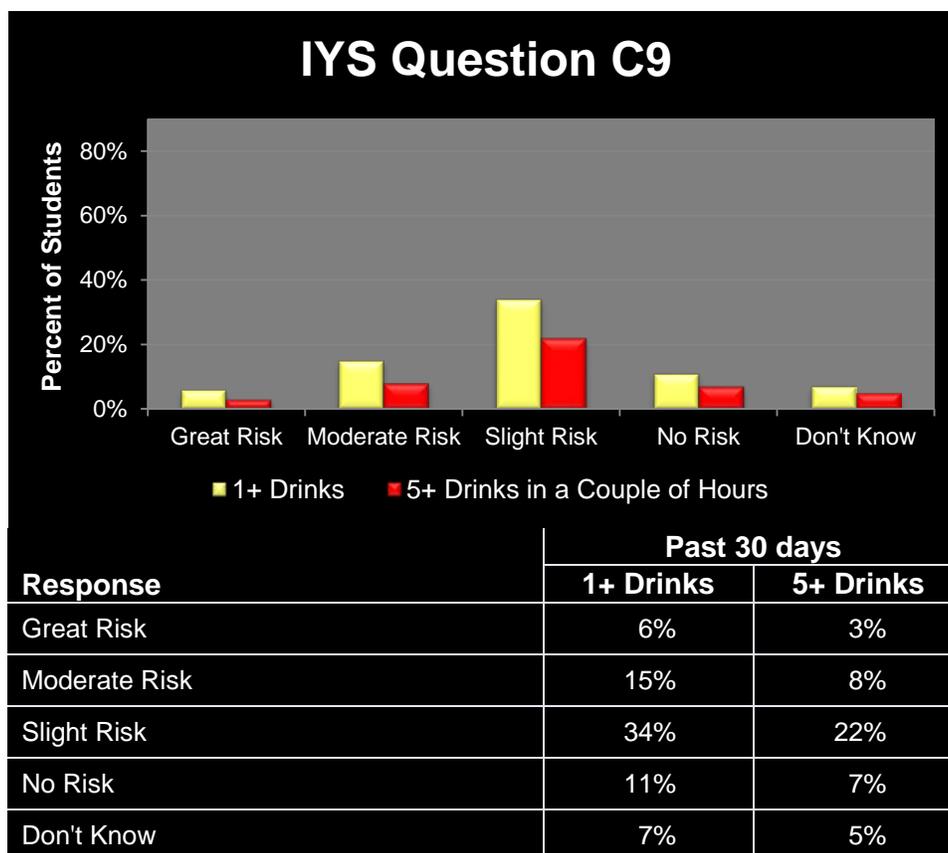
Figure 12. IYS Question C6 – Saying “no” When Someone Suggests Wrong or Dangerous Activities by Student-Reported Past 30 Day Drinking



IYS Question C6: How much do you agree or disagree that each of the following statements is true: I can say “no” when someone wants me to do things I know are wrong or dangerous.

Figure 13 displays the degree to which students believed they are harming themselves by drinking three or more alcoholic drinks every day by the percentage of students who reported drinking alcoholic beverages within the past 30 days. Students who believed there was a great risk reported the lowest frequency of consuming alcoholic beverages. Interestingly, those who thought there was a slight risk to drinking three or more alcoholic beverages every day drank considerably more than students who thought there was no risk. Interestingly, over one-third (34%) of students who thought there was a slight risk to drinking three or more alcoholic drinks every day drank at least one alcoholic drink within the past 30 days while only 11% of students who thought drinking three or more alcoholic beverages posed no risk drank one or more alcoholic drinks in the past 30 days.

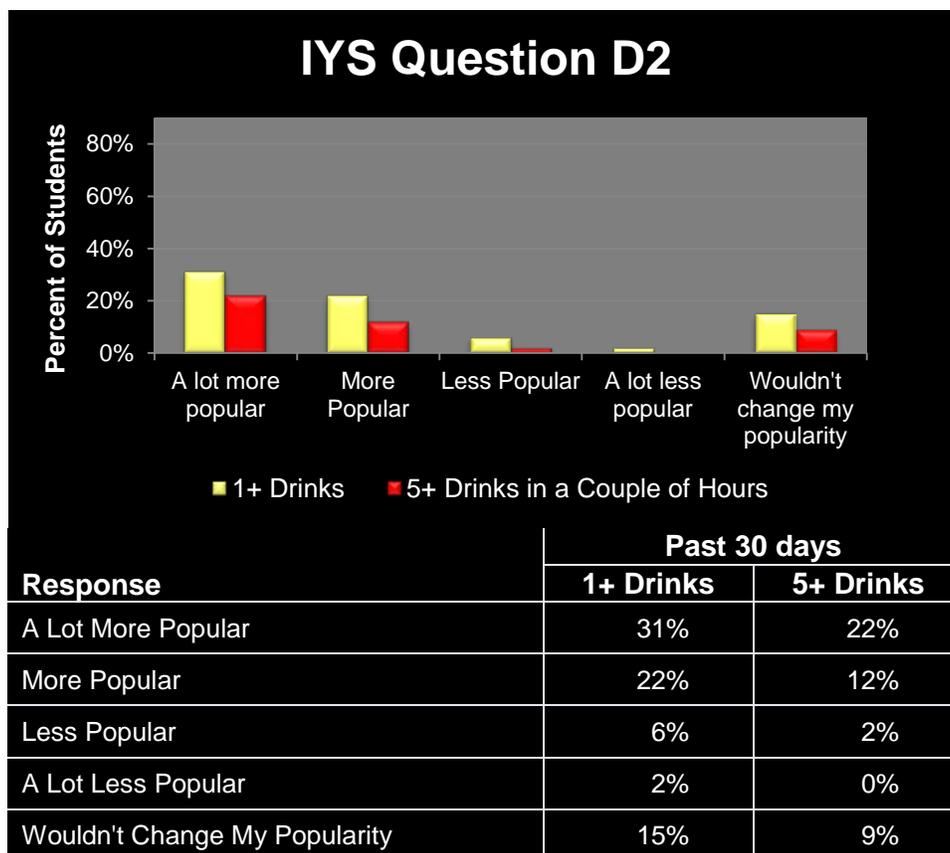
Figure 13. IYS Question C9 – Perceptions of Self-Harm Due to Drinking by Student-Reported Past 30 Day Drinking



IYS Question C9: How much do you think you risk harming yourself (physically or otherwise) if you: Drink 3 or more drinks of alcohol (glasses, cans, bottles of beer; glasses of wine, liquor, or mixed drinks) nearly every day?

Figure 14 illustrates student's perceptions on whether drinking alcoholic beverages would change their popularity with the other students in their school by the percentage of students who reported drinking alcohol within the past 30 days. Those students who thought that drinking alcoholic beverages would make them more popular more often drank alcohol. Over one in five (22%) students who believed that drinking alcoholic beverages would make them a lot more popular and 12% of students who thought drinking would make them more popular reported consuming five or more alcoholic drinks in a row in the past 30 days. Students who indicated that drinking would not change their popularity reported drinking less often than those who believed drinking would increase their popularity, but drank more than students who reported that drinking alcoholic beverages would make them less popular.

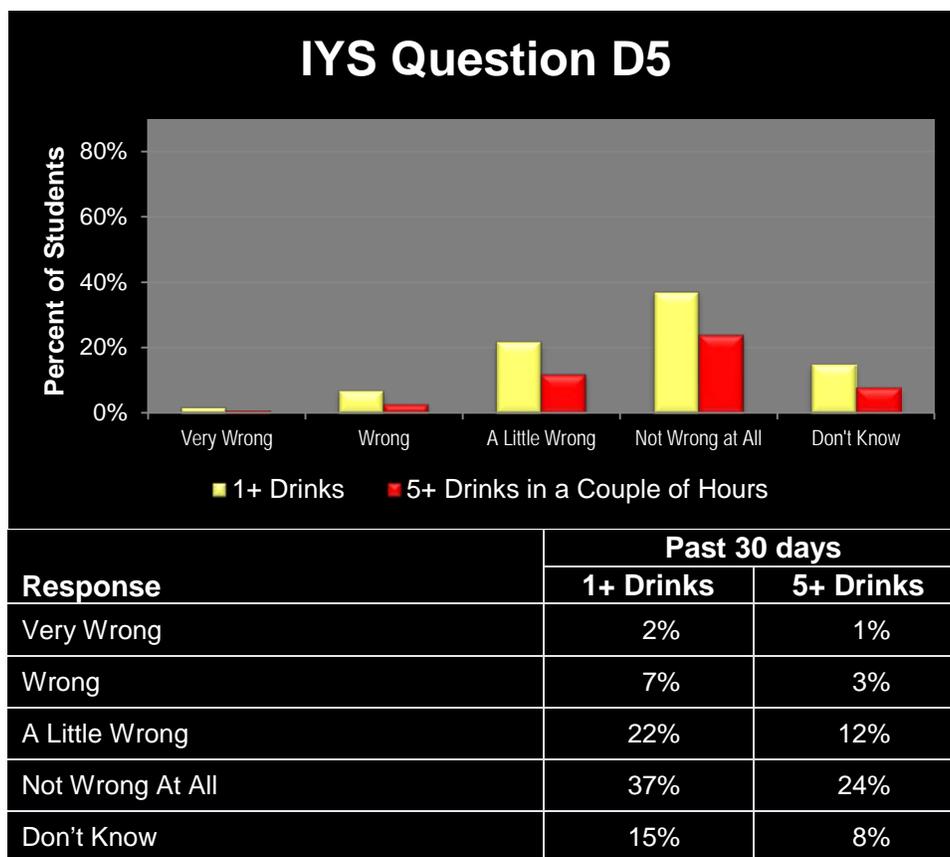
Figure 14. IYS Question D2 – Perceptions of Change in Popularity Due to Drinking by Student-Reported Past 30 Day Drinking



IYS Question D2: *Would you be more or less popular (respected or cool) with the other students in your school if you: Drank alcoholic beverages?*

Figure 15 displays how wrong students believe their peers feel it is to drink alcohol by the percentage of students who reported drinking alcohol in the past 30 days. Students who indicated that most students in their school would not think drinking was wrong drank more often than those who thought others would judge drinking as wrong. Only 2% of students who believed that other students in their schools think drinking is very wrong drank at least one alcoholic beverage in the past 30 days. Thirty-seven percent of students who reported that they felt that their peers would view drinking as not wrong at all drank at least one alcoholic beverage in the past 30 days and nearly one-quarter (24%) drank five drinks in a row within the last 30 days. Students who indicated that they did not know how wrong their peers would feel it is for the student to drink alcohol reported more drinking than students who reported that other students would perceive their drinking as wrong and less than students who believed other students would view their drinking as a little wrong.

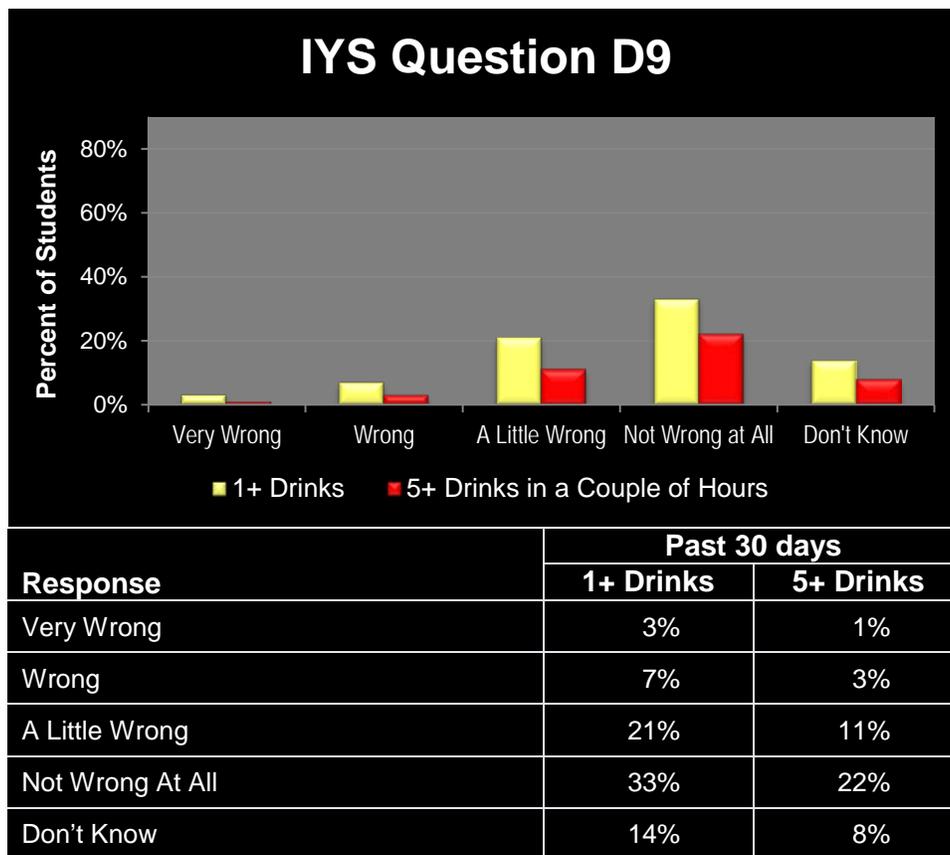
Figure 15. IYS Question D5 – Perceptions of How Wrong Peers Feel it is to Drink Alcohol by Student-Reported Past 30 Day Drinking



IYS Question D5: How wrong would most of the students in your school (not just your best friends) feel it would be for you to: Drink beer, wine, or hard liquor (for example: vodka, whisky, gin)?

Figure 16 shows how wrong students believed their peers would think it is for the student to attend a party with underage drinking by past 30-day drinking. Students' beliefs about other students' judgment regarding going to a party with underage drinking correlated with the frequency of drinking. One-third (33%) of students who believed that their peers would find that going to a party with underage drinking is not wrong at all reported drinking within the last 30 days and 22% had drunk five or more alcoholic beverages in a row within the last 30 days. In contrast, only 3% of students who believed peers would judge going to a party with underage drinking as very wrong drank at least one alcoholic beverage in the past 30 days. Students who indicated that they did not know how wrong their peers would feel it would be for the student to attend a party with underage drinking reported drinking more than students who felt that their peers would judge their attendance as wrong and less than those who reported that their peers would judge their attendance as a little wrong.

