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#### Biost 518: Applied Biostatistics II
#### Emerson, Winter 2006

#### Annotated Stata Log File: Homework #1
#### January 24, 2006

#### In this file I give the Stata commands I used to produce
#### the key to Homework #1. In order to properly format
#### a table useful to casual readers, I cut and pasted some
#### of the output into Excel.

#### Comments edited into the log file produced by Stata are
#### on the lines that start with the four '#' signs and are
#### printed in italics.

#### The Stata commands are put in bold face.

#### Stata output is displayed in regular typeface in blue.

-------------------------------------------------------------------------------
#### Open log file to save commands and results
. log using hw1Stata.log
-------------------------------------------------------------------------------
       log:  C:\sse\teach\b518\hw1Stata.log
  log type:  text
       log:  C:\My Documents\teach\b518\w06\hw1Stata.log
  log type:  text

#### The salary dataset is very large: I need to increase the memory available for the
#### data prior to reading in the dataset.
. set memory 24m
(24576k)

#### I had previously stored the salary dataset as a Stata data file. The commands used
#### to generate this dataset are in initsalary.doc.
. use ..\..\datasets\salary

##################
####
#### Problem 3
####
##################

#### Create a binary variable indicating full professors

. g full= 0

. replace full=1 if rank==3
(9211 real changes made)

. table rank full

------------------------
          |     full
     rank |     0      1
----------+-------------
   Assist | 4,048
    Assoc | 6,529
     Full |        9,211
------------------------
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#### Unadjusted analysis of full professors by sex
. table full female if year==95

----------------------------
          |     female
     full |   Male  Female
----------+-----------------
        0 |    469     283
        1 |    719     126
----------------------------

. cc full female if year==95
                                                          Proportion
                 |   Exposed   Unexposed  |     Total     Exposed
-----------------+------------------------+----------------------
           Cases |       126         719  |       845      0.1491
        Controls |       283         469  |       752      0.3763
-----------------+------------------------+----------------------
           Total |       409        1188  |      1597      0.2561
                 |                        |
                 |      Point estimate    |  [95% Conf. Interval]
                 |------------------------+----------------------
      Odds ratio |          .290421       |   .226544    .3715365  (exact)
 Prev. frac. ex. |          .709579       |  .6284635     .773456  (exact)
 Prev. frac. pop |         .2670357       |
                 +-------------------------------------------------
                             chi2(1) =   107.83  Pr>chi2 = 0.0000


#### Subgroup analyses within each field
. cc full female if year==95 & field==1
                                                          Proportion
                 |   Exposed   Unexposed  |     Total     Exposed
-----------------+------------------------+----------------------
           Cases |        28          70  |        98      0.2857
        Controls |        52          70  |       122      0.4262
-----------------+------------------------+----------------------
           Total |        80         140  |       220      0.3636
                 |                        |
                 |      Point estimate    |  [95% Conf. Interval]
                 |------------------------+----------------------
      Odds ratio |         .5384615       |  .2927119    .9835152  (exact)
 Prev. frac. ex. |         .4615385       |  .0164848    .7072881  (exact)
 Prev. frac. pop |         .1967213       |
                 +-------------------------------------------------
                             chi2(1) =     4.64  Pr>chi2 = 0.0313

. cc full female if year==95 & field==2
                                                          Proportion
                 |   Exposed   Unexposed  |     Total     Exposed
-----------------+------------------------+----------------------
           Cases |        82         477  |       559      0.1467
        Controls |       205         303  |       508      0.4035
-----------------+------------------------+----------------------
           Total |       287         780  |      1067      0.2690
                 |                        |
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                 |      Point estimate    |  [95% Conf. Interval]
                 |------------------------+----------------------
      Odds ratio |         .2540881       |  .1870044    .3440217  (exact)
 Prev. frac. ex. |         .7459119       |  .6559783    .8129956  (exact)
 Prev. frac. pop |         .3010078       |
                 +-------------------------------------------------
                             chi2(1) =    89.30  Pr>chi2 = 0.0000

. cc full female if year==95 & field==3
                                                        Proportion
                 |   Exposed   Unexposed  |     Total     Exposed
-----------------+------------------------+----------------------
           Cases |        16         172  |       188      0.0851
        Controls |        26          96  |       122      0.2131
-----------------+------------------------+----------------------
           Total |        42         268  |       310      0.1355
                 |                        |
                 |      Point estimate    |  [95% Conf. Interval]
                 |------------------------+----------------------
      Odds ratio |         .3434705       |  .1640076    .7048353  (exact)
 Prev. frac. ex. |         .6565295       |  .2951647    .8359924  (exact)
 Prev. frac. pop |         .1399161       |
                 +-------------------------------------------------
                             chi2(1) =    10.35  Pr>chi2 = 0.0013

#### Stratified analysis of association between full professors and sex adjusted for field
. cc full female if year==95, by(field)

           field |       OR      [95% Conf. Interval]    M-H Weight
-----------------+-------------------------------------------------
            Arts |   .5384615     .2927119   .9835152      16.54545 (exact)
           Other |   .2540881     .1870044   .3440217       91.6448 (exact)
            Prof |   .3434705     .1640076   .7048353      14.42581 (exact)
-----------------+-------------------------------------------------
           Crude |    .290421      .226544   .3715365               (exact)
    M-H combined |   .3029764     .2378934    .385865
-----------------------------------------------------------------
Test of homogeneity (M-H)      chi2(2) =     5.47  Pr>chi2 = 0.0648

                   Test that combined OR = 1:
                               Mantel-Haenszel chi2(1) =     99.10
```