

### Homework 3

Due Thursday, Mar 13 10 AM

For all questions, please show your work or include a copy of the output, whichever is relevant. Please write your answers in report form, as if you were describing results in a published study. Most responses should not be longer than one paragraph. The data for each problem can be downloaded from the website: <http://web.pdx.edu/~newsomj/data.htm>. **All answers should be in your own words.**

1. Data (agingcontrol.sav, available on the data page) for the questions below are a random sample of participants aged 50 and over from a study conducted by Mirowsky and Ross on aging and perceived internal locus of control (i.e., a belief in whether you, rather than others or external factors, can control the extent to which good and bad things happen to you). The variables in the data set are the participants age (*age*), a measure of perceived control (*control*) in which higher values indicate more internal control, a measure of perceived social support (*support*), perceived health (*health*, from 1="very poor" to 5="very good") whether the participant ever volunteers (*volunteer*, 0="no" 1="yes"), how many days the respondent reported walking in the last month (*walknum*), and how much difficult he/she has doing shopping or getting around (*shopping*, 1="no difficulty", 2="some difficulty", 3="a great deal of difficulty"). For any of the problems below, you may use your own data as long the appropriate type of dependent variable is used and there are at least two predictors included for each of the regression models. If you're using your own data, be sure to include a paragraph that describes the study and variables used in the analysis (one for each of the data sets used).

a. Use SPSS and R and the aging and control data to test a simple logistic regression model to predict volunteering (*volunteer*) with perceived control (*control*). Report and interpret your results, including the overall fit, the psuedo- $R^2$ , the odds ratio, significance tests, and confidence intervals.

b. Conduct a multiple logistic regression analysis in SPSS or R. Test a model that predicts volunteering with age, support, control, and health. Report and interpret your results, including the overall fit, the psuedo- $R^2$ , all of the odds ratios, significance tests, and confidence intervals.

c. Conduct a probit regression analysis in SPSS or R using the same model as above, with age, support, control, and health as predictors of volunteering. Report and interpret your results, including the overall fit, the psuedo- $R^2$ , standardized coefficients, significance tests, and confidence intervals.

d. In SPSS or R, conduct an ordinal logistic or probit regression with age, control, support, and health as predictors of difficulty with shopping (*shopping*). Report and interpret your results, including the overall fit, the psuedo- $R^2$ , all of the odds ratios (logistic) or standardized coefficients (probit), significance tests, and confidence intervals.

2. For this problem use your own data or a new version of the school health behavior (bullying) data set, schoolhb3.sav, from the data page. If you use your own data, you should compare at least two groups on at least three dependent variables (which should be at least modestly positively correlated).

Use SPSS or R to conduct a MANOVA to compare the three race categories (*racecat*) on the dependent variables *safe* (has been reversed in this version of the data set, so that higher values indicate greater safety), *support*, and *lifesat*. Report the multivariate results, including the F-value, significance, and the univariate tests. Be sure to include the univariate means of each and indicate the direction of the differences to describe your results.

3. Read **one** of the following articles (password protected copies are available from the class website <http://web.pdx.edu/~newsomj/>) and write **two paragraphs** summarizing the article. First, describe the study design (e.g., randomized experiment, non-equivalent control group design, cross-sectional survey; for a quick refresher, see <https://www.appinio.com/en/blog/market-research/quasi-experimental-design>) and purpose of the study **in your own words**. Be sure to include who/what was studied (e.g., who were the participants?) and the number of cases. Then, choose one statistical test used in the article that you have learned about in the course in this section (i.e., logistic regression, ordinal regression, count regression, MANOVA), and, **in your own words**, describe the hypothesis that is being tested, the results obtained, and what the findings mean. **Be sure to include the relevant statistical values and whether the results were significant**. Write your paragraphs as if you were describing results in a published article and reporting someone else's results as in a review article.

Brook, J. S., Stimmel, M. A., Zhang, C., & Brook, D. W. (2008). The association between earlier marijuana use and subsequent academic achievement and health problems: A longitudinal study. *American Journal on Addictions, 17*(2), 155-160.

Donato, F., Monarca, S., Chiesa, R., Feretti, D., Modolo, M. A., & Nardi, G. (1995). Patterns and covariates of alcohol drinking among high school students in 10 towns in Italy: a cross-sectional study. *Drug and alcohol dependence, 37*(1), 59-69.

Knudsen, H. K., Ducharme, L. J., & Roman, P. M. (2007). Job stress and poor sleep quality: data from an American sample of full-time workers. *Social Science & Medicine, 64*(10), 1997-2007.

Van Straaten, B., Rodenburg, G., Van der Laan, J., Boersma, S. N., Wolf, J. R., & Van de Mheen, D. (2018). Changes in social exclusion indicators and psychological distress among homeless people over a 2.5-year period. *Social Indicators Research, 135*, 291-311.