

Statistics Chapter 2: Smoking and Education - KEY

200 adults shopping at a supermarket were asked about the highest level of education they had completed and whether or not they smoke cigarettes. Results are summarized in the table

	Smoker	Non-smoker	Total
High school	32	61	93
2 yr college	5	17	22
4+ yr college	13	72	85
Total	50	150	200

1. Discuss the W's.

Who: 200 adults. What: education level and smoking habits; When: not specified
Where: shopping mall; How: not specified. Was this a random sample, or were some people simply asked?
Why: to examine possible links between smoking and education level

2. Identify the variables.

Categorical variables: Education level, and whether or not the person was a smoker.

3. Find each percent requested below.

- d) What percent of the shoppers were smokers with only high school educations?

$$\frac{32}{200} = 16\%$$

- e) What percent of the shoppers with only high school educations were smokers?

$$\frac{32}{93} \approx 34.4\%$$

- f) What percent of the smokers had only high school educations?

$$\frac{32}{50} = 64\%$$

4. Do these data suggest there is an association between smoking and education level? Give statistical evidence to support your conclusion.

These data provide evidence of an association between smoking and education level. 64% of smokers had only a high school diploma, while only 40.7% of non-smoker had only high school diplomas. Only 26% of smokers had four or more years of college, compared to 48% of smokers.

5. Follow-up question: Does this indicate that students who start smoking while in high school tend to give up the habit if they complete college? Explain.

These data do not indicate that students who start smoking in high school tend to give up the habit if they complete college. These data were gathered at one time, about two different groups, smokers and non-smokers. We have no idea if smoking behavior changes over time.