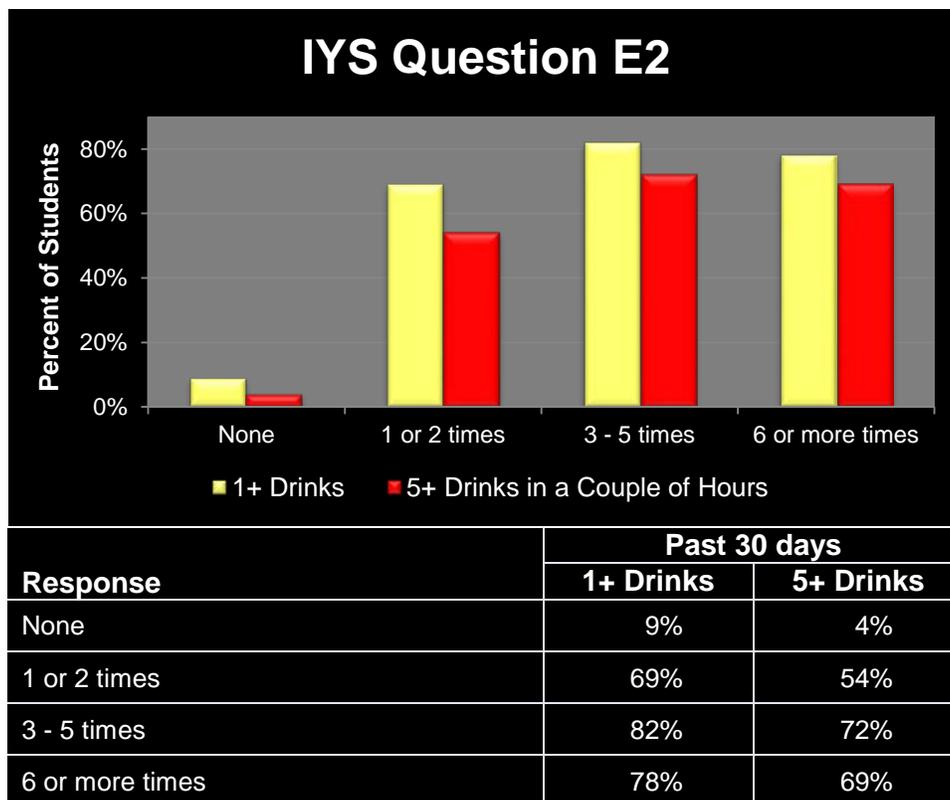
Figure 16. IYS Question D9 – Perceptions of How Wrong Peers Feel it is to Go to a Party With Underage Drinking by Student-Reported Past 30 Day Drinking



IYS Question D9: How wrong would most of the students in your school (not just your best friends) feel it would be for you to: Go to a party where kids under 21 were using alcohol?

Figure 17 illustrates how often students reported using alcohol or illegal drugs on school property or at school events in the past 30 days by the percentage of students who reported drinking alcohol within the last 30 days. Students who indicated that they consumed alcohol or other illegal drugs on school property were much more likely to report drinking than those who did not indicate any alcohol or illegal drug use on school property or during school events. Less than 10% of students who did not report using alcohol or illegal drugs on school property or at school events reported drinking alcohol within the last 30 days. However, over half of all students who reported engaging in these activities on school property or at school events at least one time reported drinking five or more drinks in a couple of hours within the past 30 days.

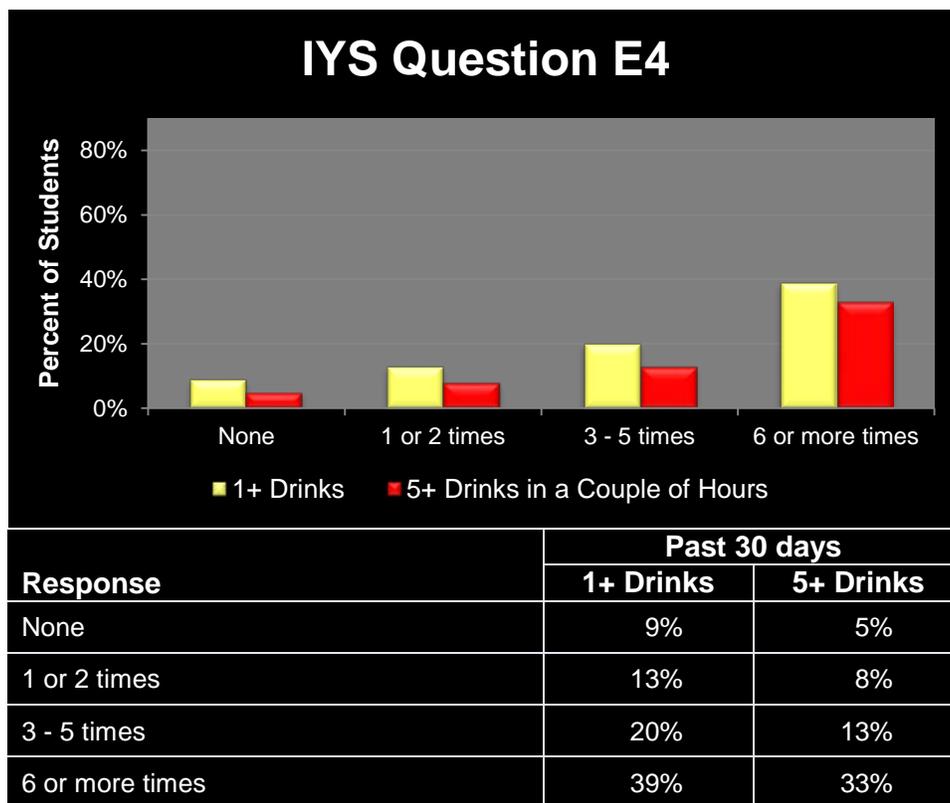
Figure 17. IYS Question E2 – Frequency of Reporting Alcohol or Illegal Drugs Use on School Property or at a School Event in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question E2: *In the past 12 months, how often have you: Used alcohol or other illegal drugs on school property or at a school event?*

Figure 18 displays how often students reported having their property stolen or deliberately damaged on school property or at a school event in the past 12 months by the percentage who reported drinking alcohol within the past 30 days. Students who indicated that they have had things stolen or damaged at school were more likely to report drinking. This relationship was positive: successively higher incidences of reporting items stolen or damaged was associated with an increase in drinking.

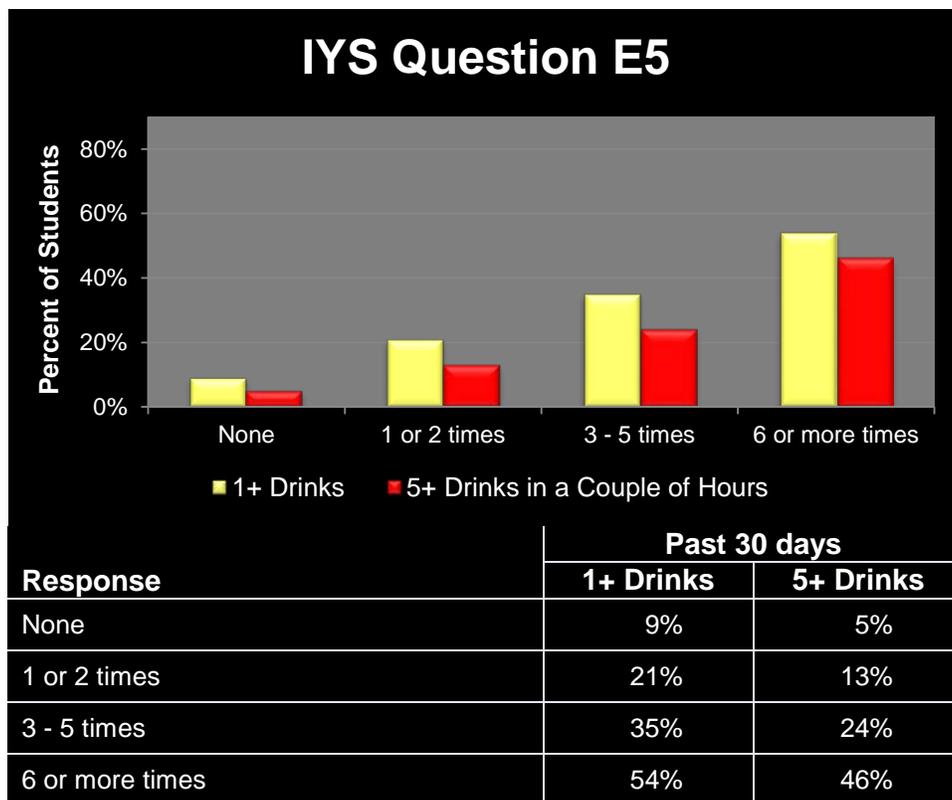
Figure 18. IYS Question E4 – Frequency of Reporting Stolen or Damaged Property on School Property or at School Events in the Past 12 Months by Student-Reported Past 30 Day Drinking



IYS Question E4: *In the past 12 months, how often have you: Had your things (clothing, books, bike, car) stolen or deliberately damaged on school property or at a school event?*

Figure 19 shows how often students reported being disciplined for fighting, theft, or damaging property at school or a school event in the past 12 months by the percentage of students reporting consumption of alcoholic beverages within the last 30 days. Being disciplined for fighting, theft, or damaging school property was strongly associated with drinking. Student drinking increased as reported incidence of discipline increased. While less than 10% of students who do not report being disciplined for fighting, theft, or damaging property at school or a school event within the past year reported drinking at least one alcoholic beverage in the past 30 days over half (54%) of students who reported receiving such disciplinary action six or more times also reported drinking at least one alcoholic beverage in the past 30 days.

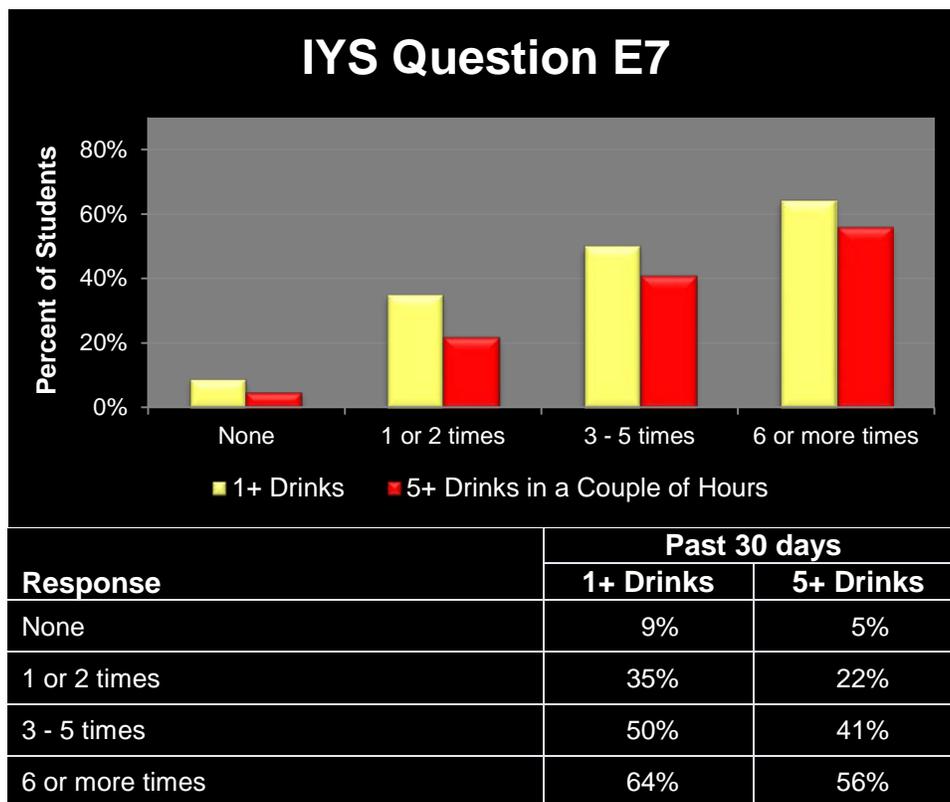
Figure 19. IYS Question E5 – Frequency of Being Disciplined for Fighting, Theft, or Damaging Property at School or a School Event in the Past 12 Months by Student-Reported Past 30 Day Drinking



IYS Question E5: *In the past 12 months, how often have you: Been disciplined for fighting, theft, or damaging property at school or a school event?*

Figure 20 illustrates how often students reported damaging property for fun in the past 12 months by the percentage of students reporting drinking alcohol within the last 30 days. Students' acknowledgement of damaging property just for fun was strongly associated with drinking. This relationship was positive: successively higher reports of damaging property for fun was associated with an increase in student reported drinking behavior. Nearly two-thirds (64%) of students who reported damaging property for fun six or more times also reported drinking one or more alcoholic beverages in the past 30 days compared to 50% of students reporting three to five incidences of property damage and 35% of students reporting one or two incidences of property damage.

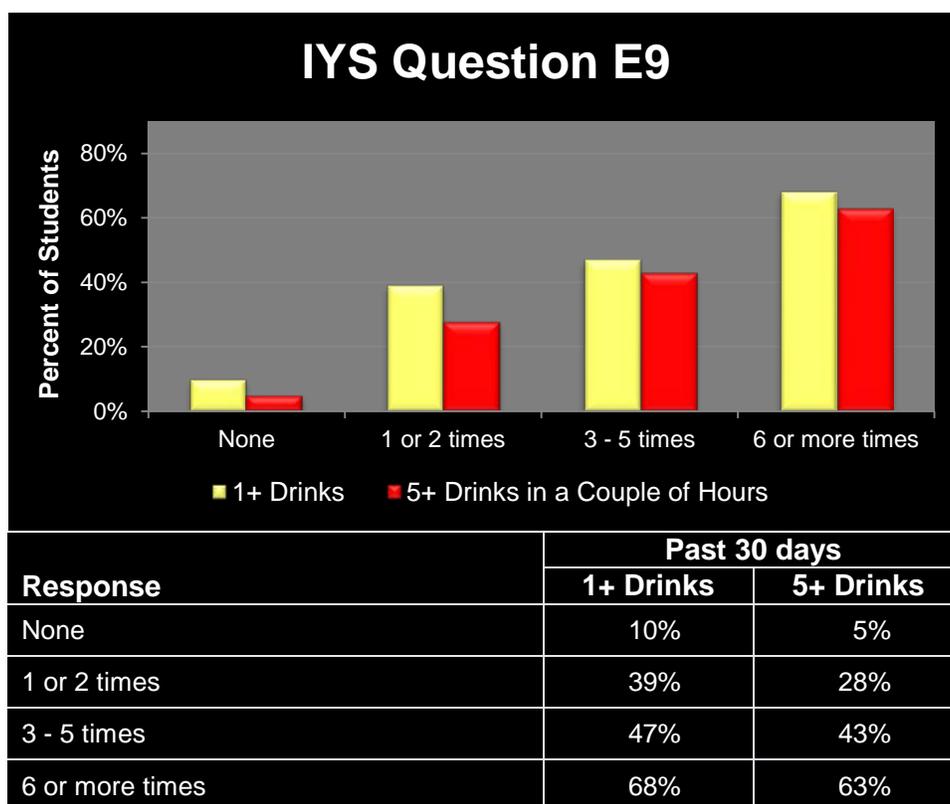
Figure 20. IYS Question E7 – Frequency of Damaging Property for Fun in the Past 12 Months by Student-Reported Past 30 Day Drinking



IYS Question E7: *In the past 12 months, how often have you: Damaged property just for fun (like breaking windows, scratching a car, etc.)?*

Figure 21 shows how often students reported using a weapon, force, or threats to get money or things by the percentage of students who reported drinking within the last 30 days. Using a weapon, force, or threats was strongly associated with drinking: student drinking increased as reported incidences of using a weapon, force or threats increased. The percentages of students who drank one more alcoholic beverages and those who drank five or more drinks in a row were similar among students who indicated they used a weapon, force or threats three to five times (47% and 43%) or six or more times (68% and 63%), respectively.

