

## Quiz 1

Name: \_\_\_\_\_

Section: \_\_\_\_\_

This quiz is worth 25 points. There are two questions with various parts each. Good luck!

1. A recent study to evaluate the impact of child abuse investigations on the well-being of families, examined the records of 595 children nationwide, all at similar high risk for maltreatment. Child Protective Services (C.P.S.) had investigated the families of 164 of these children for abuse or neglect sometime in the last four years. The scientists interviewed all the families to compare the investigated families with the 431 families that had not been investigated.

- (a) Define the explanatory variable in the study above. Is it qualitative or quantitative?  
(2 pts)

Variable Name:

Was the family interviewed?

Scale of measurement:

Qualitative

- (b) What is the underlying outcome variable that the scientists are interested in measuring?  
(1 pts)

Variable Name:

Family well-being

- (c) Identify the observational unit.  
(1 pts)

Observational unit:

Families nationwide with children at high risk for maltreatment

- (d) Why is it important that there be a time lag between the C.P.S. investigation and the interview by the scientists?  
(3 pts)

The impact of child abuse investigations is probably not immediate. Any changes a family makes will need time to take effect.

- (e) The authors acknowledge the study has certain weaknesses: Some potentially important indications of family well-being, such as intimate partner violence and substance abuse, for example, were not included in the data they used. Can you provide a plausible explanation for these variables being omitted? **(3 pts)**

Explanation:

Information about intimate partner violence and substance abuse is likely to be self-reported. However, these are topics people are likely to lie about, meaning any data collected on these variables may not be reliable.

2. Each of the following conclusions (in bold face) based on real studies are not warranted due to a weakness in their design. Identify the weakness in each case. There could be more than one good answer in some cases, so please think creatively and always back up your answer with a reason. **(each 5 pts)**

- (a) "I never knew eating oatmeal every day would lead to my picture on a Quaker oatmeal box," says Ilene Dubey of Lafayette, Colorado. Dubey and 99 other people living in Lafayette took the Smart Heart Challenge, which involved eating oatmeal everyday for 30 days. At the end of the 30 days, 98 out of 100 participants had lowered their cholesterol levels. Quaker took note of their results and are spotlighting them in a new fall marketing campaign, including appearances on television and cereal boxes.

Quaker's main message: "With these great results, the people in Lafayette proved to themselves that **simple lifestyle changes – like eating oatmeal – can make a real difference.**"

Weakness:

All of the people who participated in this study volunteered for the "Smart Heart Challenge". They likely represent a group of people who were already health-conscious before the study. Thus, the results of the study may not generalize to people who are not already concerned about their health. Another weakness of the conclusion is the suggestion that eating oatmeal is the reason for the reduction in cholesterol. Without a control group (preferably the same people), such a statement doesn't sound convincing.

- (b) A study to determine the effects of classroom music on children's spatial-temporal performance assigned kindergarteners to one of two conditions: keyboard or no music. Due to logistics, students that participated in the study were assigned as a class to either receive music instruction or not. All children were tested on their spatial skills prior to the start of the experiment and after completion of the experiment. Initial testing was done by one of the authors while final testing was conducted by a colleague who was blind to the experimental hypotheses and condition assignment.

The authors' conclusion: **Classroom Keyboard Instruction Improves Children's Spatial-Temporal Performance**

Weakness:

The initial testing should have been performed by someone who had been blinded to the study's aims. The author may have consciously or subconsciously given lower initial scores to the students selected to receive music instruction, exaggerating the study's results. This is especially relevant due to the lack of random assignment.

(c) It is hard to imagine a bigger strain on a marriage than the loss of a child to cancer. Conventional wisdom holds that such tragedies increase the risk of divorce, but a new study says that isn't so. Researchers from the Division of Clinical Cancer Epidemiology at Karolinska University Hospital in Stockholm tracked down 442 Swedish parents who had lost a son or daughter to cancer before the age of 25 in the previous nine years. Among these families, 74 percent of the parents were found to be still married to or living with the child's other parent.

To serve as controls, the researchers also studied 452 families from the same area with children in the same peer group as the cancer-stricken children. Among these families, 68 percent of the parental relationships were still intact.

The study conclusion: **"parents who have lost a child to cancer are not more likely to separate than others."**

Weakness:

This is a case-control study, but the cases and the controls are not well matched. Since it is the *parents'* divorce rate being studied, each set of parents who lost a child to cancer should have been matched with a similar set of parents who didn't. Choosing parents with children in the same peer group doesn't guarantee that the parents will be similar.

For data collection purposes, please provide a guess of what you think you will score out of 25 points on this quiz.

Guessed Score: