

Questions 2 – 4 explore relationships between grades in high school and smoking. Responses to survey questions II and III have been organized into the Table 13.15.

		Smoking				
		Never	Once or twice	Occasionally/ not regularly	Regularly in past	Regularly now
Grades	D	46	22	23	12	25
	C-, C, or C+	926	436	323	123	285
	B-, B, or B+	3792	1275	769	330	489
	A- or A	3465	665	327	126	168

Table 13.15. Responses to questions on grades and smoking.

2. a. How many students answered both the question on grades and the question on smoking? 13,627

b. What percentage of students answering both questions had never smoked? Had smoked at least once?

Never: $\frac{8229}{13,627} = 60.4\%$ } $\frac{2398+1442+591+967}{13,627} = 39.6\%$

c. What percentage of students had average grades of A- or A and never smoked? Show the calculations. (Round answer to one decimal.)

$$\frac{3465}{13,627} = 25.4\%$$

or $100 - 60.4 = 39.6\%$

3. a. What percentage of A- or A students have never smoked? Show the calculations.

$$\frac{3465}{4751} = 72.9\%$$

b. What percentage of students' whose averages are C+ or below never smoked? Show the calculations.

$$\frac{46+926}{128+2093} = 43.8\%$$

4. Next, you will examine the relationship between Smoking status and having a B- average or better.

- a. What percentage of students who are regular smokers ^{Now} had averages B- or better?

$$\frac{489+168}{967} = \frac{657}{967} = 67.9\%$$

- b. What percentage of students who were regular smokers in the past ^{Past} had averages B- or better?

$$\frac{330+126}{591} = \frac{456}{591} = 77.2\%$$

- c. What percentage of students who never smoked had averages B- or better?

$$\frac{3792+3465}{8229} = \frac{7257}{8229} = 88.2\%$$

5. The graphic display in Figure 13.3 represents the conditional distribution of alcohol usage for each level of Grade. The conditional percentages (rounded to the nearest percent) appear above each bar.

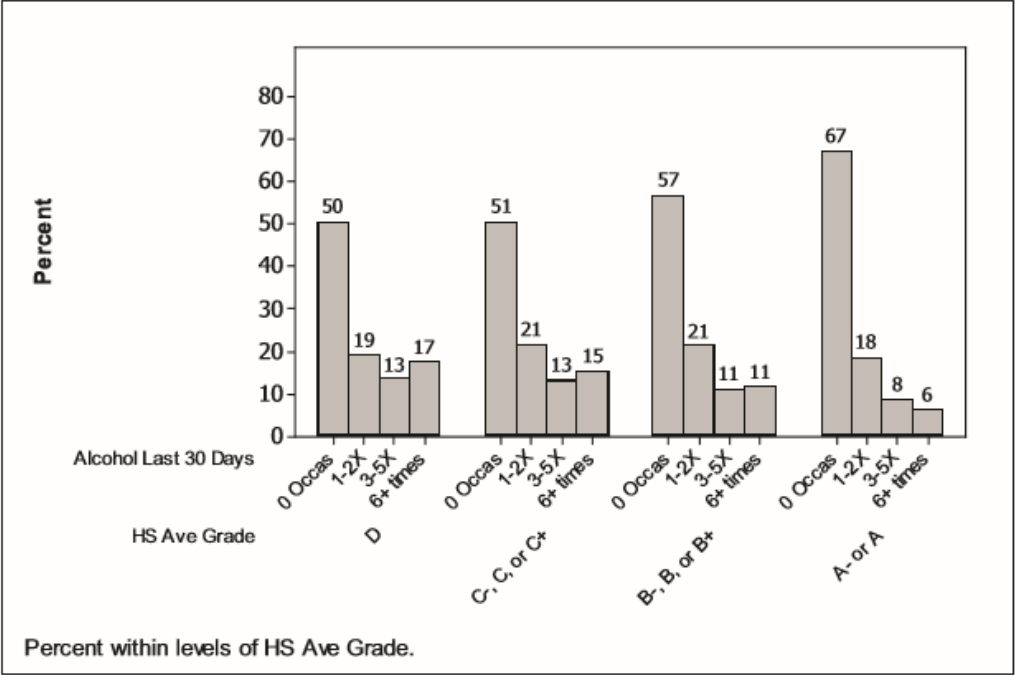


Figure 13.3. Conditional distributions of Alcohol for each level of GPA.

a. Do the conditional percentages for each level of Grades sum to 100%? If not, explain why they might not sum to 100%.

b. Write a brief description of alcohol usage among the different levels of Grades.

b. Sample answer: Here are the most striking patterns showing a relationship between grades and alcohol consumption. As grades increase, the percentage of students who had not consumed alcohol increases. As grades increase, the percentage of students who had consumed alcohol 6 or more times in the last 30 days decreases.

Homework: Smoking vs. Education Worksheet

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