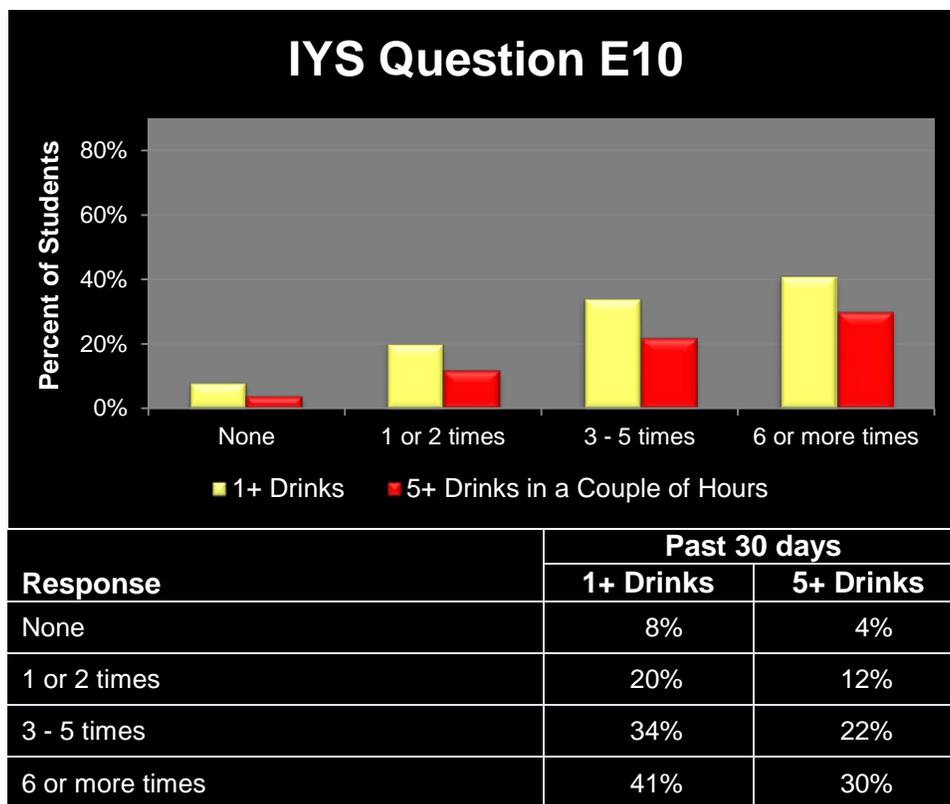
Figure 21. IYS Question E9 – Frequency of Using a Weapon, Force, or Threats to Get Money or Things in the Past 12 Months by Student-Reported Past 30 Day Drinking



IYS Question E9: *In the past 12 months, how often have you: Used a weapon, force, or threats to get money or things from someone?*

Figure 22 illustrates how often students reported verbally threatening to physically harm someone within the past year by the percentage of students who reported drinking alcohol in the past 30 days. Students who reported that they verbally threatened someone with harm were more likely to drink than students who did not verbally threaten to physically harm anyone. Furthermore, reports of drinking alcoholic beverages within the past 30 days increased as the number of times students indicated that they verbally threatened to physically harm someone increased. For example, 20% of those who reported verbally threatening or physically harming someone reported drinking within the last 30 days. However, reports of drinking one or more drinks within the last 30 days were increased among those who reported verbally threatening or physically harming someone three to five times (34%) or six or more times (41%) in the past 12 months.

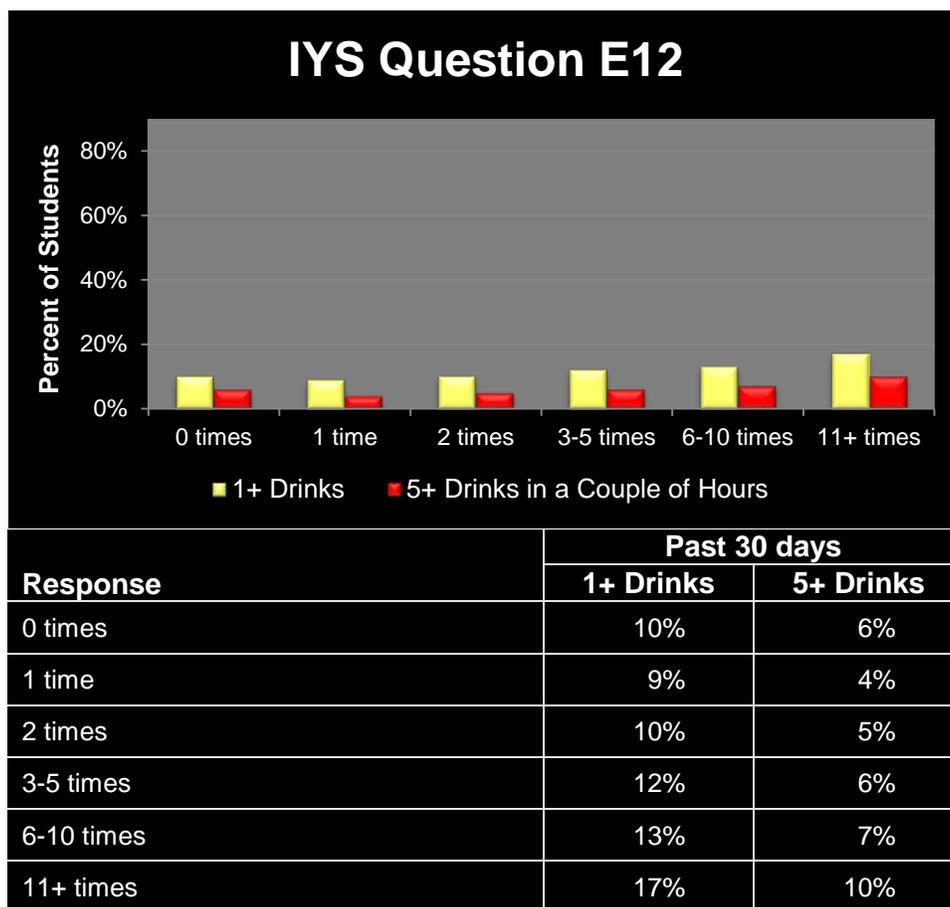
Figure 22. IYS Question E10 – Frequency of Verbally Threatening to Physically Harm Someone in the Past 12 Months by Student-Reported Past 30 Day Drinking



IYS Question E10: *In the past 12 months, how often have you: Verbally threatened to physically harm someone?*

Figure 23 illustrates how often students reported being called names, made fun of or teased in a hurtful way in the past 30 days by the percentage who reported drinking within the past 30 days. Having been bullied within the last 30 days was related with drinking, but the effect does not appear strong. This is evident by the minimal increase in percentage of students reporting alcohol use over successive increases in the number of bullying incidences. For example, 10% of students who reported never being bullied drank one alcoholic beverage within the past 30 days while 17% of students who reported being bullied 11 or more times reported drinking in the past 30 days.

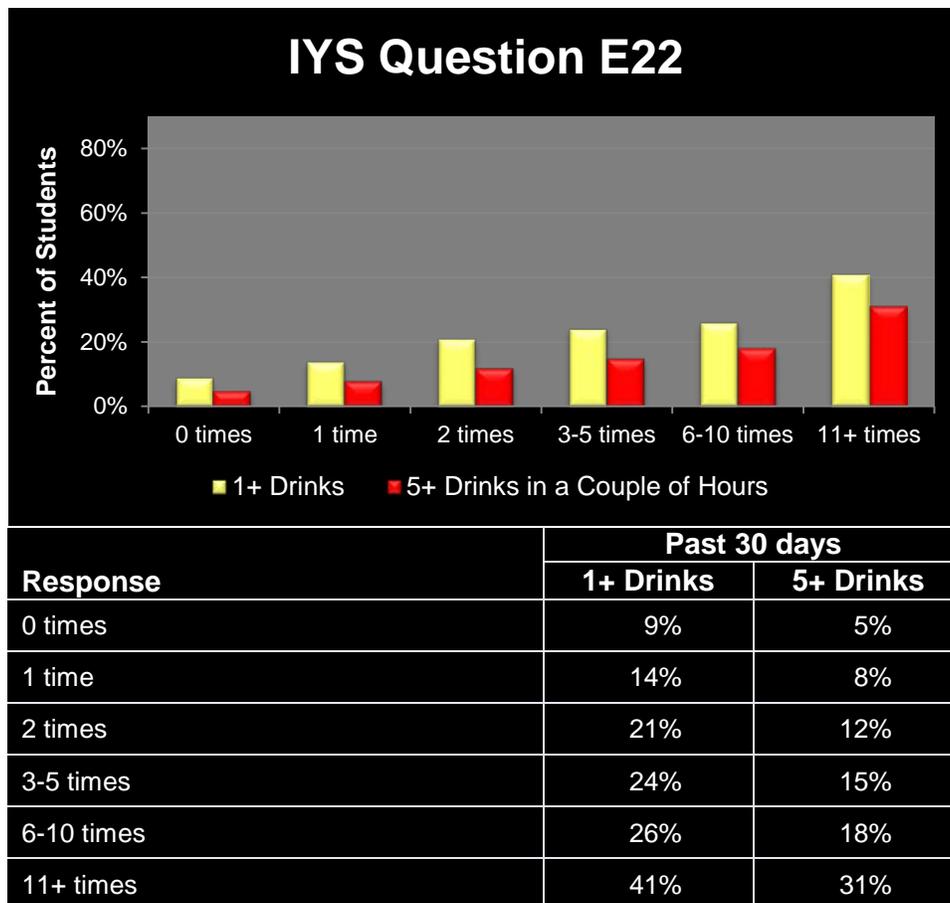
Figure 23. IYS Question E12 – Frequency of Being Bullied at School in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question E12: *In the last 30 days, how many times have you been bullied at school in the ways listed below: I was called names, was made fun of, or teased in a hurtful way?*

Figure 24 shows how often students reported bullying someone else at school in the past 30 days by the percentage who reported drinking alcohol within the past 30 days. Student reports of drinking alcohol increased with each successive increase in reported bullying. The largest increase in drinking between successive categories of reported bullying is between students who indicated that they bullied someone six to ten times and students who bullied someone eleven or more times. Over one-quarter (26%) of students who reported bullying someone six to ten times reported drinking at least one alcoholic drink in the past 30 days while 41% of students who report bullying someone 11 or more times within the past 30 days drank at least one alcoholic beverage in 30 days. Students who did not report bullying someone else at school in the past 30 days reported significantly lower levels of drinking: less than one in ten (9%) of these students reported drinking alcohol in the past 30 days.

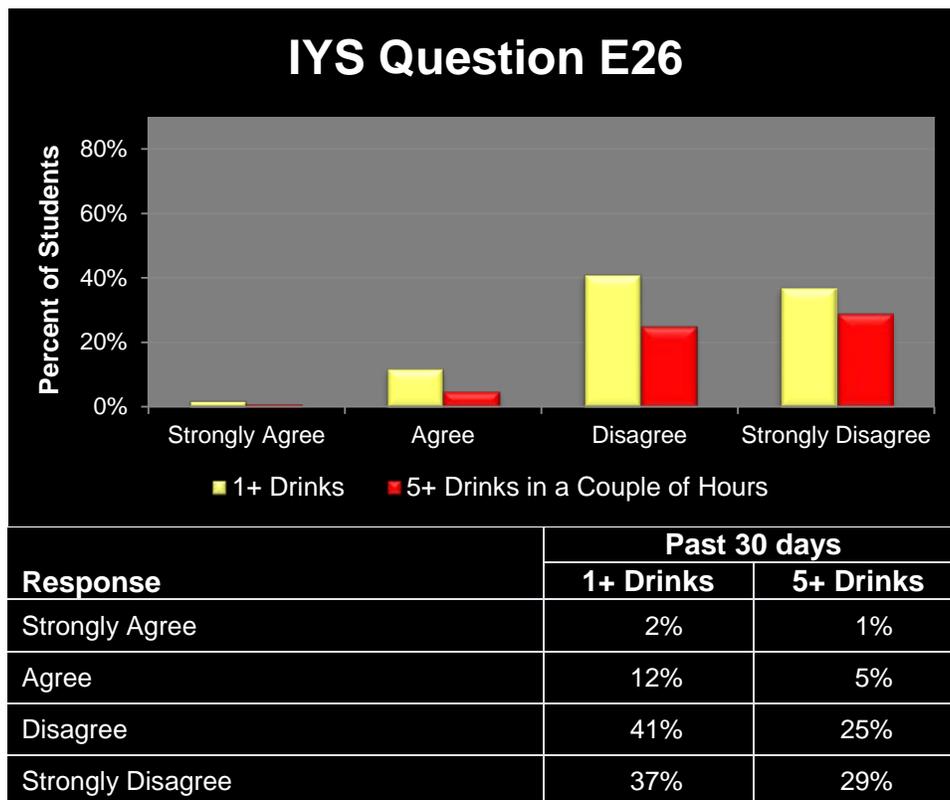
Figure 24. IYS Question E22 – Frequency of Bullying Someone Else at School in the Past 30 Days by Student-Reported Past 30 Day Drinking



IYS Question E22: *In the last 30 days, how many times have you bullied someone else at school?*

Figure 25 displays how much students agreed or disagreed that it is against their values to use alcohol and drugs as a teenager by the percentage of students who reported drinking alcohol in the last 30 days. Students who agreed with the statement "It is against my values to use alcohol and drugs as a teenager" were less likely to drink than those who disagreed with the statement. For example, 5% of students who agreed and only 1% of those who strongly agreed with the statement reported drinking five or more alcoholic drinks in a row within the past 30 days. In contrast, 25% of those who disagreed and 29% of those who strongly disagreed with the statement report drinking five or more drinks in a row within the past 30 days.

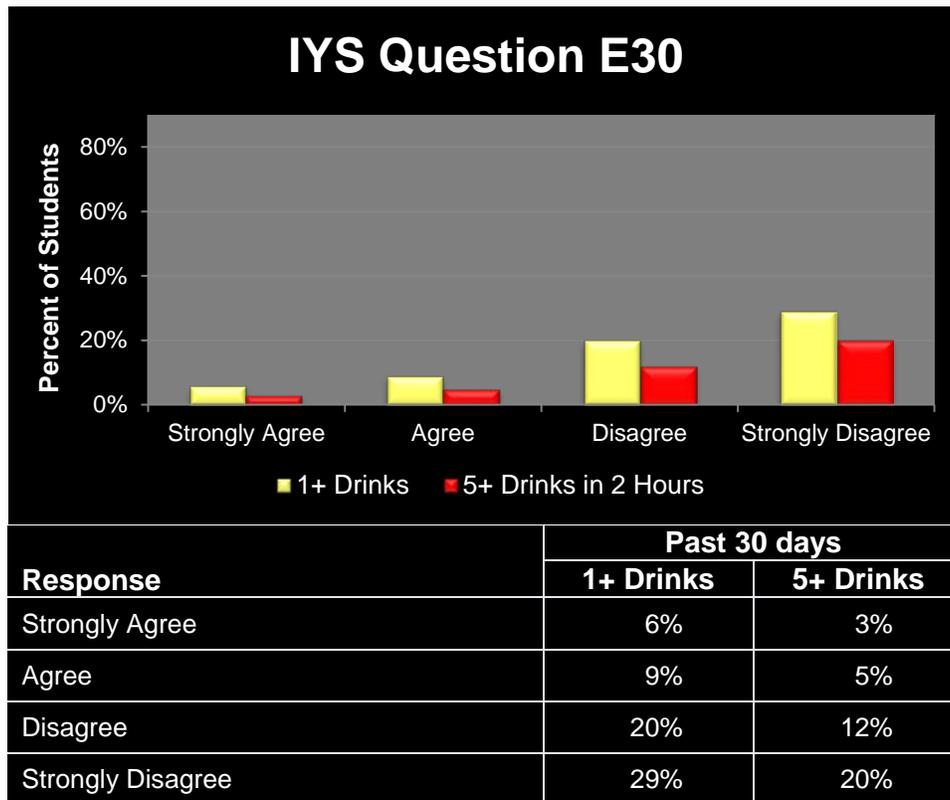
Figure 25. IYS Question E26 – Agree or Disagree: Alcohol and Drug Use is Against Student’s Values by Student-Reported Past 30 Day Drinking



IYS Question E26: How much do you agree or disagree that each of the following statements is true: It is against my values to use alcohol and drugs as a teenager.

