

Chapter 21—Choosing the Appropriate Test

[N.B. Please review the disclaimer concerning these answers at the beginning of Chapter 21. There are many different ways to think about a study.]

21.1 This test involves comparing two proportions, and the easiest way to do that is to set up a 2×2 contingency table with Group on one dimension and Mastery on the other.

21.3 This is a repeated measures analysis of variance with assessment periods as the repeated measure and condition as the between subject variable. If measurements were taken on several occasions I would like to see the data plotted over time, but all we currently have is the data at the end of the treatment phase.

21.5 This is a t test for two independent groups—children of divorced families and children of intact families.

21.7 This is a standard one-way analysis of variance. I would be most likely to conduct a planned comparison of the positive and negative conditions.

21.9 This is a two-way analysis of variance, with secure and insecure as one dimension and mortality vs. dental as the other. No multiple contrasts are called for because there are only two levels of each variable.

21.11 This could be treated as a two-way analysis of variance if we break the data down by race and by Afrocentric facial features. A problem with this is that we would presumably have more Afrocentric features for black inmates, which would lead to unequal sample sizes (i.e. an unbalanced design).

21.13 This is a regression problem where we are time is one variable and the difference in happiness between liberals and conservatives (by year) is the other variable.

21.15 The most important thing to do would be to plot the data over time looking for trends. A repeated measures analysis of variance would tell you if differences are significant, but it is the direction of differences, and whether they return to baseline, that is likely to be most informative. The authors further broke down the participants in terms of their preoccupation with 9/11 and looked at differences between those groups. Interestingly, even the least preoccupied group showed changes over time.

21.17 This is a difficult one, partly because it depends on what Payne wants to know. I assume that she wants to know how rankings of characteristics agree across sexes or across years. She could first find the mean rank assigned to each characteristic separately for each sex and year. Because the raw data were originally ranks, I would probably be inclined to then rank these mean values. She could then calculate Spearman's r_s between males and females for each year or between years within each sex. The correlations would be obtained for the ten pairs of scores (one per characteristic).

21.19 This is a 2×4 analysis of variance with two levels of sex and 4 levels of occupation. The major emphasis is on the occupations, so multiple comparisons of those means would be appropriate.

21.21 There are two independent groups in this experiment. The authors should use a Mann-Whitney test to compare average locus of control scores.

21.23 This is a situation for a chi-square goodness-of-fit test. The conditions are Rotated versus Stationary, and the count is the number of subjects choosing that condition as giving stronger contours. The expected values would be $37/2 = 18.5$. The data are sufficiently extreme that a test is superfluous.

21.25 This is another complex repeated-measures analysis of variance. The comparison of recall of the two lists (one learned before administration of the drug and the other learned after) is a repeated measurement because the same subjects are involved. The comparison of the Drug versus Saline groups is a between-subjects effect because the groups involve different subjects.

21.27 This is basically a correlational study, where we separately correlate the two dependent variables with amount of alcohol consumed. Given the 14 year gap, and all of the other factors that affect development, we should not expect very strong correlations even under the best of conditions.