**EPID 5318 – HW8**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 1.** | Descriptive comparison of incarcerated vs. non-incarcerated youth, PNC, N = 250**a** | | |  |
|  |  | **Incarcerated (n=50)** | **Not incarcerated (n=200)** | **p-value** |
| **Substance use** | |  |  |  |
|  | Past Year Alcohol Use | 17 (34.69%) | 43 (21.50%) | 0.0529 |
|  | Past Month Alcohol Use | 7 (14.29%) | 17 (8.50%) | 0.2187 |
|  | Heavy Alcohol Use | 3 (6.12%) | 13 (6.50%) | 0.923 |
|  | Past Year Marijuana Use | 9 (18.37%) | 17 (8.54%) | 0.0443 |
|  | Past Month Marijuana Use | 5 (10.20%) | 10 (5.00%) | 0.17 |
| **Family/Peer Characteristics** | |  |  |  |
|  | Free or reduced price lunch | 39 (84.78%) | 143 (81.25%) | 0.5789 |
|  | Friends who use alcohol | 23 (46.00%) | 66 (33.00%) | 0.086 |
|  | Daily time without adult supervision | 3.39±1.51 | 2.80±1.44 | 0.016 **b** |
|  | Family rules about alcohol **d** | 3 (6.00%) | 22 (11.00%) | 0.2918 |
|  | Adults in neighborhood drink alcohol **e** | 33 (66.00%) | 150 (75.76%) | 0.161 |
| **Individual Characteristics** | |  |  |  |
|  | Hours of church attendance per week | 1.84±1.00 | 1.84±0.96 | 0.953 **b** |
|  | Sadness | 27 (55.10%) | 134 (67.00%) | 0.1184 |
|  | School Based Punishment or Detention (1-3) | 18 (36.00%) | 51 (25.50%) | 0.0484 |
|  | School Based Punishment or Detention (4) | 9 (18.00%) | 20 (10.00%) | 0.1141 |
|  | Age | 12.37±0.75 | 11.89±0.58 | <0.001 **c** |
| **Note**:Cases and controls were matched on the basis of gender, aggressive behavior at baseline, and race/ethnicity.  Cases/controls with missing values for any of these matching variables were determined ineligible for matching and excluded  from the sample. Any case/control pairs with less than 1:4 control-to-case ratio after matching were also excluded from the  final sample.  Categorical variables are presented as count (%) while continuous variables are presented as mean ± standard deviation. Chi-  square test was used to produce p-values for all categorical variables.  **a** There may be a small degree of variation in the denominator of each predictor due to missing values.  **b** P-value determined via Kruskal-Wallis test.  **c** P-value determined via student’s t-test.  **d** Calculating the number and percentage for no family rules regarding alcohol (rules = 0).  **e** Categorization was unclear, so here adudrink = 0 if response was “none” or “a few” and adudrink = 1 if response was  “many”, “some”, or “almost all”. | | | | |
|  |  |  |  |  |
| **Table 2.** | Bivariate risk and protective factors for incarceration | |  |  |
|  |  | **OR** | **95% CI** |  |
| **Substance use** | |  |  |  |
|  | Past Year Alcohol Use | 1.94 | 1.02 - 3.68 |  |
|  | Past Month Alcohol Use | 1.79 | 0.73 - 4.40 |  |
|  | Heavy Alcohol Use | 0.94 | 0.32 - 2.77 |  |
|  | Past Year Marijuana Use | 2.41 | 1.09 - 5.34 |  |
|  | Past Month Marijuana Use | 2.16 | 0.87 - 5.37 |  |
| **Family/Peer Characteristics** | |  |  |  |
|  | Free or reduced price lunch | 1.29 | 0.54 - 3.08 |  |
|  | Friends who use alcohol | 1.73 | 1.04 - 2.88 |  |
|  | Daily time without adult supervision | 1.32 | 1.03 - 1.69 |  |
|  | Family rules about alcohol\* | 0.52 | 0.15 - 1.79 |  |
|  | Adults in neighborhood drink alcohol | 0.62 | 0.32 - 1.21 |  |
| **Individual Characteristics** | |  |  |  |
|  | Hours of church attendance per week | 1.00 | 0.74 - 1.36 |  |
|  | Sadness | 0.60 | 0.33 - 1.10 |  |
|  | School Based Punishment or Detention (1-3) | 1.98 | 0.93 - 4.21 |  |
|  | School Based Punishment or Detention (4) | 2.52 | 1.02 - 6.27 |  |
|  | Age | 2.95 | 1.84 - 4.74 |  |
|  | OR = odds ratio; CI = confidence interval |  |  |  |

