**Scope of Conclusions: Generalizability and Causality**

In each of the following studies, identify the *scope of conclusions* that can be drawn from the study design. This should include a description of whether the findings from the study can be applied to any particular population (and if so, describe the population), and whether a claim of a causal association can be made.

1. Researchers at a university enrolled a sample of children in the metropolitan area where their university was located. They found statistically significant evidence that children who watch more than two hours of television each day tend to have higher cholestorol levels than children who watch less than two hours of television each day.

   (a) What kind of study is this?

   (b) Generalize results to population (and if so, what is this population)?

   (c) Evidence of a causal association?

2. Researchers conducted a poll of randomly selected elderly American adults to investigate the relationship between education levels and emotional well-being; the sample was nationally representative in terms of gender, race and ethnicity, and socio-economic status. The study found that on average, elderly adults with a college degree or higher scored higher on the Emotional Health Index than elderly adults without a college degree.

   (a) What kind of study is this?

   (b) Generalize results to population (and if so, what is this population)?

   (c) Evidence of a causal association?

3. Researchers used 7 red and 7 black playing cards to randomly assign 14 volunteer males with high blood pressure to one of two diets for four weeks: a fish oil diet and a standard oil diet. After four weeks, the study subjects assigned to the fish oil diet had a larger average reduction in blood pressure than the subjects assigned to the standard oil diet.

   (a) What kind of study is this?

   (b) Generalize results to population (and if so, what is this population)?

   (c) Evidence of a causal association?

4. In a study of three nationally representative large-scale data sets from Ireland, the United States, and the United Kingdom ($n = 17,247$), teenagers between the ages of 12 and 15 were asked to keep a diary of their screen time and answer questions about how they felt or acted. The answers to these questions were then used to compute a psychological well-being score. Additional data were collected and included in the analysis, such as each child's sex and age, and on the mother's education, ethnicity, psychological distress, and employment. The study concluded that there is little clear-cut evidence that screen time decreases adolescent well-being.

   (a) What kind of study is this?

   (b) Generalize results to population (and if so, what is this population)?

   (c) Evidence of a causal association?