Figure 26 shows how much students agreed or disagreed with the statement that they think things through carefully before making a decision by the percentage of students who reported drinking alcoholic beverages within the last 30 days. Students who disagreed with the statement "I think things through carefully before I make a decision" were more likely to drink than those who agreed with the statement. One in five students who strongly disagreed with the statement reported drinking five or more drinks in a row within the past 30 days. In contrast, only 3% who strongly agreed with the statement drank five or more drinks in a row within the past 30 days.

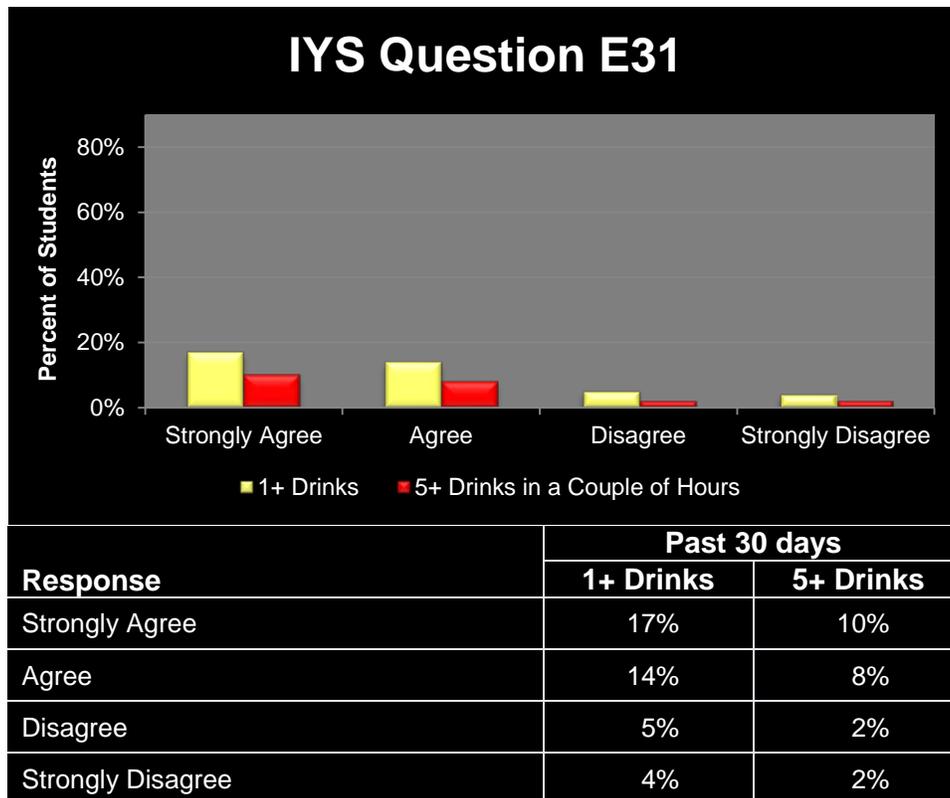
Figure 26. IYS Question E30 – Agree or Disagree: Student Thinks Things Through Carefully Before Making a Decision by Student-Reported Past 30 Day Drinking



IYS Question E30: How much do you agree or disagree that each of the following statements is true: I think things through carefully before I make a decision.

Figure 27 displays how much students agreed or disagreed with the statement “Even if it is dangerous, I like to do exciting things” by the percentage of students who reported drinking within the last 30 days. Agreeing with the statement was associated with a somewhat higher likelihood of drinking. Seventeen percent of those who strongly agreed with the statement reported drinking at least one alcoholic beverage in the past 30 days while only 4% of those who strongly disagreed with the statement reported drinking alcohol in the past 30 days.

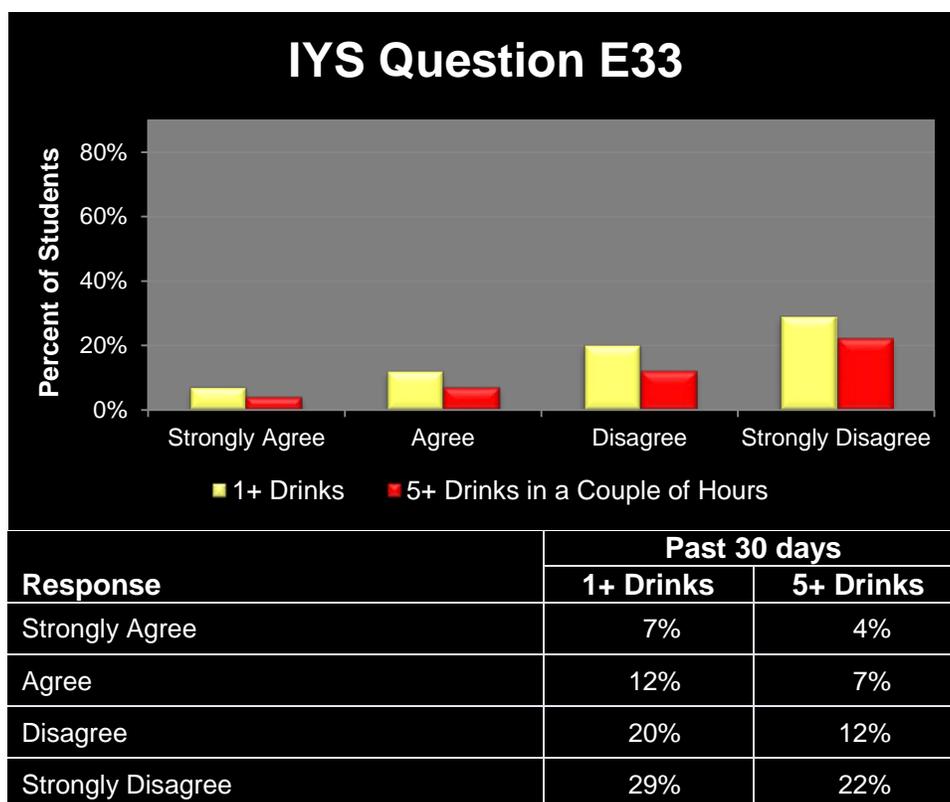
Figure 27. IYS Question E31 – Agree or Disagree: Even if it is Dangerous, Student Likes to Do Exciting Things by Student-Reported Past 30 Day Drinking



IYS Question E31: How much do you agree or disagree that each of the following statements is true: Even if it is dangerous, I like to do exciting things.

Figure 28 illustrates how much students agreed or disagreed with the statement: “In my school: There are clear rules about what students can and cannot do” by the percentage of students who reported consuming alcohol within the past 30 days. Acknowledgement that there are clear rules about what about what students can and cannot do was related to drinking. Twelve percent of students who agreed and 7% of those who strongly agreed that there are clear rules about what students can and cannot do at school reported drinking at least one alcoholic beverage in the past 30 days. In contrast, one-fifth of students who disagreed and 29% of those who strongly disagreed with the statement drank at least one alcoholic beverage within the past 30 days.

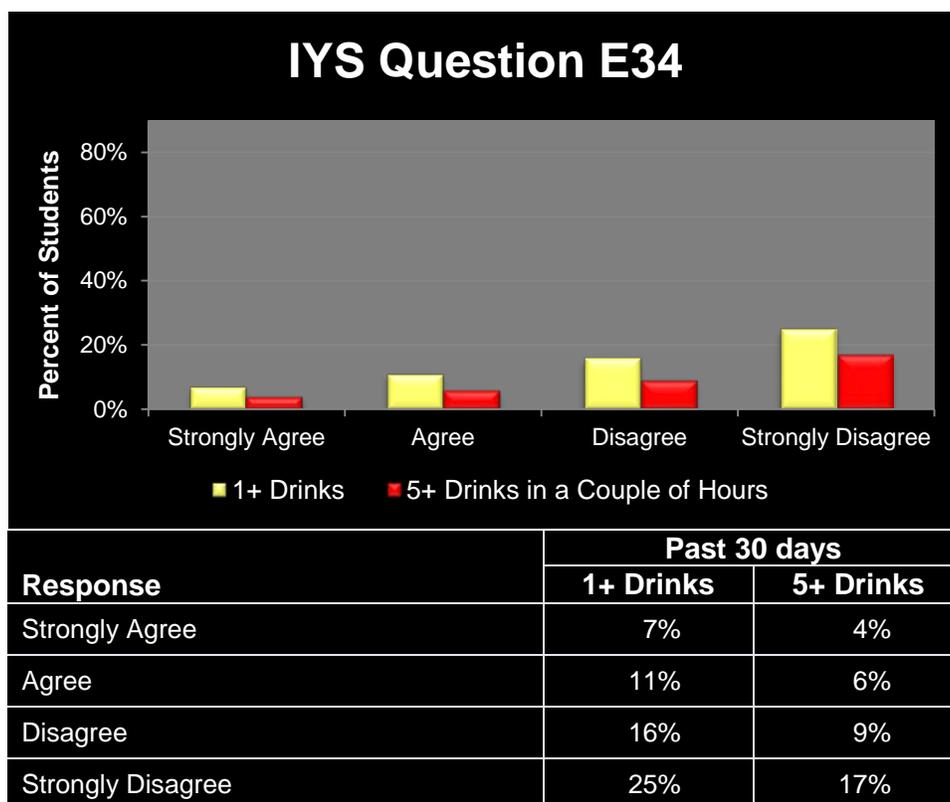
Figure 28. IYS Question E33 – Agree or Disagree: In Student’s School There Are Clear Rules About What Students Can and Cannot Do by Student-Reported Past 30 Day Drinking



IYS Question E33: How much do you agree or disagree that each of the following statements is true? In my school: There are clear rules about what students can and cannot do.

Figure 29 illustrates how much students agreed or disagreed with the statement "The school principal and teachers consistently enforce school rules" by the percentage who reported drinking alcohol within the past 30 days. Students who agreed with the statement tended to drink less than those who disagreed with the statement. Less than one in ten (7%) of students who strongly agreed that the principal and teachers consistently enforce school rules reported consuming at least one alcoholic beverage in the past 30 days compared to one-quarter (25%) of students who strongly disagreed with this statement.

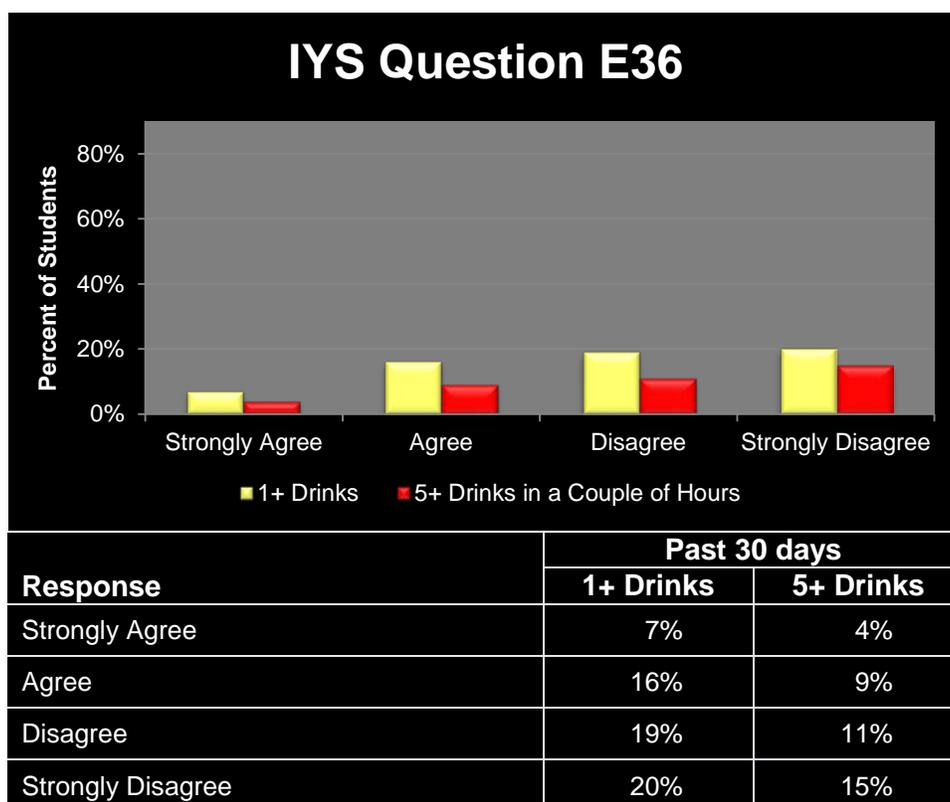
Figure 29. IYS Question E34 – Agree or Disagree: In Student’s School the Principal and Teachers Consistently Enforce School Rules by Student-Reported Past 30 Day Drinking



IYS Question E34: How much do you agree or disagree that each of the following statements is true? In my school: The school principal and teachers consistently enforce school rules.

Figure 30 displays how much students disagreed or agreed with the statement “In my school: Students caught drinking, smoking, or using an illegal drug are not allowed to participate in any extracurricular activity for some time period” by the percent of students who reported drinking any alcoholic beverage within the last 30 days. Students who disagreed that there were prohibitions of students drinking, smoking, or using illegal drugs from extracurricular activities tended to drink more than students who agreed.

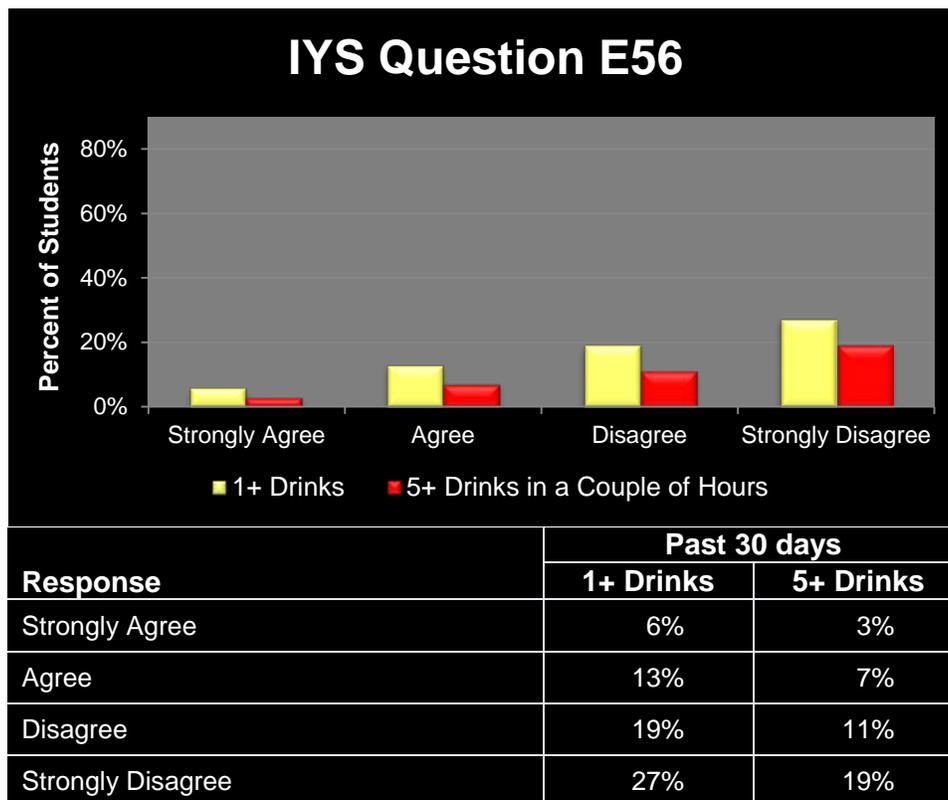
Figure 30. IYS Question E36 – Agree or Disagree: In Student’s School Students Caught Drinking, Smoking, or Using Illegal Drugs are Prohibited from Participating in Extracurricular Activities by Student-Reported Past 30 Day Drinking



IYS Question E36: How much do you agree or disagree that each of the following statements is true? In my school: Students caught drinking, smoking, or using an illegal drug are not allowed to participate in any extracurricular activity for some time period.