**Critique**

Reingle et al. (2013) utilized the available Project Northland Chicago (PNC) data to determine which demographic, individual and social factors may increase or decrease risk of incarceration at the 12th grade. To address their research question, Reingle et al. (2013) matched cases and controls on the basis of gender, aggressive behavior in the 6th grade, and race/ethnicity before using bivariate and multivariate logistic regression to determine risk/protective factors that affected the risk of incarceration at the 12th grade. They also reported a comparison of counts/percentages (or mean/standard deviation where applicable) of cases and controls which fell into the various predictor categories.

The analytical methods used to answer the research question (analytical comparison of frequencies/means and bivariate logistic regression) were appropriate. Logistic regression was appropriate since the outcome variable was binomial rather than continuous. However, it did not seem theoretically appropriate to use a control-to-case ratio greater than 1:4 was not feasible and may affect the validity of the results produced from the analyses performed. Additionally, Reingle et al. (2013) reported that they used line-item deletion for missing variables, which may not be statistically appropriate for the data being used. The final critique that I have with the methods employed by the authors was that there was no mention of whether they excluded participants that had missing values for the gender, race/ethnicity, and/or aggression variables during the matching process. Retaining these participants in the matching process may produce inappropriate matches that can significantly skew the results. This is one of the reasons why we find that our results may be more valid than those reported by Reingle et al. (2013).

While Reingle et al. (2013) found statistically significant differences in the proportion of incarcerated vs. non-incarcerated youths who drank alcohol in the past year, used marijuana in the past year, or had detention more than 4 times, our results indicated that of these three predictors, only marijuana use in the past year was found to be a statistically significant predictor of incarceration in the 12th grade at the 95% level of confidence (18.37% vs. 8.54%, *p* < 0.05). Additionally, Reingle et al. (2013) reported that those who spent greater than an hour without adult supervision and those who were older were also more likely to be incarcerated at the 12th grade. Our results corroborate these results since we found similar results (hours of adult supervision *p* < 0.05; age *p* < 0.05).

In terms of the bivariate logistic regression results, increased odds of incarceration at 12th grade were associated with marijuana use in the last year, spending over an hour without adult supervision, having between 1-3 hours of detention, having over 4 hours of detention, and older age according to Reingle et al. (2013). We also found that marijuana use in the past year (OR = 2.41; 95% CI 1.09 – 5.34), more than 4 hours of detention (OR = 2.52; 95% CI 1.02 – 6.27), age (OR = 2.95; 95% CI 1.84 – 4.74), and time without adult supervision (OR = 1.32; 95% CI 1.03 – 1.69) were associated with increased odds of incarceration. However, we did not find that having between 1-3 hours of detention was associated with increased odds of incarceration since the 95% confidence interval contained the null value (0.93 – 4.21). Reingle et al. (2013) also reported that past year alcohol use was not associated with increased odds of incarceration, however our results show that alcohol use in the past year does significantly increase the odds of incarceration at 12th grade (OR = 1.94; 95% CI 1.02 – 3.68). The final discrepancy between our results and the results reported by Reingle et al. concern protective factors that lower the odds of incarceration at the 12th grade. While Reingle et al. (2013) reported that feelings of sadness was protective against incarceration, we did not find a statistically significant association between sadness and incarceration since the null value was included in the 95% confidence interval (0.33 – 1.10).

