**EPID 5314 - Lab 3**

Table

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**Question 1:** The odds of having had 1 or more sexual partners for those in the medium risk alcohol norms category are between 2.0443 and 3.6244 times the odds of having had 1 or more sexual partners for those in the low risk alcohol norms category.

Application, table

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**Question 2:** The chi-square value for the type 3 test of 8th grade alcohol use norms on having 1 or more sexual partners is 78.22. The conclusion we can draw from this test is that the risk categorical norms variable is statistically significantly associated with having 1 or more sexual partners (p < 0.0001 < 0.05).

Table

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**Question 3:** The odds of having 1 or more sexual partners for the medium risk category is 2.044 to 3.642 times the odds of having 1 or more sexual partners for the low risk category. This is the same 95% CI obtained from proc genmod.

A picture containing table

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**Question 4:** The odds of having 1 or more sexual partners for the high risk category is 4.201 to 10.925 times the odds of having 1 or more sexual partners for the low risk category. Thus, those in the high alcohol norms risk category have higher odds of having 1 or more sexual partners in 12th grade than those in the low risk category.

Table

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**Question 5:** The odds of having sexual partners is lower for those in the high alcohol norms category as compared to those in the low alcohol norms category.

**Question 6:** These results differ substantially from the results found in the binary logistic regression model. The binary model stated that the higher alcohol norms risk categories were at a higher risk of having more sexual partners than those in the lower alcohol norms risk categories, but the opposite was found for the ordinal logistic model.

**SAS CODE**

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\* Course: Data Analysis - EPID 5314 \*

\* Assignment: Lab 3 \*

\* Due Date: 9/9/2021 \*

\* Programmer(s): Jessie Ausman \*

\* Program Name: Lab3 \*

\* Save Program/Log/Output: C:\Users\jessa\Desktop\EPID 5314\Lab3 \*

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

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

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Read in Datasets

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

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Create merged dataset

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**data** pnc05;

set bios.pnc05;

**run**;

**data** pnc09;

set bios.pnc09;

**run**;

**data** lab3;

merge pnc05 (in=a) pnc09 (in=b);

by ID;

if a;

if b;

**run**;

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Create alcohol norms categorical variable (alc\_norm) for 8th grade data

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**data** lab3\_1;

set lab3;

alc\_norm = frinum4 + alcsen4 + adudrnk4;

if missing(frinum4) or missing(alcsen4) or missing(adudrnk4) then alc\_norm = **.**;

**run**;

**data** lab3\_2;

set lab3\_1;

if alc\_norm LE **5** then risk\_cat = "low";

if alc\_norm GE **6** and alc\_norm LE **13** then risk\_cat = "medium";

if alc\_norm GE **14** then risk\_cat = "high";

if missing(alc\_norm) then risk\_cat = " ";

else;

**run**;

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Create binary variable for "with partners" and "w/out partners"

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**data** lab3\_3;

set lab3\_2;

if partnum5 = **0** then part\_bin = **0**;

else if partnum5 > **0** then part\_bin = **1**;

else if missing(partnum) then part\_bin = **.**;

else;

**run**;

**proc** **freq** data=lab3\_3;

table partnum5\*part\_bin;

**run**;

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create categorical variable for partnum5 var

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**data** lab3\_4;

set lab3\_3;

if partnum5 = **0** then part\_cat = **0**;

else if partnum5 = **1** then part\_cat = **1**;

else if partnum5 in (**2**,**3**) then part\_cat = **2**;

else if partnum5 GE **4** then part\_cat = **4**;

else if missing(partnum5) then part\_cat = **.**;

else;

**run**;

**proc** **freq** data=lab3\_4;

table partnum5\*part\_cat;

**run**;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* PART 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

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GLM for Log Reg - Part\_bin (95% CI for OR medium vs. low risk\_cat)

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\*Question 1;

**proc** **genmod** data=lab3\_4 desc;

class risk\_cat (param=ref ref="low");

model part\_bin = risk\_cat/ link=logit dist=binomial;

estimate "OR med vs low" risk\_cat **0** **1**/exp;

/\*obtain OR for medium vs low risk category for alc\_norm variable WITH 95% CI\*/

**run**;

**quit**;

\*Question 2;

**proc** **genmod** data=lab3\_4 desc;

class risk\_cat (param=ref ref="low");

model part\_bin = risk\_cat/ link=logit dist=binomial type3;

/\*tests whether risk\_cat (overall) is associated with having 1 or more sexual partners\*/

**run**;

**quit**;

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Proc Logistic - Part\_bin (95% CI for OR medium vs. low risk\_cat)

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\*Question 3;

**proc** **logistic** data=lab3\_4 desc;

class risk\_cat (param=ref ref="low");

model part\_bin = risk\_cat;

**run**;

\*Question 4;

**proc** **genmod** data=lab3\_4 desc;

class risk\_cat (param=ref ref="low");

model part\_bin = risk\_cat/ link=logit dist=binomial;

estimate "OR high vs low" risk\_cat **1** **0**/exp;

**run**;

**quit**;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* PART 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

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Ordinal Logistic Regression

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\*Question 5;

**proc** **genmod** data=lab3\_4;

class risk\_cat (param=ref ref="low");

model part\_cat = risk\_cat/ link=cumlogit dist=mult;

estimate "OR high vs low" risk\_cat **1** **0**/exp;

**run**;

**quit**;