Figure 31 shows how much students agreed or disagreed with the statement “There is at least one adult at school that I could go to for help with a problem” by student reports of drinking within the last 30 days. Students who agreed with the statement were less likely to drink compared to those who disagreed with the statement. Over one-quarter (27%) of students who strongly disagreed with the statement and 19% of those who disagreed drank at least one alcoholic beverage in the past 30 days. However, only 6% of students who strongly agreed with the statement and 13% of those who agreed reported consuming at least one alcoholic beverage in the past 30 days.

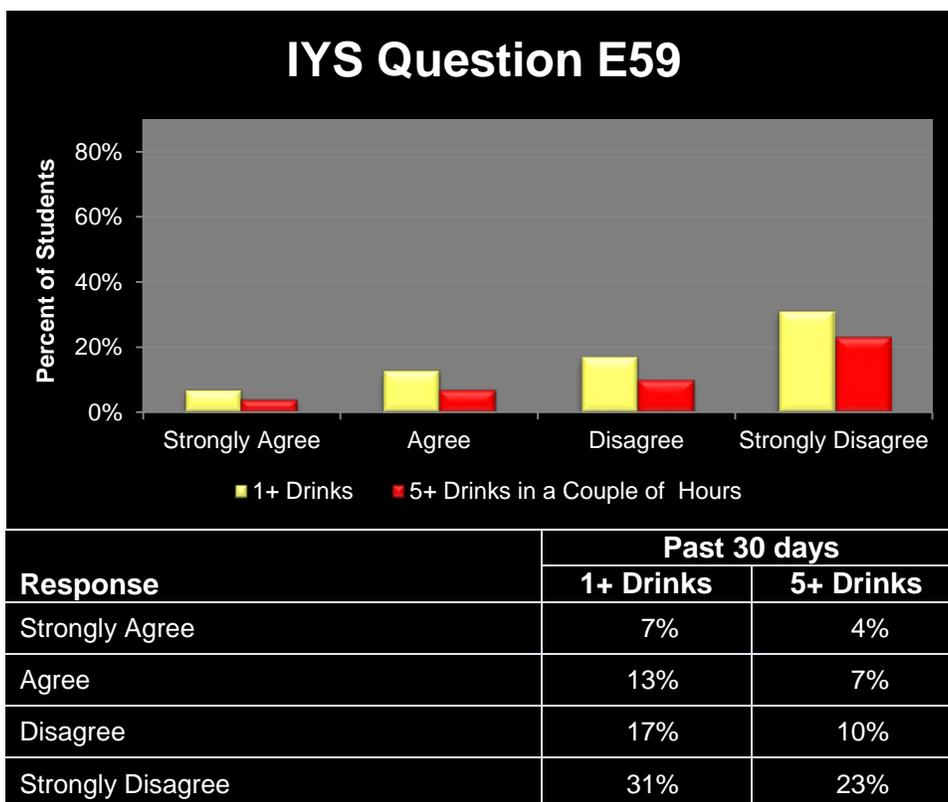
Figure 31. IYS Question E56 – Agree or Disagree: Student Has at Least One Adult at School to Go to For Help by Student-Reported Past 30 Day Drinking



IYS Question E56: How much do you agree or disagree that each of the following statements is true: There is at least one adult at school that I could go to for help with a problem.

Figure 32 shows how much students agreed or disagreed with the statement “Students have friends at school they can trust and talk to if they have problems” by the percentage of students who report consuming alcohol within the last 30 days. Those who strongly disagreed with the statement were substantially more likely to drink than those who agreed. While only 4% of students who strongly agreed with the statement drank five or more alcoholic beverages in a row within the last 30 days, nearly one-quarter (23%) reported drinking five or more drinks in a row within the last 30 day if they strongly disagreed.

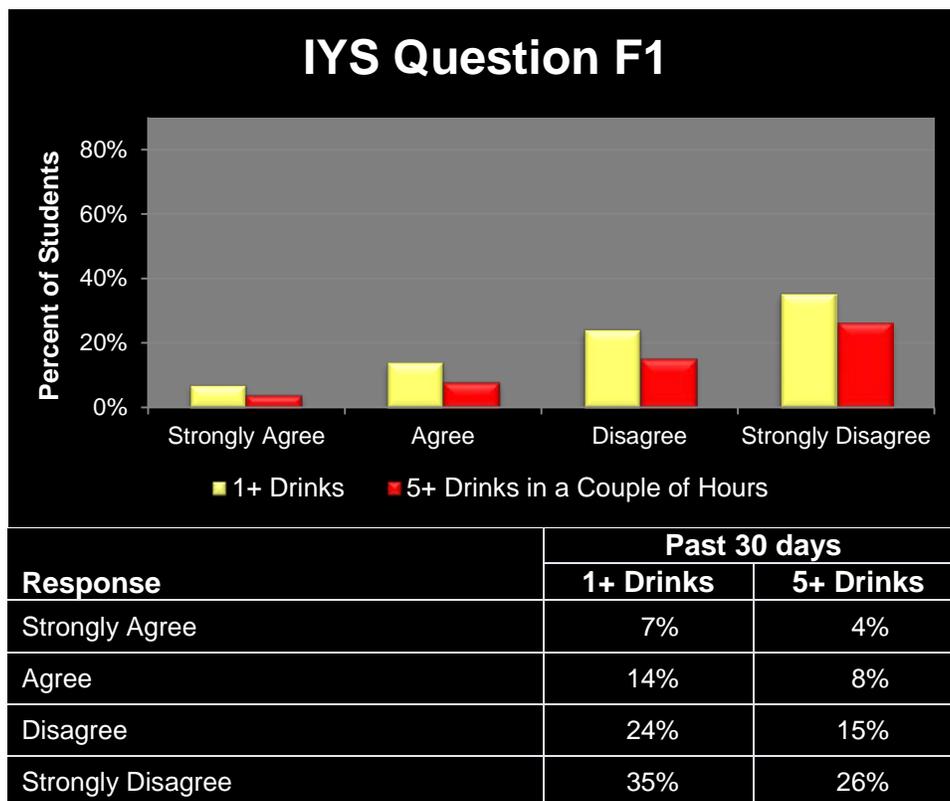
Figure 32. IYS Question E59 – Agree or Disagree: Students Have Friends at School to Confide in by Student-Reported Past 30 Day Drinking



IYS Question E59: How much do you agree or disagree that each of the following statements is true: Students have friends at school they can trust and talk to if they have problems.

Figure 33 illustrates how much students agreed or disagreed with the statement “In my home there are clear rules about what I can and cannot do” by the percentage of students who reported drinking alcohol within the past 30 days. Students who affirmed that there were clear rules about what they can and cannot do in their home were less likely to drink. This effect appears fairly strong. Nearly one-quarter (24%) of students who disagreed and over one-third (35%) of students who strongly disagreed that there are clear rules about what the student can and cannot do in the home reported drinking at least one alcoholic beverage within the past 30 days. In contrast, 7% of students who strongly agreed and 14% of those who agreed with the statement reported drinking at least one alcoholic beverage in the past 30 days.

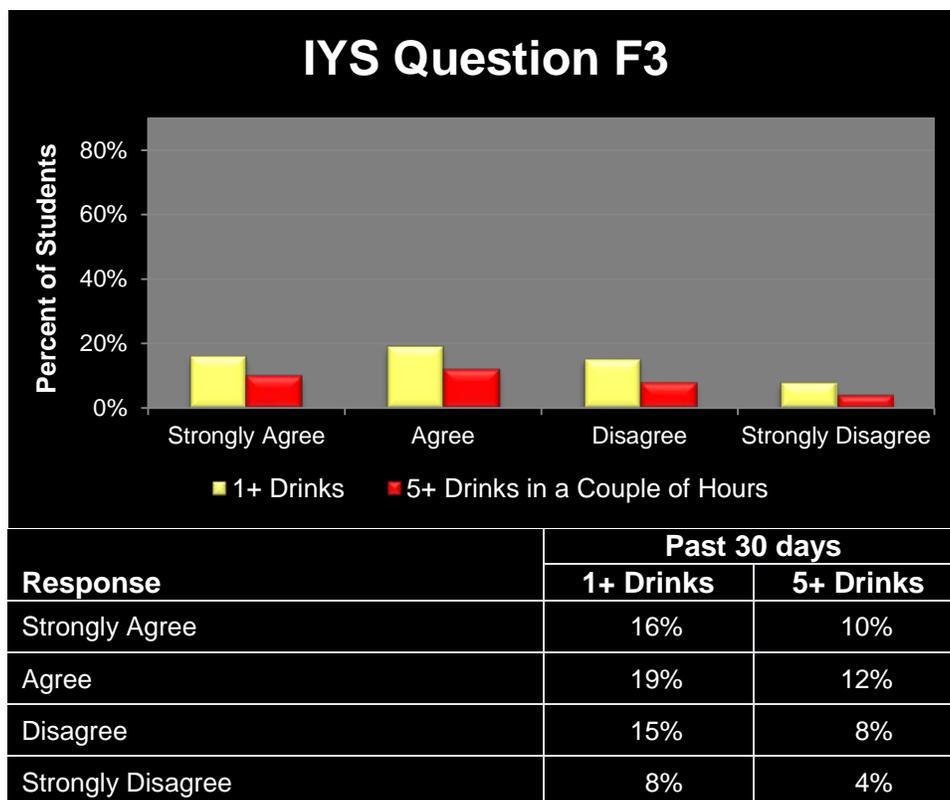
Figure 33. IYS Question F1 – Agree or Disagree: There Are Clear Rules About What Student Can and Cannot Do in the Home by Student-Reported Past 30 Day Drinking



IYS Question F1: How much do you agree or disagree that each of the following statements is true: In my home there are clear rules about what I can and cannot do.

Figure 34 displays how much students agreed or disagreed with the statement “There are people living in my home who have a serious alcohol or drug problem” by the percentage who reported drinking alcohol within the last 30 days. Students who acknowledged that a person in their home had a serious drug or alcohol problem were slightly more likely to drink than those who did not acknowledge the question. The percentage of students who reported consuming one or more alcoholic beverages within the last 30 days was twice as high for those who strongly agreed with this statement (16%) than for students who strongly disagreed with this statement (8%). Interestingly, the percentage of students reporting drinking was higher among those who agreed that they lived with someone who had a serious alcohol or drinking problem than for students who strongly agreed with the statement.

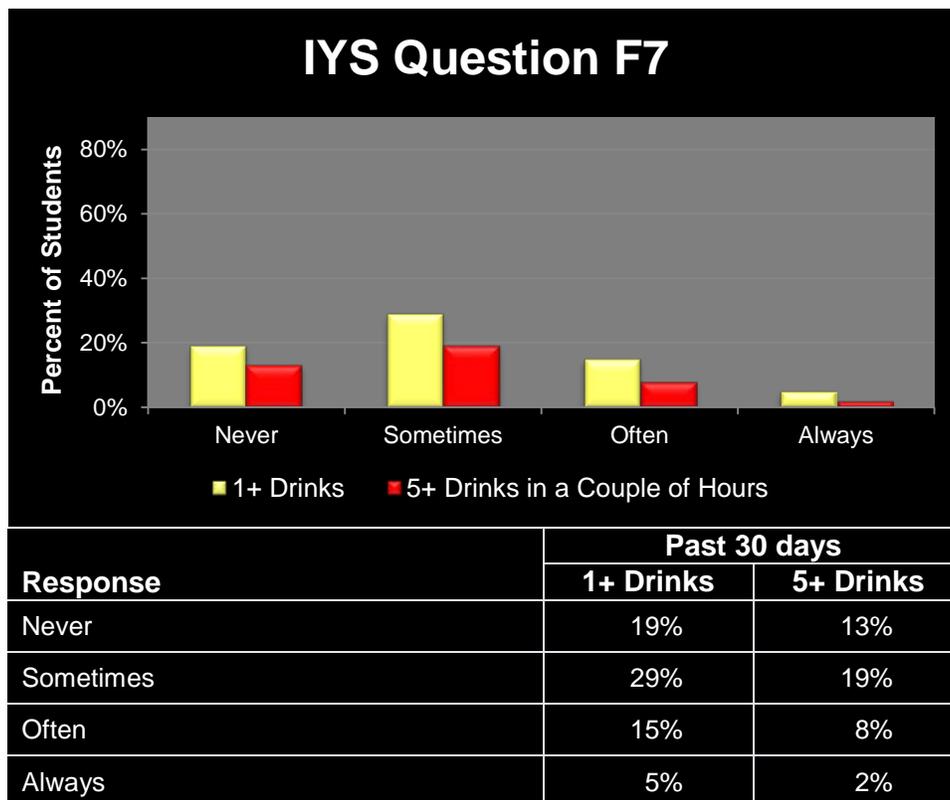
Figure 34. IYS Question F3 – Agree or Disagree: Student Lives with People Who Have a Serious Alcohol or Drug Problem by Student-Reported Past 30 Day Drinking



IYS Question F3: How much do you agree or disagree that each of the following statements is true: There are people living in my home who have a serious alcohol or drug problem.

Figure 35 presents how often students reported that a parent/guardian knew where the students were and who they were with, especially in the evening and on weekends, by the percentage of students who reported consuming alcoholic beverages within the last 30 days. Students who indicated that a parent or guardian knows where they are and who they are with sometimes tended to be most likely to drink one drink in the past 30 days (29%) and drink five or more drinks in a couple of hours (19%) compared to those whose parents always (5%; 2%), often (15%; 8%), or never (19%; 13%) knew.