We do not agree with some of the conclusions drawn by Reingle et al. (2013). Specifically, we do not agree that having between 1-3 hours of detention increases the odds of incarceration, that feelings of sadness decrease the odds of incarceration, or that alcohol use in the past year is not associated with the odds of incarceration. In conclusion, we find that the most significant risk factors for predicting incarceration at the 12th grade were marijuana use in the past year, having greater than 4 hours of detention, and older age, which all more than doubled the odds of incarceration. Time spent without adult supervision also increased the odds of incarceration, but not by as much as the aforementioned predictors. We found that none of the analyzed factors were significantly protective against incarceration at 12th grade. **SAS Code**

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* Course: Data Analysis - EPID 5314 \*

\* Assignment: Homework 8 \*

\* Due Date: 10/27/2021 \*

\* Programmer(s): Jessie Ausman \*

\* Program Name: HW8 \*

\* Save Program/Log/Output: C:\Users\jessa\Desktop\EPID 5314\Homework8\*

\* Save Data Files: C:\Users\jessa\Desktop\EPID 5314\PNC Data File\PNC\*

\* Datasets \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* PART 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* Merge 6th and 12th grade waves, create separate case/control sets & use macro \*

\* fxn to match 4:1. Use macro for matching \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

\*read in data and create case/control datasets;

libname class "C:\Users\jessa\Desktop\EPID 5314\PNC Data File\PNC Datasets";

**data** HW8;

merge class.pnc02 (in=a) class.pnc09 (in=b) class.pnc\_demographics (in=c);

by id;

if a;

if b;

aggression = beat1 + pushed1 + kicked1;

if missing(beat1) or missing(pushed1) or missing(kicked1) then aggression = **.**;

**run**;

**proc** **freq** data=HW8;

table aggression;

**run**;

**data** case;

set HW8;

if sproc5 = **3**;

**run**;

**data** case1;

set case;

if missing(aggression) then delete;

**run**;

**data** control;

set HW8;

if sproc5 = **1**;

**run**;

**data** control1;

set control;

if missing(aggression) then delete;

**run**;

/\*\*\*\*\* impute gender vars from future waves for those missing gender1\*\*\*\*\*/

**data** missing\_gender;

set case1;

if missing(gender1);

**run**;

**proc** **freq** data=missing\_gender;

tables id\*gender1 / missing;

**run**;

\*missing gender1 ids for cases:

103825;

**data** missing\_gender1;

set control1;

if missing(gender1);

**run**;

**proc** **freq** data=missing\_gender1;

tables id\*gender1 / missing;

**run**;

\*missing gender1 ids for controls:

101000

101391

103716

104492;

**proc** **print** data=class.pnc03;

VAR ID GENDER2;

WHERE ID=**103825** or ID=**101000** OR ID=**101391** OR ID=**103716** OR ID=**104492**;

**RUN**;

**proc** **print** data=class.pnc\_demographics;

var id gender;

where id=**104492**;

**run**;

**data** control2;

set control1;

if id = **101000** or id = **101391** or id = **103716** or id = **104492** then gender1 = **1**;

if id = **104492** then delete;

**run**;

**data** case2;

set case1;

if id = **103825** then gender1 = **1**;

**run**;

**proc** **freq** data=case2;

tables gender1\*id;

where id = **103825**;

**run**;

**proc** **freq** data=control2;

tables gender1\*id;

where id in (**101000**,**101391**,**103716**);

**run**;

\*no more ids with missing values for gender1;

/\*\*\*\*\* impute race vars from future waves for those missing race1\*\*\*\*\*/

**data** missing\_race;

set case2;

if missing(race1);

**run**;

**proc** **freq** data=missing\_race;

tables id\*race1/ missing;

**run**;

\*no cases missing race var;

**data** missing\_race1;

set control2;

if missing(race1);

**run**;

**proc** **freq** data=missing\_race1;

tables id\*race1/ missing;

**run**;

\*control ids missing race1:

