

STAT220: WINTER 2007: QUIZ 1: JAN 18

Student name

Section

Please fill in your name and section. Answer both the questions, on the question paper.

It should take at most 20 minutes to complete this quiz.

Continue your answer on to the back of the piece of paper if necessary.

1. (Explain your answers)

(a) (2 points) In a study funded by the drug manufacturers, a new drug to treat gambling addiction was tested on a total of 2000 patients across the US. After 3 months on the treatment, 60% of the patients reported a “significant decrease” in their gambling compulsion. The drug company claims the study shows their new drug is effective. Is this claim justified?

No.

1. There are no controls, so no comparison is possible.

2. Study is not blinded, and results are self-reported, so there is strong possibility of placebo effect.

(Either of these points, made clearly, gets 2 points.)

(b) (2 points) In a large-scale study of boys aged 7 to 10 years old, researchers found a strong association between the number of hours per day watching TV, and a professionally measured tendency to react with physical violence in conflict situations with their classmates. The researchers claim their study shows that watching TV causes school violence. Is this claim justified?

No. There are many possible confounding factors here, that would be related to both hours watching TV and to behavior in confrontations with peers. Home environment, parental education,

For 2 points: need to mention confounding factor (either in general or specific), and the fact that it affects BOTH TV-watching and confrontation behavior.

(c) (2 points) To survey customer preferences, the ice cream company ICC mails out postcards to 100,000 households asking whether the family enjoys ICC ice cream. They get about 10,000 responses, of which 95% are positive. The company claims their survey shows that 95% of households enjoy ICC ice cream. Is this claim justified?

No. The main point here is non-response bias. Only 10% respond: people who enjoy (or at least have heard of) ICC ice cream are much more likely to respond. (2 points)

(There is also possibility of response bias – among those responding they might be more inclined to say they enjoy it ?? maybe. (1 point only).)

2.(One-word answers are sufficient) The following three histograms show the distribution of daily round-trip commute distances (in miles) for residents in three suburbs Avondale (A), Burnaby (B) and Chester (C) of a large US city.

Figure from FPP P. 65

(i) (2 points) Transit planners are interested in what proportion of residents have a round-trip commute of more than 35 miles. For each of the 3 suburbs, is this proportion about half, well over half, or well under half?

Avondale: OVER	Burnaby: UNDER	Chester: ABOUT
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(ii) (1 point) Which suburb has the smallest proportion of households with round-trip commutes of under 25 miles.

AVONDALE or **A**

(iii) (1 point) Which suburb has many residents with short commute distances, but also some residents with round-trip commutes of over 90 miles.

CHESTER or **C**