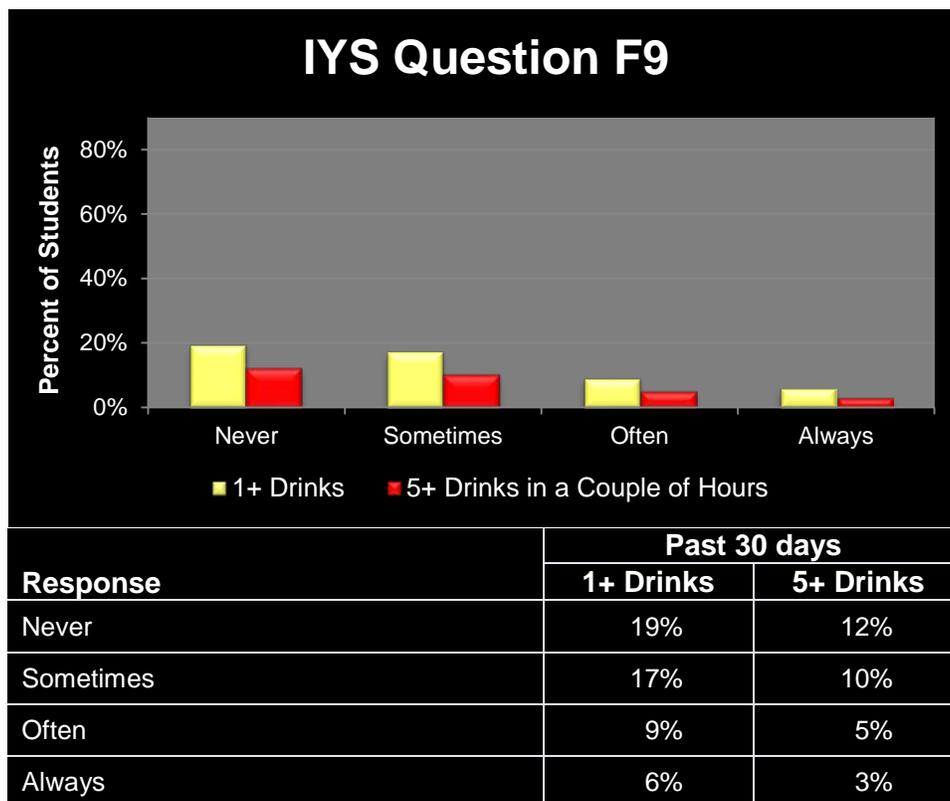
Figure 35. IYS Question F7 – Parent/Guardian Knows Student’s Whereabouts by Student-Reported Past 30 Day Drinking



IYS Question F7: How often do the following occur: A parent/guardian knows where I am and who I am with, especially in the evening and on weekends?

Figure 36 presents how often students reported that a parent/guardian finds out if they did something wrong and then punishes them by the percentage who reported drinking alcoholic beverages within the last 30 days. Students who indicated that their parents/guardians never or sometimes found out about their wrongdoings tended to be somewhat more likely to drink than those who say parents/guardians often or always found out. Only 6% of students who indicated that their parents always found out if they have done something wrong, and then punishes them reported drinking at least one drink in the past 30 days while 19% of those who report that their parents never find out if they have done something wrong reported drinking at least one drink in the past 30 days.

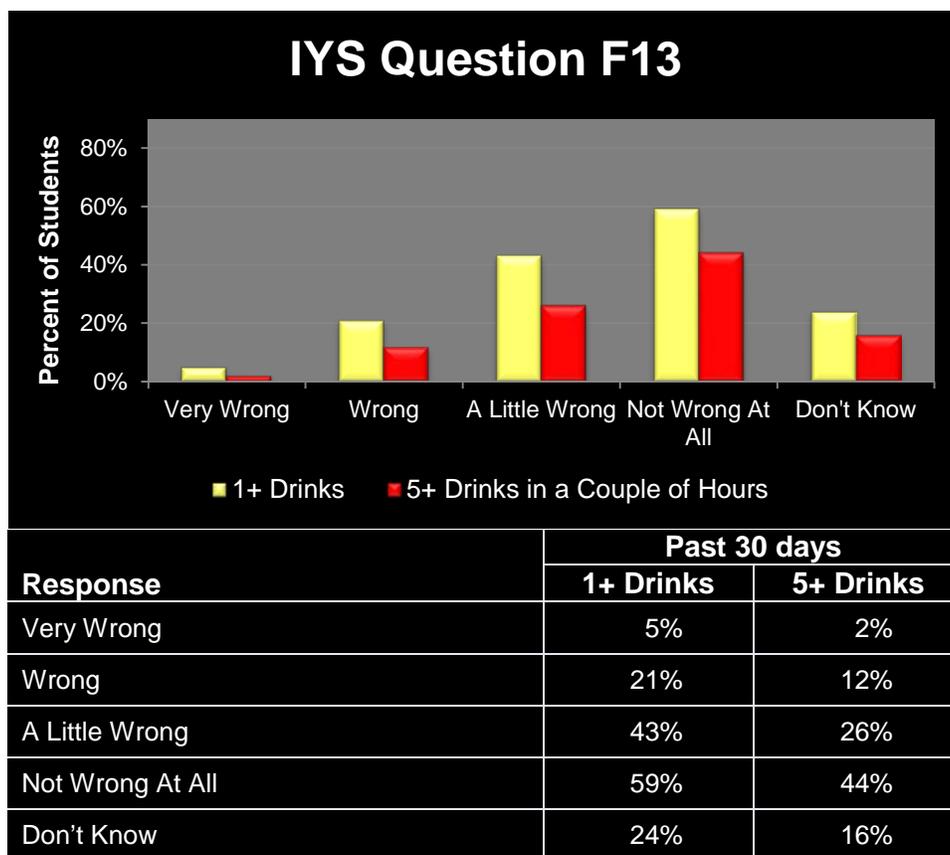
Figure 36. IYS Question F9 – Parent/Guardian Finds Out Students’ Wrongdoings and Punished Them by Student-Reported Past 30 Day Drinking



IYS Question F9: How often do the following occur: A parent/guardian generally finds out if I have done something wrong, and then punishes me?

Figure 37 illustrates how wrong students reported that their parents would feel it would be for the student to drink alcohol by the percentage of students who reported drinking alcoholic drinks within the past 30 days. Students who believed that their parents/guardians would not think drinking is wrong were considerably more likely to drink. One in twenty of students who believed that their parents would feel it is very wrong for the student to drink and over one in five (21%) of students who believed that their parents would feel it is wrong for the student to drink alcohol reported consuming at least one alcoholic beverage within the past 30 days. In comparison, 59% of students who thought that their parents feel it is not wrong at all for the student to drink consumed at least one alcoholic drink within the past 30 days. Those who reported that they did not know how their parents/guardians would feel about their drinking drank more than students who believed that their parents/guardians would find their drinking wrong or very wrong.

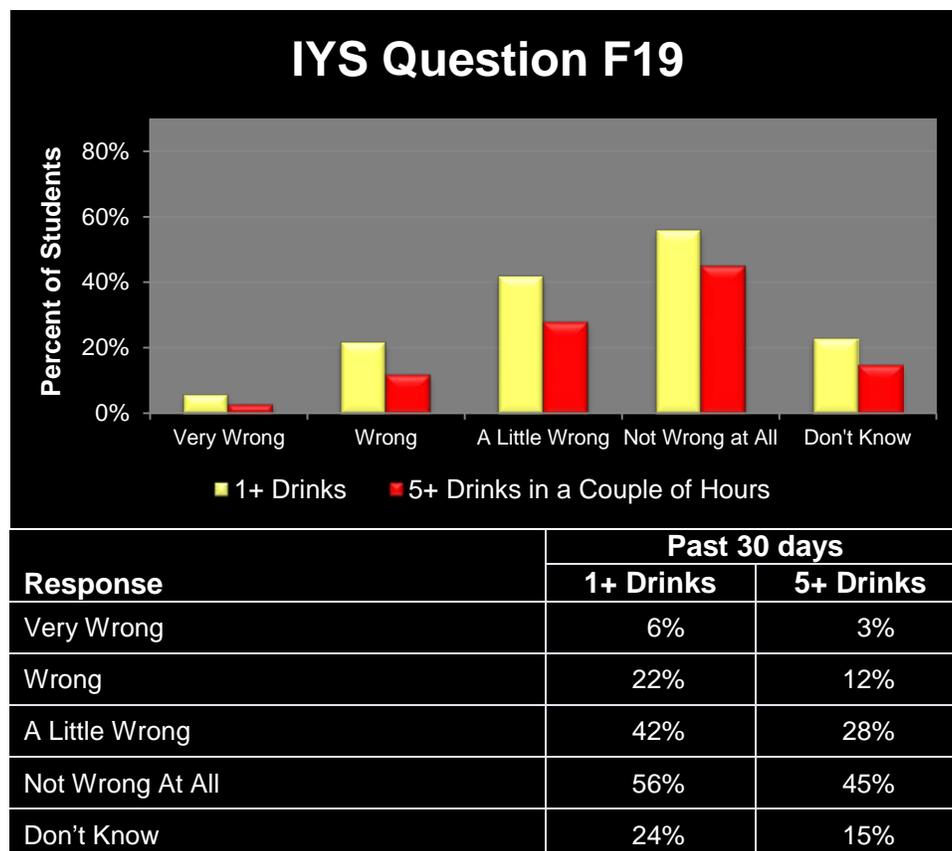
Figure 37. IYS Question F13 – Perceptions of How Wrong Parents/Guardians Feel it is for Student to Drink by Student-Reported Past 30 Day Drinking



IYS Question F13: How wrong would your parents/guardians feel it would be for you to: Drink beer, wine or hard liquor (for example vodka, whiskey, gin) without their permission?

Figure 38 displays how wrong students reported that their parents/guardians would feel if the student would attend a party with underage drinking by the percentage of students reporting consumption of alcohol within the last 30 days. There is a strong relationship between student reported drinking in the past 30 days and student perceptions of how wrong parents/guardians feel it would be for the student to attend a party with underage drinking. Over half of students (56%) who believed that their parents/guardians would find their attendance at a party with underage drinking not wrong at all, and 42% who thought parents/guardians would judge it as a little wrong reported drinking at least one alcoholic beverage in the past 30 days. Additionally, nearly half (45%) of all students who indicated that their parents/guardians would find their attendance at a party with underage drinking not wrong at all reported drinking five or more drinks in a row within the past 30 days. However, only 6% of students who reported that their parents/guardians would perceive the student’s attendance at a party with underage drinking as very wrong and 22% who believed that their parents/guardians would perceive attendance at a such a party as wrong consumed alcohol within the past 30 days.

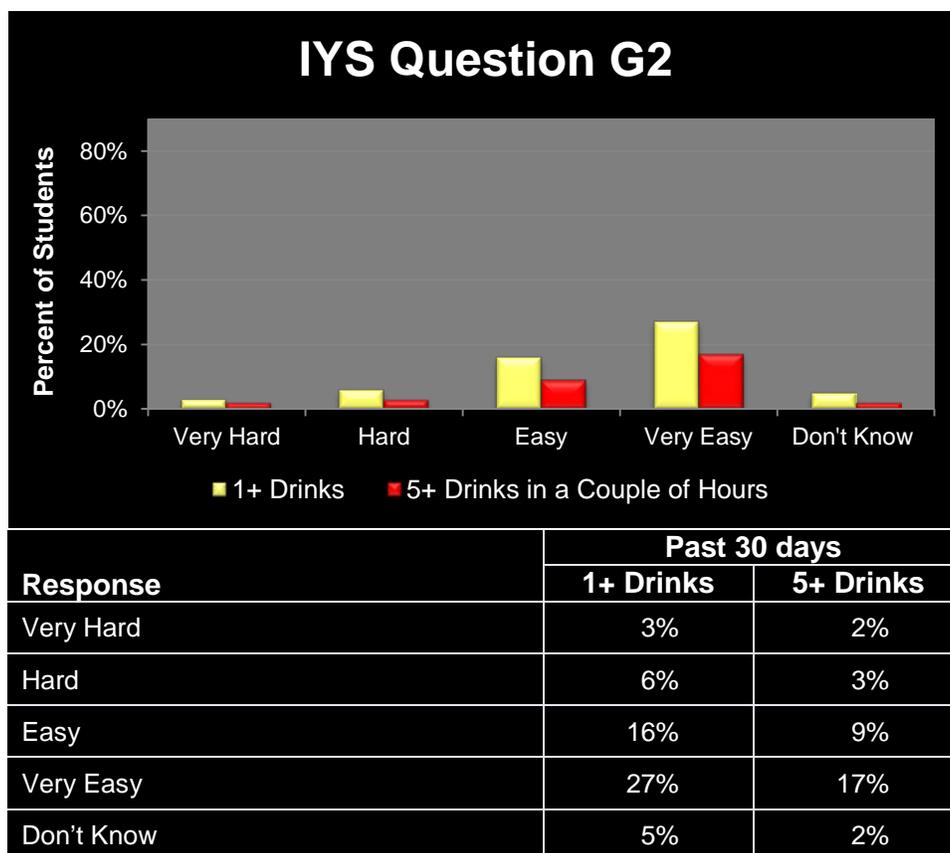
Figure 38. IYS Question F19 – Perceptions of How Wrong Parents/Guardians Feel it is For Student to Attend a Party With Underage Drinking by Student-Reported Past 30 Day Drinking



IYS Question F19: How wrong would your parents/guardians feel it would be for you to: Go to a party where kids under 21 were using alcohol?

Figure 39 illustrates how difficult students believed it would be for a person their age to obtain alcoholic beverages by the percentage of students who reported drinking alcohol within the last 30 days. Students who believed that alcoholic beverages were easy to get were more likely to drink than those who indicated that alcohol was hard to get. While 27% of those who believed that alcohol would be very easy to obtain and 16% of those who believed alcohol would be easy to obtain reported drinking at least one alcoholic beverage in the past 30 days, only 3% of those who reported that finding alcohol would be very hard and 6% of those who thought it would be hard reported the same drinking behavior. Students who indicated that they did not know how difficult it would be to obtain alcohol reported similar frequencies of alcohol consumption as students who thought it would be hard to obtain alcohol.

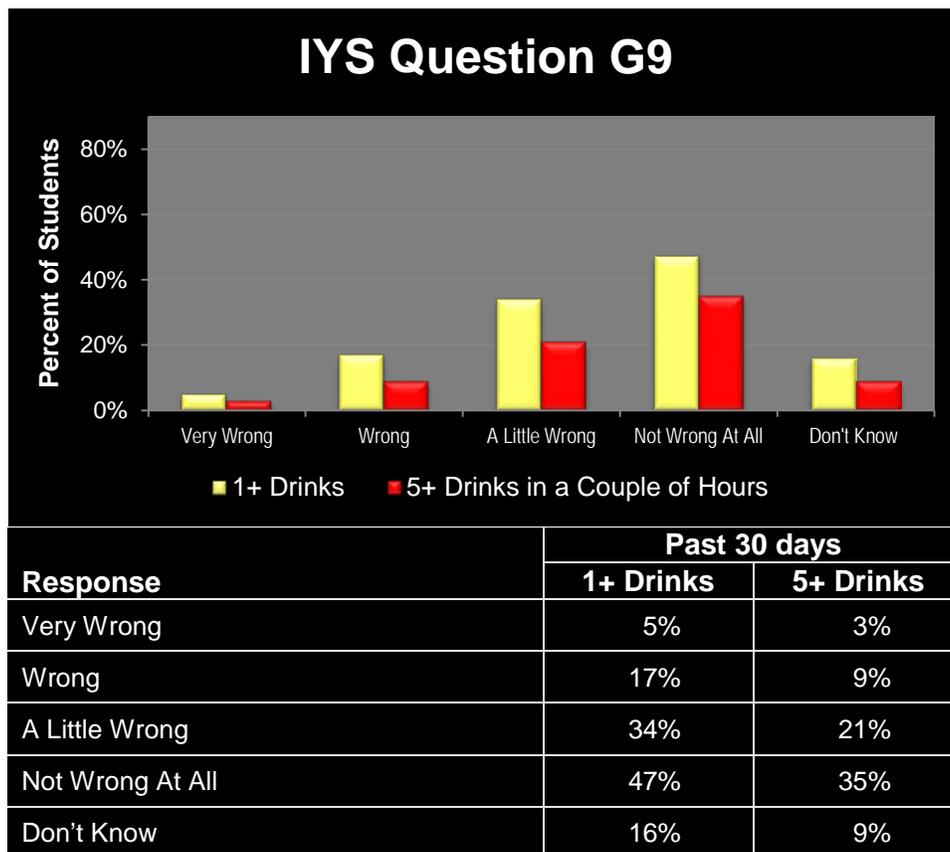
Figure 39. IYS Question G2 – Perceptions of How Difficult it Would Be to Obtain Alcohol by Student-Reported Past 30 Day Drinking



IYS Question G2: *In your neighborhood or community, how difficult do you think it would be for a kid your age to get each of the following: Alcoholic beverages (beer, wine, or liquor)?*

Figure 40 displays reported students' perceptions of how wrong adults in the neighborhood/community would find it for the student to drink alcohol by the percentage of students who reported drinking alcohol within the last 30 days. Students indicating that adults in their neighborhood/community would not think drinking was wrong tended to also report drinking more frequently than those who reported that adults would feel it is wrong. Nearly half (47%) of students who thought that adults in their neighborhood/community would find their drinking not wrong at all reported drinking at least one drink in the past 30 days. In contrast, only 5% of those who thought that the adults in the community would find it very wrong reported drinking at least one drink in the past 30 days. Students who indicated that they did not know how adults in the community/neighborhood would perceive the students' consumption of alcoholic beverages reported similar drinking behavior as students who reported that adult community members would find it wrong for the student to drink.