100507

102426

103193

103248

103263;

**proc** **print** data=class.pnc03;

var id race2;

WHERE ID=**100507** or ID=**102426** OR ID=**103193** OR ID=**103248** OR ID=**103263**;

**RUN**;

**data** control3;

set control2;

if ID=**100507** then race1=**6**;

if id=**102426** then race1=**3**;

if id=**103193** then race1=**2**;

if id=**103248** then race1=**6**;

if id=**103263** then race1=**5**;

**run**;

**proc** **freq** data=HW8;

tables aggression;

**run**;

**data** check;

set HW8;

if gender1>**0** and race1>**0** and aggression>**0**;

**run**;

**proc** **freq** data=check;

tables aggression gender1 race1;

**run**;

**proc** **freq** data=case2;

tables aggression gender1 race1;

**run**;

**proc** **freq** data=control3;

tables aggression gender1 race1;

**run**;

options nosource;

\*use match\_cc macro to match cases/controls 1:4 ;

%include "C:\Users\jessa\Desktop\EPID 5314\Homework8\match\_cc macro.sas";

%***match\_cc*** (casedata = case2,

controldata= control3,

matchvar=gender1 race1 aggression,

matchval= **0** **0** **0**,

outmatch = psamatch,

outnomatch = psanomatch,

controlspercase=**4**,

id = id);

**quit**;

\*check datasets;

**proc** **contents** data=here.psamatch varnum;

**run**;

**proc** **contents** data=here.psanomatch varnum;

**run**;

/\*\*\*\*\*\*\*\*Drop cases/controls that arent exactly matched 1:4\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

**proc** **print** data=here.psanomatch;

var id setnumber;

**run**;

\*setnumber that need to be deleted (not 1:4):

22

23

43

53;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Part 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* merge HW8 and psamatch datasets, then only keep obs not missing "setnumber" var \*

\* this allows us to use the variables included in the HW8 set while only retaining matched participants in our sample\*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **sort** data=HW8;

by id;

**run**;

**proc** **sort** data=here.psamatch;

by id;

**run**;

**data** combined;

merge here.psamatch HW8;

by id;

**run**;

**data** HW8\_1;

set combined;

if setnumber in (**23**,**24**,**43**,**54**) then delete;

**run**;

**data** HW8\_1;

set HW8\_1;

if sproc5 = **3** then case = **1**;

else if sproc5 = **1** then case = **0**;

else;

**run**;

**data** HW8\_1;

set HW8\_1;

if missing(setnumber) then delete;

**run**;

**proc** **freq** data=HW8\_1;

table case;

**run**;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Part 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* create variables when necessary, dichotmize/categorize where necessary \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

\*create variable for case;

**data** HW8\_2;

set HW8\_1;

if sproc5 = **3** then case = **1**;

else if sproc5 = **1** then case = **0**;

else;

**run**;

\*check freq;

**proc** **freq** data=HW8\_2;

table case control;

**run**;

\*dichotomize alcyear1;

**data** HW8\_3;

set HW8\_2;

if alcyear1 = **1** then alcyear = **0**;

else if alcyear1 in (**2**,**3**,**4**,**5**,**6**,**7**) then alcyear = **1**;

else if missing(alcyear1) then alcyear = **.**;

else;

**run**;

\*dichotomize alcmon1;

**data** HW8\_4;

set HW8\_3;

if alcmon1 = **1** then alcmon = **0**;

else if alcmon1 in (**2**,**3**,**4**,**5**,**6**,**7**) then alcmon = **1**;

else if missing(alcmon1) then alcmon = **.**;

else;

**run**;

\*dichotomize maryear1;

**data** HW8\_5;

set HW8\_4;

if maryear1 = **1** then maryear = **0**;

else if maryear1 in (**2**,**3**,**4**,**5**,**6**,**7**) then maryear = **1**;

else if missing(maryear1) then maryear = **.**;

else;

**run**;

\*dichotmize marmon1;

