Solution Manual for Statistics for Criminology and Criminal Justice 4th Edition Bachman Paternoster 1506326102 9781506326108

Full link download:

Solution Manual:

Test Bank:

STATISTICS FOR CRIMINOLOGY & CRIMINAL JUSTICE
EXAM 2
NAME _____ SECTION

_____

1. Social Control Theory argues that individuals with strong ties to conventional institutions will tend to commit fewer criminal acts. The following contingency table presents information regarding the strength of conventional ties and number of criminal acts for 89 individuals.

Contingency Table Between Convential Ties and Criminal Acts

Convential Ties	Criminal Acts			
	0-2	3-5	6 or more	TOTAL
Strong	25	13	6	44
Weak	16	13	16	45
TOTAL	41	26	22	89

a) What is the probability that someone has strong conventional ties?

b) What is the probability that someone has committed 6 or more criminal acts?

c) What is the probability that someone had 5 or less criminal acts?

d) What is the probability that someone had weak ties or 3-5 criminal acts? Are these mutually exclusive events?

e) What is the conditional probability that someone had 6 or more criminal acts given that they had strong ties?

f) What is the probability that someone had weak ties and 0-2 criminal acts?

e) Are conventional ties and criminal acts statistically independent or statistically dependent? Explain.

f) What level of measurement is "conventional ties"?

2. You are the Colonel of the Maryland State Police, and you are concerned about drinking among state troopers. You take a random sample of 150 police offers and find that the median number of drinks per week is 2 and the mean number of drinks per week is 4.7 with a standard deviation of 8.

    a. Is your sample skewed, how can you tell, and if so, in what direction?

    b. Construct a 90% confidence interval around the appropriate point estimate. Interpret your results.

    c. Construct a 93% confidence interval around your point estimate. Interpret your results. Why did the interval change?

    d. What would happen if we increased our confidence level to 99% (You do not need to recalculate the CI)?

    e. What would happen to the size of your 90% confidence interval if you increased your sample size from 150 to 500? (You do not need to recalculate the CI).

f. Recalculate a 90% Confidence Interval but assume that now you only have a sample size of 16 officers (your sample standard deviation is still 8). Interpret this new interval and explain why it is different from the 90% Confidence Interval you calculated in part b) above? Be specific.

.

3. According to the Gallup Polling Organization, 46% of the United States population thinks that the criminal justice system is too lenient. You take a sample of 200 University of Maryland students and find that 80 of them think that the criminal justice system is too lenient.

a. Construct a 95% confidence interval around your point estimate.

b. In a hypothesis test, where the null hypothesis is that the percentage of Maryland students who think that the CJ System is too lenient is no different than the national average; the alternative hypothesis is that Maryland students are different than the national average. Based on the results from your confidence interval above (i.e. with an alpha of .05), would you reject or fail to reject the null hypothesis? You *do not* need to do the steps of the test.

c. What would happen to the size of your interval if you increased your confidence from 95% to 99%?

d. What would happen to the size of your 95% confidence interval if you increased your sample size from 200 to 500?

e. What would happen to the size of your 95% confidence interval if you decreased your sample size from 200 to 50?

4. Your job as the research director in the Maryland Department of Youth Services is to advise the Director which policies to follow. You know that, on average, there are 35 "disturbances" (riots, stabbings, fights, etc.) per year per institution, with a standard deviation of 7.0.

a. What is the z-score for an institution that had 28 disturbances in one year? What does this z-score indicate?

b. What is the z-score for an institution that had 45 disturbances in one year?

c. You want to give raises to the wardens in the prisons that have disturbances in the bottom 10% of the distribution, and fire the wardens in prisons in the top 5%. What number of disturbances will be the cut-off for each of these decisions?

d. What is the probability that an institution would have 40 or more disturbances?

e. What is the probability that an institution would have 32 or fewer disturbances?

f. Suppose the Director wanted to identify the top 20% of institutions for reprimand. How many disturbances would qualify as the cut-off?

g. Suppose the Director wanted to identify the bottom 5% of institutions for praise. How many disturbances would qualify as the cut-off?

5. Suppose you take a sample of 81 offenders from Maryland state prisons and you find that the average number of tattoos is 4.4 with a standard deviation of 1.9. According to *Tattoo Me* magazine, the average number of tattoos for all incarcerated offenders is 2.9.

a) Test the null hypothesis that Maryland offenders have the same mean number of tattoos as other offenders in the general incarcerated population against the alternative that they have a significantly different mean number of tattoos. Use an alpha level of .05. Interpret your results.

Step 1:

Step 2:

Step 3:

Step 4:

Step 5:

b) Suppose your sample size was only 40 prisoners. Can you still conclude that there is a significant difference in the mean number of tattoos? Conduct the appropriate hypothesis test to answer this question. Interpret your results.

Step 1:

Step 2:

Step 3:

Step 4:

Step 5:

c) You take a new sample of 100 prisoners who have tattoos and find that 42% of their tattoos are located on their arms. *Tattoo Me* magazine reports that 38 percent of all individuals with tattoos have them on their arms. Is the proportion of tattoos on prisoners' arms significantly greater than the proportion in the

general public? Using an alpha of .01, conduct a hypothesis test to answer this question. Interpret your results.

Step 1:

Step 2:

Step 3:

Step 4:

Step 5:

6. You are interested in examining if the gender of the offender is related to whether or not armed robbers are arrested. You know that the overall probability of arrest for armed robbers is .7. You obtain a random sample of 10 female armed robbers and observe that only 2 of them were arrested. Assuming we can use a binomial to answer this question, calculate the probability of observing exactly 2 arrests out of 10 robberies in your data.