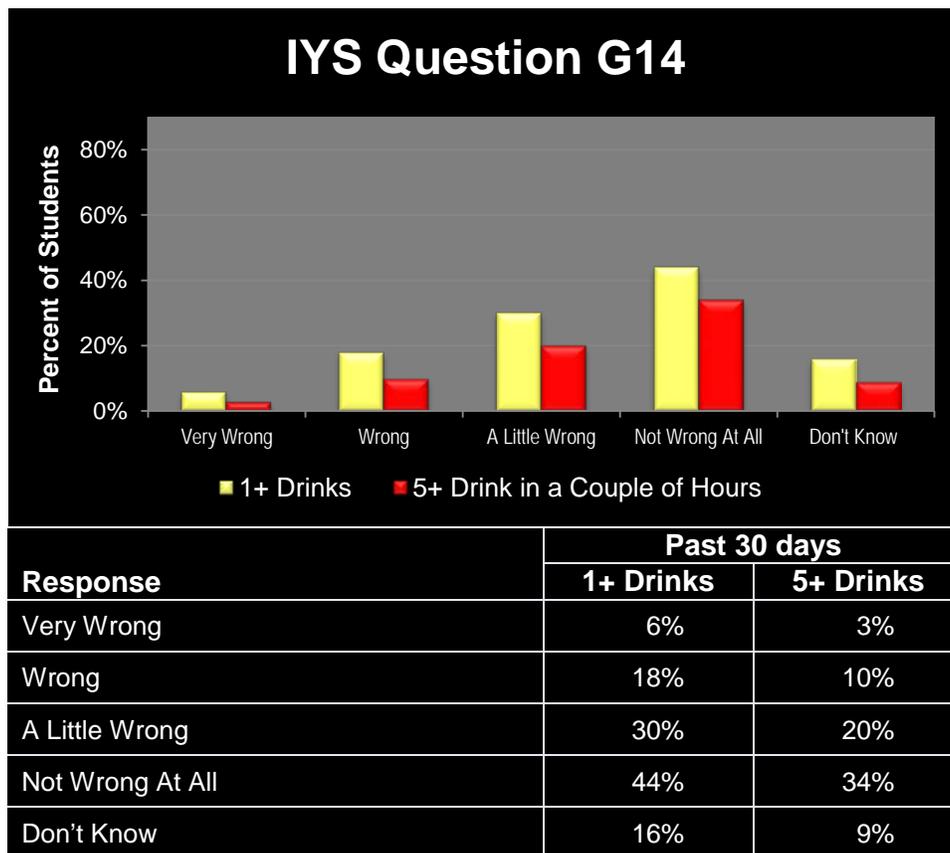
Figure 40. IYS Question G9 – Perceptions of How Wrong Adults in Neighborhood/Community Feel it is for Student to Drink Alcohol by Student-Reported Past 30 Day Drinking



IYS Question G9: How wrong would most adults in your neighborhood and/or community feel it would be for you to: Drink beer, wine, or hard liquor (for example vodka, whiskey, gin)?

Figure 41 illustrates reported perceptions on how wrong adults in students' neighborhood/community would find it for the student to attend a party with underage drinking by the percentage of students who reported drinking alcohol within the last 30 days. Students who responded "Not Wrong At All" to "How wrong would most adults in your neighborhood and/or community feel it would be for you to: Go to a party where kids under 21 were using alcohol" were much more likely to drink than students responding "Very Wrong". One-fifth of students who thought that adults in their community would find their attendance at a party with underage drinking a little wrong and 34% of students who thought that adults would find their attendance at such a party not wrong at all reported drinking five or more drinks in a couple of hours within the last 30 days. Students who reported that they did not know how wrong neighborhood adults would feel it would be for the student to attend a party with underage drinking reported similar frequencies of drinking as students who indicated that the neighborhood/community adults would perceive their attendance at such a party as wrong.

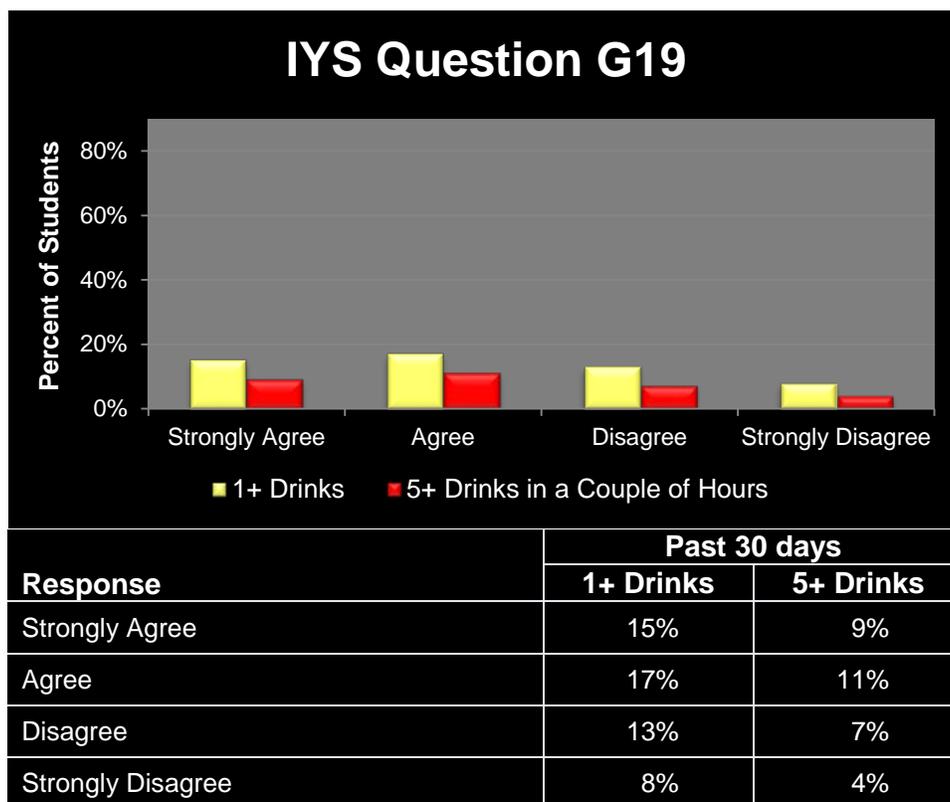
Figure 41. IYS Question G14 – Perceptions of How Wrong Adults in Neighborhood/Community Feel it is for Student to Attend Party With Underage Drinking by Student-Reported Past 30 Day Drinking



IYS Question G14: How wrong would most adults in your neighborhood and/or community feel it would be for you to: Go to a party where kids under 21 were using alcohol?

Figure 42 shows how much students agreed or disagreed that there are a lot of fights, crime, or illegal drugs in their neighborhood by the percentage of students who reported that they drank alcoholic beverages within the last 30 days. There was a slight correlation between students' perception of the presence of neighborhood fights, crime, or illegal drugs and student-reported drinking within the last 30 days. Fifteen percent of students who strongly agreed and 17% of those who agreed that their neighborhood had a lot of fights, crime and illegal drugs drank at least one drink in the past 30 days compared to 8% of those who strongly disagreed with the statement.

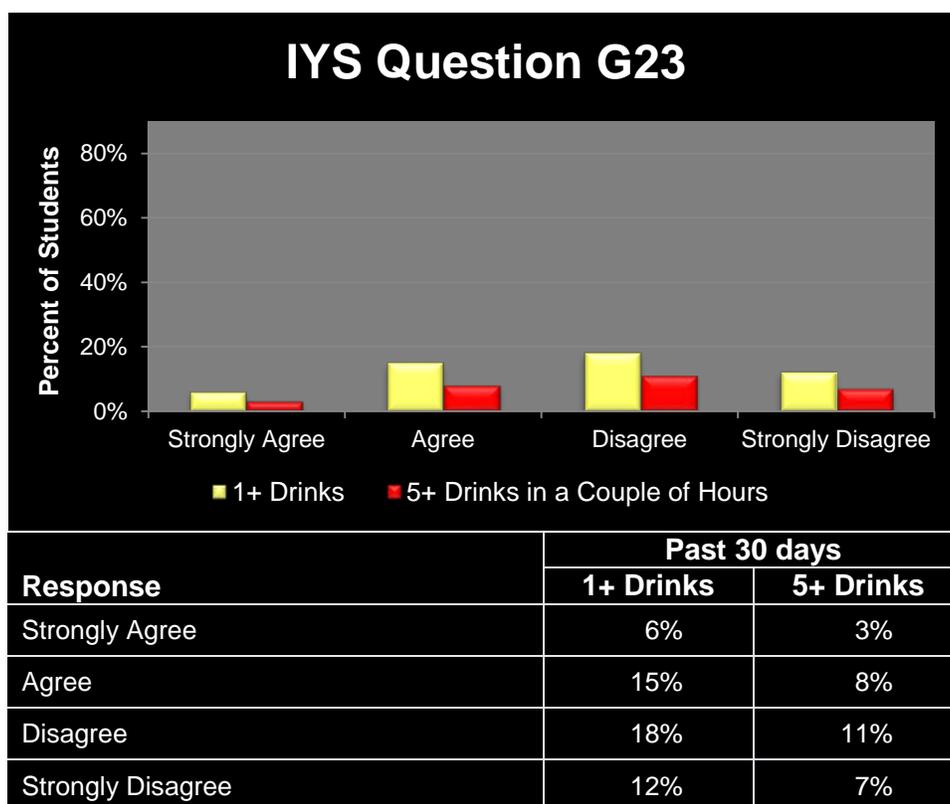
Figure 42. IYS Question G19 – Agree or Disagree: Student’s Neighborhood Has a lot of Fights, Crime, or Illegal Drugs by Student-Reported Past 30 Day Drinking



IYS Question G19: How much do you agree or disagree that each of the following statements is true: In my neighborhood there are lots of fights, crime, or illegal drugs.

Figure 43 shows how much students agreed or disagreed that there are enough places for kids the students' ages to go that are alcohol and drug free by the percentage of students who reported drinking in the past 30 days. Students who strongly agreed with "There are enough places for kids my age to go that are alcohol and drug free" were somewhat less likely to reporting drinking at least one drink in the past 30 days (6%) than those who agreed (15%) or disagreed (18%) with the statement. Interestingly, those who strongly disagreed with the statement drank slightly less than those who disagreed with the statement.

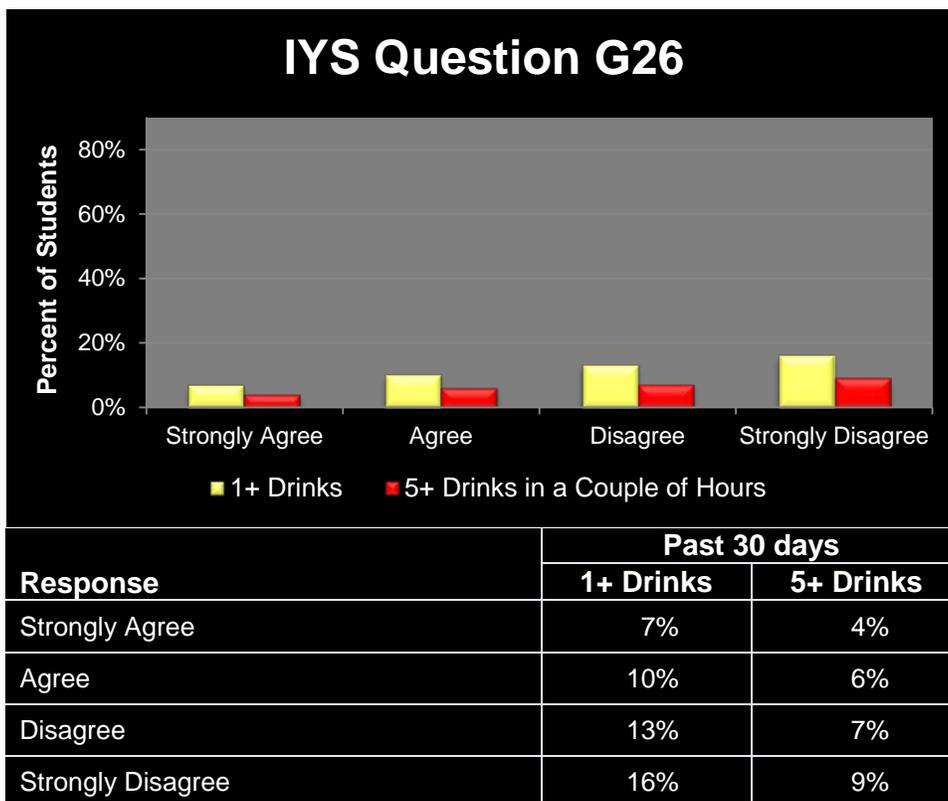
Figure 43. IYS Question G23 – Agree or Disagree: Kids Student’s Age Have Enough Alcohol and Drug Free Places to Go by Student-Reported Past 30 Day Drinking



IYS Question G23: How much do you agree or disagree that each of the following statements is true: There are enough places for kids my age to go that are alcohol and drug free.

Figure 44 displays how much students agreed or disagreed that adults in the neighborhood or community spend time talking to them by the percentage of students reporting the consumption of alcohol within the past 30 days. Students' agreement with the statement "Adults in my neighborhood or community spend time talking to me" was associated with lower likelihood of the students' drinking. While 7% of students who strongly agreed and 10% of students who agreed with this statement drank one or more drinks in the past 30 days, 13% of those who disagreed and 16% of those who strongly disagreed with this statement consumed at least one alcoholic beverage within the same time frame.

Figure 44. IYS Question G26 – Agree or Disagree: Adults in Student’s Neighborhood/Community Spend Time Talking to Student by Student-Reported Past 30 Day Drinking



IYS Question G26: How much do you agree or disagree that each of the following statements is true: Adults in my neighborhood or community spend time talking to me.