**data** HW8\_6;

set HW8\_5;

if marmon1 = **1** then marmon = **0**;

else if marmon1 in (**2**,**3**,**4**,**5**,**6**,**7**) then marmon = **1**;

else if missing(marmon1) then marmon = **.**;

else;

**run**;

\*dichotomize hvyuse1;

**data** HW8\_7;

set HW8\_6;

if hvyuse1 = **1** then hvyuse = **0**;

else if hvyuse1 in (**2**,**3**,**4**,**5**,**6**,**7**) then hvyuse = **1**;

else if missing(hvyuse1) then hvyuse = **.**;

else;

**run**;

\*check that variables are in the set;

**proc** **contents** data=HW8\_7 varnum;

**run**;

\*categorize frinum1;

**data** HW8\_8;

set HW8\_7;

if frinum1 = **1** then frinum = **0**; \*none;

else if frinum1 in (**2**,**3**,**4**,**5**) then frinum = **1**; \*more than a few;

else if missing(frinum1) then frinum = **.**;

else;

**run**;

\*check freq;

**proc** **freq** data=HW8\_8;

tables frinum frinum\*frinum1;

**run**;

\*dichotomize famrul1;

**data** HW8\_9;

set HW8\_8;

if famrula1 = **1** then rules = **0**; \*no rules;

else if famrula1 = **0** then rules = **1**; \*has rules;

else if missing(famrula1) then rules = **.**;

else;

**run**;

\*check freq;

**proc** **freq** data=HW8\_9;

table rules famrula1 famrula1\*rules;

**run**;

\*dichotomize sad;

**data** HW8\_10;

set HW8\_9;

if sad1 = **1** then sad = **0**; \*not sad;

else if sad1 in (**2**,**3**) then sad = **1**; \*sad at least once;

else if missing(sad1) then sad = **.**;

else;

**run**;

\*check freq;

**proc** **freq** data = HW8\_10;

table sad sad\*sad1;

**run**;

\*recategorize detent1 (2 dummy variables);

**data** HW8\_11;

set HW8\_10;

if detent1 in (**1**,**3**) then detent1\_3 = **0**;

else if detent1 = **2** then detent1\_3 = **1**;

else if missing(detent1) then detent1\_3 = **.**;

if detent1 in (**1**,**2**) then detent4 = **0**;

else if detent1 = **3** then detent4 = **1**;

else if missing(detent1) then detent4 = **.**;

**run**;

\*dichotomize lunch variable;

**data** HW8\_12;

set HW8\_11;

if lunch1 = **1** then lunch = **1**;

else if lunch1 =**2** then lunch = **0**;

else if lunch1 = **3** then lunch = **.**;

else if missing(lunch1) then lunch = **.**;

else;

**run**;

\*dichotomize adudrnk1;

**data** HW8\_12;

set HW8\_12;

if adudrnk1 in (**1**,**2**) then adudrink = **0**;

else if adudrnk1 in (**3**,**4**,**5**) then adudrink = **1**;

else if missing(adudnk1) then adudrink = **.**;

else;

**run**;

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

AGE VARIABLE : "age was calculated using the month and year

of the reported date of birth."

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

\*create age variable;

\*NEED HELP WITH THIS --> NOT SURE WHICH VARIABLES TO USE;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Part 4 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* Create FREQ Tables for Table 1 \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

/\*\*\*Substance use\*\*\*/

**proc** **freq** data=HW8\_12;

title "alcohol use in last year";

table case\*alcyear/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

title "alcohol use in last month";

table case\*alcmon/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

title "heavy alcohol use";

table case\*hvyuse/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

title "marijuana use in last year";

table case\*maryear/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

title "marijuana use in last month";

table case\*marmon/ chisq;

**run**;

/\*\*\*Family/Peer characteristics\*\*\*/

**proc** **freq** data=HW8\_12;

title "reduced/free lunch";

table case\*lunch/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

title "friends who drink";

table case\*frinum/ chisq;

