Nick Foster

1. (a) I would say that while the statistics would help point to the fact that the citizens of Michigan are less law abiding of those people living in Minnesota, these statistics are not completely conclusive. Other factors need to be taken into consideration, like how populous the state is. Michigan has 9,938,444 inhabitants, according to the 2000 U.S. Census. Minnesota has almost half that number of inhabitants, having 4,919,479 residents. This means that the crimes per capita are far in favor of Michigan. Also, this study does not take into account repeat offenders, which would mean that there was a small group of people in Michigan committing multiple crimes. The argument that Detroit skews the numbers is not a valid argument, considering that the people living there are still from Michigan. Also, these statistics do not take into account people crossing state lines to commit crimes, which are not from either state. So once again, these statistics can help point to the fact that people from Minnesota are more law-abiding, but this conclusion cannot be drawn from these numbers alone.

(b) Once again, this statistic may point to the fact that U.S. citizens became more law-abiding, but it’s not completely conclusive. One may reason that it wasn’t necessarily that people became people more law-abiding, but it may be that through the Justice System that these criminals were removed from the streets and placed in prisons, thus reducing the amount of people who would commit crimes in 2001. Just through the efficiency of the Criminal Justice System, the government could have made society safer, rather than the actual population making it that way. Also, these numbers represent solely the amount of reported crimes. There could have been thousands of unreported crimes which could show that Americans actually became less law-abiding. So while the numbers showing a reduced number of reported crimes could mean an increase in law-abiding citizens, a completely flawless conclusion cannot be drawn.

4. (a) One reason behind why they would study men, women, and different age groups separately would allow the people conducting the study to see the effects of smoking and non-smoking in all sorts of situations. If they just studied a group of random men and women regardless of age, the conductors of the study would have a difficult time determining if there was a correlation based on age and/or gender. By organizing the test subjects into a variety of groups of similar characteristics, the conductors can see the effects on each group and determine if they are differences between them, and if so, why.

(b) While the study does seem to point in the direction of its conclusion that you shouldn’t start smoking, but if you start, don’t stop, I would consider otherwise. The study only tested smokers who quit recently, not those who had quit a while ago. People who have quit recently probably have some sort of withdrawal symptoms. They most likely are experience health problems as a result of the break in their addiction, and they have to re-adjust their bodies to the absence of nicotine. If the conductors of the study were to have tested people who have had a significant amount of time between their last cigarette and the time of the study, they would probably see that they are on average much healthier than the people who were still smoking.

5. I believe that the treatment should not be used. In these experiments, psychological effects can happen to both the doctors and the patients. Patients knowing they have the treatment will tend to believe the treatment is working. The same goes for the doctors, who would like to believe that they have found a cure, and will tend to stretch results to prove that the tests were positive. Chances are in the first study the doctors believed the treatment would work and saw none-existing improvements among the patients. However, since the double-blind study completely eliminates these psychological effects, and the testing showed no positive effects, the zinc sulfate should not be used as a treatment.

6. This can be explained because the first double-blind study showed that the zinc sulfate did not have any effect. Since the subjects in the group knew the design of the experiment, they knew that at least one of the groups was given a placebo and then the treatment. Most likely since, the subjects felt no effects from the non-effective treatment, they may have believed that the next pill they received was the treatment, and they believed it worked due to a placebo effect.

7. (a) This is an observational study.

(b) The investigators adjusted for age, education, and marital status because they are confounders that most likely will show differences between both the non-users and users, when the only difference should be the fact that they are either users or non-users.

(c) Users of the pill a more likely to be having unprotected sex, which will increase their risk of cervical cancer.

(d) The study suggests that users of the pill have a higher rate of cervical cancer, but this is not necessarily because of their use of the pill. Because, the investigators did not adjust for the more frequent practice of unprotected sex by the users of the pill, I believe that the data of the study is not justified.

8. No, this statistic does not prove that burglars go to work when people go on vacation because the time period described is roughly a three month period. This is about 25% of the year, meaning that if 25% of the robberies are happening during 25% of the year, people are no more at risk than any part of the year.

9. (a) False, the experiments did not confirm the results of the observational studies because the death rates between the treatment group and the control group were not any better, in fact they were worse among the lung cancer test.

(b) True, people who have a healthy diet will tend to have other healthy tendencies that will reduce their risk of contracting colon or lung cancer.

(c) False, a controlled experiment will adjust for these confounding factors and prevent people who have completely differing lifestyles from being in opposing groups.

10. (a) This was an observational study.

 (b) No, the association was just the opposite; the association was that kid’s with more body fat tended to have more controlling mothers.

(c) Yes, this would explain the association.

(d) No. Even if the obesity genes were shared with the mother, that gene doesn’t determine the personality of the mother.

(e) Another possibility is that the controlling mothers cause stress among their kids. Stress has been linked to obesity in some studies.

(f) The data does not give definitive proof. While it does help to support the *Chronicle’s* advice, it’s only a trend shown by an observational study. More tests should be run to show conclusive evidence.

11. (a) The treatment group is those inmates who entered the boot camp, and the control group is those inmates who chose not to.

(b) This is based on an observational study. The groups were based solely on those inmates who volunteered to participate and those who didn’t.

(c) I feel like this data does not support the fact that the boot camp worked. Chances are those inmates who volunteered for the boot camp wanted to turn their lives around and were less likely to commit another crime in the future anyway. The camp had a very little effect, if it all.

12. No, this is a false statement due to Simpson’s Paradox.

State population numbers via: http://www.enchantedlearning.com/usa/states/population.shtml