APPENDIX 1: INDIVIDUAL LOGISTIC REGRESSION RESULTS

Table A.1. Student-Reported Past 30 Day Drinking Behavior Predicted by Grade Level and Forty-Four Selected IYS Questions¹

IYS Question	Effect	df	1+ Drinks – Past 30 Days		5+ Drinks in a Couple of Hours – Past 30 Days	
			Wald χ^2	probability	Wald χ^2	probability
A8						
Living Arrangements	Grade	2	86.01	<.0001	92.27	<.0001
	A8	7	452.58	<.0001	611.76	<.0001
	Grade x A8	14	70.82	<.0001	103.29	<.0001
B13						
Student Truancy – Past 30 Days	Grade	2	1713.06	<.0001	1304.15	<.0001
	B13	3	2056.05	<.0001	1786.82	<.0001
	Grade x B13	6	72.94	<.0001	112.08	<.0001
B34¹						
Cigarette Usage – Past 30 Days	Grade	2	4.02	0.1342	35.85	<.0001
	B34	6	2226.32	<.0001	2338.59	<.0001
	Grade x B34	10	237.85	<.0001	384.96	<.0001
B38						
Electronic Cigarette Usage – Past 30 Days	Grade	2	416.44	<.0001	295.48	<.0001
	B38	6	2794.68	<.0001	2622.06	<.0001
	Grade x B38	12	81.46	<.0001	169.25	<.0001
B40						
Marijuana Usage – Past 30 Days	Grade	2	420.75	<.0001	555.16	<.0001
	B40	1	2084.54	<.0001	2663.28	<.0001
	Grade x B40	2	158.17	<.0001	280.44	<.0001
B44¹						
Unprescribed Medication Use – Past 30 Days	Grade	2	171.31	<.0001	204.04	<.0001
	B44	6	1135.56	<.0001	1385.58	<.0001
	Grade x B44	10	37.83	0.0002	45.95	<.0001
B60						
Dollars Used in Gambling – Past 12 Months	Grade	2	859.39	<.0001	878.10	<.0001
	B60	5	2311.15	<.0001	1903.53	<.0001
	Grade x B60	10	318.88	<.0001	263.08	<.0001

¹ Analyses represent three separate models predicting drinking for each IYS Question—(1) the “Grade” row enters the students’ grade only, (2) the IYS Question row enters the IYS question only, and (3) the Grade x IYS Question row enters in student’s grade, the IYS question and an interaction term between the students’ grade and the IYS question. A significant interaction suggests that the response pattern’s relationship differs for different grades.

² Two questions B34 and B44 presented issues for the analyses. Both questions had seven possible choices. To resolve the numeric problems, the highest category was merged with the next highest.

IYS Question	Effect	df	1+ Drinks – Past 30 Days		5+ Drinks in a Couple of Hours – Past 30 Days	
			Wald χ^2	probability	Wald χ^2	Probability
B61						
Arguments Due to Gambling – Past 12 Months	Grade	2	1023.99	<.0001	1079.96	<.0001
	B61	1	1025.74	<.0001	974.06	<.0001
	Grade x B61	2	65.80	<.0001	55.68	<.0001
B62						
Feeling Nervous – Past 30 Days	Grade	2	3510.18	<.0001	2499.82	<.0001
	B62	5	566.12	<.0001	500.28	<.0001
	Grade x B62	10	112.87	<.0001	139.00	<.0001
B63						
Feeling Worthless – Past 30 Days	Grade	2	3162.58	<.0001	2175.97	<.0001
	B63	5	1070.64	<.0001	669.28	<.0001
	Grade x B63	10	123.92	<.0001	113.82	<.0001
B64						
Doctor Recommended Medication for Restlessness, Nervousness or Sadness	Grade	2	2148.83	<.0001	1620.06	<.0001
	B64	2	668.78	<.0001	536.61	<.0001
	Grade x B64	4	97.18	<.0001	135.96	<.0001
C6						
Saying “no” When Someone Suggests Wrong or Dangerous Activities	Grade	2	1700.62	<.0001	1467.26	<.0001
	C6	3	1457.94	<.0001	1068.99	<.0001
	Grade x C6	6	49.99	<.0001	81.94	<.0001
C9						
Perceptions of Self-Harm Due to Drinking	Grade	2	2622.50	<.0001	1936.73	<.0001
	C9	4	1599.02	<.0001	937.57	<.0001
	Grade x C9	8	95.12	<.0001	72.55	<.0001
D2						
Perceptions of Change in Popularity Due to Drinking	Grade	2	1006.84	<.0001	762.30	<.0001
	D2	4	1941.77	<.0001	1439.04	<.0001
	Grade x D2	8	225.67	<.0001	203.00	<.0001
D5						
How Wrong Peers Feel it is to Drink Alcohol	Grade	2	822.35	<.0001	718.35	<.0001
	D5	4	3033.67	<.0001	1908.70	<.0001
	Grade x D5	8	200.22	<.0001	211.82	<.0001
D9						
How Wrong Peers Feel it is to Go to a Party With Underage Drinking	Grade	2	1026.71	<.0001	813.87	<.0001
	D9	4	2296.27	<.0001	1682.36	<.0001
	Grade x D9	8	129.88	<.0001	175.95	<.0001

IYS Question	Effect	df	1+ Drinks – Past 30 Days		5+ Drinks in a Couple of Hours – Past 30 Days	
			Wald χ^2	probability	Wald χ^2	probability
E2						
Alcohol/Illegal Drug Use on School Property or at a School Event—Past 30 Days	Grade	2	97.03	<.0001	105.59	<.0001
	E2	3	1666.52	<.0001	1911.13	<.0001
	Grade x E2	6	68.66	<.0001	142.84	<.0001
E4						
Alcohol/Illegal Drug Use on School Property/at a School Event – Past 12 Months	Grade	2	780.58	<.0001	728.04	<.0001
	E4	3	674.30	<.0001	860.71	<.0001
	Grade x E4	6	25.39	0.0003	38.72	<.0001
E5						
Disciplined for Fighting, Theft/Damaging Property at School/a School Event – Past 12 Months	Grade	2	441.60	<.0001	499.44	<.0001
	E5	3	1389.05	<.0001	1372.37	<.0001
	Grade x E5	6	22.71	0.0009	44.97	<.0001
E7						
Damaging Property for Fun in the Past 12 Months	Grade	2	234.31	<.0001	261.93	<.0001
	E7	3	1730.55	<.0001	1759.29	<.0001
	Grade x E7	6	82.28	<.0001	140.35	<.0001
E9						
Using a Weapon, Force, or Threats to Get Money/ Things – Past 12 Months	Grade	2	94.66	<.0001	109.41	<.0001
	E9	3	1011.59	<.0001	1291.00	<.0001
	Grade x E9	6	58.17	<.0001	98.25	<.0001
E10						
Frequency of Verbally Threatening to Physically Harm Someone – Past 12 Months	Grade	2	754.18	<.0001	714.22	<.0001
	E10	3	1461.05	<.0001	1237.68	<.0001
	Grade x E10	6	153.75	<.0001	178.25	<.0001
E12						
Frequency of Being Bullied at School – Past 30 Days	Grade	2	2195.99	<.0001	1441.34	<.0001
	E12	5	454.74	<.0001	333.92	<.0001
	Grade x E12	10	59.55	<.0001	69.30	<.0001
E22						
Frequency of Bullying Someone Else at School – Past 30 Days	Grade	2	682.58	<.0001	652.08	<.0001
	E22	5	1383.71	<.0001	1202.21	<.0001
	Grade x E22	10	124.57	<.0001	141.34	<.0001
E26						
Alcohol and Drug Use is Against Student's Values	Grade	2	1441.96	<.0001	1053.65	<.0001
	E26	3	3887.19	<.0001	2255.36	<.0001
	Grade x E26	6	354.04	<.0001	183.75	<.0001



IYS Question	Effect	df	1+ Drinks – Past 30 Days		5+ Drinks in a Couple of Hours – Past 30 Days	
			Wald χ^2	probability	Wald χ^2	probability
E30						
Student Thinks Things Through Carefully Before Making a Decision	Grade	2	2708.30	<.0001	2194.63	<.0001
	E30	3	1297.57	<.0001	908.02	<.0001
	Grade x E30	6	77.46	<.0001	85.04	<.0001
E31						
Even if it is Dangerous, Student Likes to Do Exciting Things	Grade	2	2727.81	<.0001	1820.22	<.0001
	E31	3	1046.97	<.0001	481.71	<.0001
	Grade x E31	6	7.62	0.2671	19.45	0.0035
E33						
In Student's School There Are Clear Rules About What Students Can and Cannot Do	Grade	2	1362.46	<.0001	1207.10	<.0001
	E33	3	795.36	<.0001	800.19	<.0001
	Grade x E33	6	185.85	<.0001	210.27	<.0001
E34						
In Student's School the Principal and Teachers Consistently Enforce School Rules	Grade	2	2169.70	<.0001	1682.57	<.0001
	E34	3	388.00	<.0001	418.35	<.0001
	Grade x E34	6	123.01	<.0001	154.65	<.0001
E36						
Students Caught Drinking, Smoking/Using Illegal Drugs Prohibited from Participating in Extracurricular Activities	Grade	2	1644.76	<.0001	1295.46	<.0001
	E36	3	665.71	<.0001	635.36	<.0001
	Grade x E36	6	197.94	<.0001	206.18	<.0001
E56						
Student Has at Least One Adult at School to Go to For Help	Grade	2	2039.32	<.0001	1632.14	<.0001
	E56	3	927.26	<.0001	796.24	<.0001
	Grade x E56	6	113.78	<.0001	144.16	<.0001
E59						
Students Have Friends at School to Confide In	Grade	2	1493.61	<.0001	1256.06	<.0001
	E59	3	861.61	<.0001	749.35	<.0001
	Grade x E59	6	85.90	<.0001	102.97	<.0001
F1						
There Are Clear Rules About What Student Can and Cannot Do in the Home	Grade	2	1242.51	<.0001	1140.05	<.0001
	F1	3	1044.84	<.0001	843.34	<.0001
	Grade x F1	6	82.77	<.0001	102.78	<.0001
F3						
Student Lives with People Who Have a Serious Alcohol or Drug Problem	Grade	2	2695.98	<.0001	2025.67	<.0001
	F3	3	575.60	<.0001	400.21	<.0001
	Grade x F3	6	47.07	<.0001	43.82	<.0001

IYS Question	Effect	df	1+ Drinks – Past 30 Days		5+ Drinks in a Couple of Hours – Past 30 Days	
			Wald χ^2	probability	Wald χ^2	probability
F7						
Parent/Guardian Knows Student's Whereabouts	Grade	2	2683.41	<.0001	2031.44	<.0001
	F7	3	1501.67	<.0001	1001.88	<.0001
	Grade x F7	6	67.06	<.0001	88.52	<.0001
F9						
Parent/Guardian Finds Out Students' Wrongdoings and Punished Them	Grade	2	3783.15	<.0001	2498.60	<.0001
	F9	3	752.80	<.0001	565.67	<.0001
	Grade x F9	6	48.87	<.0001	74.76	<.0001
F13						
How Wrong Parents/Guardians Feel it is for Student to Drink	Grade	2	670.11	<.0001	590.30	<.0001
	F13	4	3306.87	<.0001	2145.07	<.0001
	Grade x F13	8	129.76	<.0001	157.69	<.0001
F19						
How Wrong Parents/Guardians Feel it is For Student to Attend a Party With Underage Drinking	Grade	2	694.76	<.0001	587.06	<.0001
	F19	4	2306.41	<.0001	1888.74	<.0001
	Grade x F19	8	82.86	<.0001	129.39	<.0001
G2						
How Difficult it Would Be to Obtain Alcohol	Grade	2	1983.44	<.0001	1415.71	<.0001
	G2	4	1189.04	<.0001	640.52	<.0001
	Grade x G2	8	163.62	<.0001	147.71	<.0001
G9						
How Wrong Adults in Neighborhood/Community Feel it is for Student to Drink Alcohol	Grade	2	1142.48	<.0001	999.70	<.0001
	G9	4	2053.86	<.0001	1448.35	<.0001
	Grade x G9	8	173.03	<.0001	163.19	<.0001
G14						
How Wrong Adults in Neighborhood/Community Feel for Student to Attend Party w/ Underage Drinking	Grade	2	1044.29	<.0001	921.51	<.0001
	G14	4	1457.67	<.0001	1280.28	<.0001
	Grade x G14	8	171.73	<.0001	172.75	<.0001
G19						
Student's Neighborhood Has a lot of Fights, Crime, or Illegal Drugs	Grade	2	2604.07	<.0001	1932.68	<.0001
	G19	3	509.56	<.0001	350.49	<.0001
	Grade x G19	6	122.24	<.0001	107.50	<.0001
G23						
Kids Student's Age Have Enough Alcohol and Drug Free Places to Go	Grade	2	2891.97	<.0001	2045.88	<.0001
	G23	3	390.39	<.0001	237.47	<.0001
	Grade x G23	6	48.65	<.0001	51.19	<.0001

IYS Question	Effect	df	1+ Drinks – Past 30 Days		5+ Drinks in a Couple of Hours – Past 30 Days	
			Wald χ^2	probability	Wald χ^2	probability
G26						
Adults in Student's Neighborhood/Community Spend Time Talking to Student	Grade	2	3838.93	<.0001	2518.21	<.0001
	G26	3	245.00	<.0001	168.81	<.0001
	Grade x G26	6	58.14	<.0001	70.17	<.0001

APPENDIX 2: MULTIVARIATE LOGISTIC REGRESSION RESULTS

Results of the Multivariate Analyses

The goals of the multivariate analyses were to identify and remove all but the most important associations with the two drinking behaviors. With 44 IYS questions, several could provide redundant information or simply have a lower association with the target behavior. In a stepwise fashion, this analysis removed the weakest predictor at each step until all of the questions retained a significance threshold of $p < 0.01$. The results are shown in Table A2.1.

Table A.2. Multivariate Tests after Backwards Stepping

IYS Question	df	1+ Drinks - Past 30 Days		5+ Drinks in a Couple of Hours - Past 30 Days	
		Wald χ^2	probability	Wald χ^2	probability
Grade	2	60.55	<.0001	147.72	<.0001
B13	3	114.27	<.0001	87.51	<.0001
B34	6	166.09	<.0001	137.56	<.0001
B38	6	224.14	<.0001	167.59	<.0001
B40	1	280.91	<.0001	291.95	<.0001
B44	6	21.86	0.0013	32.46	<.0001
B60	5	29.93	<.0001	31.07	<.0001
B61	1	8.88	0.0029	14.64	0.0001
B63	5	82.07	<.0001	.	
C6	3	16.07	0.0011	.	
C9	4	99.26	<.0001	133.31	<.0001
D2	4	109.61	<.0001	110.06	<.0001
D5	4	162.41	<.0001	67.16	<.0001
E2	3	127.43	<.0001	141.80	<.0001
E22	5	.		15.72	0.0077
E26	3	856.97	<.0001	502.42	<.0001
E31	3	189.21	<.0001	103.40	<.0001
E33	3	19.28	0.0002	.	
E36	3	29.86	<.0001	20.89	0.0001
F1	3	12.70	0.0053	.	
F3	3	.		25.78	<.0001
F7	3	50.56	<.0001	46.20	<.0001
F13	4	285.46	<.0001	187.91	<.0001
G2	4	80.00	<.0001	20.92	0.0003
G9	4	32.21	<.0001	.	
G14	4	26.01	<.0001	.	
G19	3	33.07	<.0001	.	
G26	3	20.92	0.0001	60.77	<.0001