**run**;

**proc** **means** data=HW8\_12;

title "time without supervision cases";

var noadult1;

where case = **1**;

**run**;

**proc** **means** data=HW8\_12;

title "time without supervision controls";

var noadult1;

where case = **0**;

**run**;

\*assumption of normality is questionable - use KW test rather than ttest;

**proc** **npar1way** data=HW8\_12 wilcoxon;

class case;

var noadult1;

\*exact wilcoxon;

**run**;

**proc** **freq** data=HW8\_12;

title "family alcohol rules";

table case\*rules/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

title "neighborhood adults who drink";

table case\*adudrink/ chisq;

**run**;

/\*\*\*Social Characteristics\*\*\*/

**proc** **means** data=HW8\_12;

title "mean church cases";

var church1;

where case = **1**;

**run**;

**proc** **means** data=HW8\_12;

title "mean church controls";

var church1;

where case = **0**;

**run**;

**proc** **ttest** data=HW8\_12;

title "p-value church";

class case;

var church1;

**run**;

\*assumption of normality is questionable - use KW test rather than ttest;

**proc** **npar1way** data=HW8\_12 wilcoxon;

class case;

var church1;

\*exact wilcoxon;

**run**;

**proc** **freq** data=HW8\_12;

title "sad";

table case\*sad/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

title "detent1\_3";

table case\*detent1\_3/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

title "detent4";

table case\*detent4/ chisq;

**run**;

**proc** **freq** data=HW8\_12;

table case\*detent1/ chisq;

**run**;

**proc** **means** data=HW8\_12;

title "mean age cases";

var age1;

where case = **1**;

**run**;

**proc** **means** data=HW8\_12;

title "mean age controls";

var age1;

where case = **0**;

**run**;

**proc** **ttest** data=HW8\_12;

title "p-value age";

class case;

var age1;

**run**;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Part 5 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* Calculate OR for Table 2 \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**proc** **genmod** data=HW8\_12 desc;

title "OR alcyear";

class alcyear (param=ref ref='0');

model case = alcyear/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR alcyear" alcyear **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR alcmon";

class alcmon (param=ref ref='0');

model case = alcmon/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR alcmon" alcmon **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR hvyuse";

class hvyuse (param=ref ref='0');

model case = hvyuse/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR hvyuse" hvyuse **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR maryear";

class maryear (param=ref ref='0');

model case = maryear/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR maryear" maryear **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR marmon";

class marmon (param=ref ref='0');

model case = marmon/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR marmon" marmon **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR lunch";

class lunch (param=ref ref='0');

model case = lunch/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR lunch" lunch **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR frinum";

class frinum (param=ref ref='0');

model case = frinum/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR frinum" frinum **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR rules";

class rules (param=ref ref='0');

model case = rules/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR rules" rules **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR adudrink";

class adudrink (param=ref ref='0') setnumber (param=ref ref=first);

model case = adudrink/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR adudrink" adudrink **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

title "OR sad";

class sad (param=ref ref='0') setnumber (param=ref ref=first) ;

model case = sad/ dist=binomial link=logit;

repeated subject = setnumber;

estimate "OR sad" sad **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

class detent1 setnumber/param=ref ref=FIRST;

model case=detent1/link=logit dist=binomial;

repeated subject=setnumber;

estimate "logOR Punishment or Detention (1-3)" detent1 **1** **0**/exp;

estimate "logOR Punishment or Detention (4)" detent1 **0** **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

class setnumber/param=ref ref=FIRST;

model case=age1/link=logit dist=binomial;

repeated subject=setnumber;

estimate "logOR" age1 **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

class setnumber/param=ref ref=FIRST;

model case=church1/link=logit dist=binomial;

repeated subject=setnumber;

estimate "logOR" church1 **1**/exp;

**run**;

**proc** **genmod** data=HW8\_12 desc;

class setnumber/param=ref ref=FIRST;

model case=noadult1/link=logit dist=binomial;

repeated subject=setnumber;

estimate "logOR" noadult1 **1**/exp;

**run**;