

Exercise 11 Binary Logistic Regression

These exercises have been prepared for use in conjunction with Chapter 11 of the 4th edition of “SPSS for Psychologists” by Brace, Kemp and Snelgar (2009)

1. A psychologist is interested in how radiographers learn to interpret ambiguous x-ray images. He recruited a number of trainee radiographers. Each was shown an x-ray and asked to determine whether or not it showed a fracture. The psychologist recorded the number of hours of training the radiographer had completed, whether the x-ray showed a fracture or not, and whether the radiographer’s decision was correct. The data from this study are coded in the file **Ex11Q1.sav**.
 - a. Identify the outcome and predictor variables. Which of the predictor variables are categorical?
 - b. Carry out the appropriate analysis to determine which of the predictor variables significantly predict the radiographer’s interpretation of the x-ray.
 - c. Report the results of your analysis.

2. Load the data file called **1991 U.S. General Social Survey.sav**. This is a demonstration data file which for many years has been supplied with every copy of SPSS. The file will be located with the SPSS program files. The exact location varies slightly, but on our computer systems the file is in the folder **c:\program files\SPSSInc\Statistics17\Samples\English** (or, if you are running version 16 try **c:\program files\SPSSInc\SPSS16\Samples**). Open the data file and familiarise yourself with the variables. This file contains more than 40 variables for each of about 1500 respondents
 - a. We are interested in which factors predict happiness. The fourth variable in the file is called “Happy” and codes the respondents’ general level of happiness using a 3 point scale (1=Very Happy, 2= Pretty Happy, 3=Not too Happy), with the values 0, 8 and 9 set as missing values. Recode this variable so that it codes whether or not the respondent is Very Happy (Very Happy= 1, Pretty Happy or Not too Happy = 0). Make sure that that the missing values are still set to 0, 8 and 9.
 - b. Is the secret to being very happy having a large family, a good education or is happiness something that comes with age? To discover the secret to happiness undertake a Binary Logistic regression using the four variables age, education, number of siblings and number of children as predictor variables, and your recoded happiness variable as the dependent variable.
 - c. Which of these factors significantly predict Happiness?
 - d. Does your model really hold the secret of great happiness? Just how good a model is it?