

SUDAAN Analysis Example Replication C8

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* Sudaan Analysis Examples Replication for ASDA 2nd Edition
* Berglund April 2017
* Chapter 8 ;
libname ncsr "P:\ASDA 2\Data sets\ncsr\" ;
data c8_ncsr ;
  set ncsr.ncsr_sub_5apr2017 ;
run ;
proc sort ;
  by sestrat seclustr ;
run ;
proc format ;
  value af 1='18-29' 2='30-44' 3='45-59' 4='60+' ;
  value sf 1='M' 2='F' ;
  value edf 1='0-11' 2='12' 3='13-15' 4='16+' ;
  value mf 1='Currently Married' 2='Previously Married' 3='Never Married' ;
  value yn 1='Yes' 0='No' ;
run ;
title "Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS-R Data, Numbers for Table 8.5
" ;
proc crosstab data=c8_ncsr filetype=sas deff;
nest sestrat seclustr ;
weight ncsrwtlg ;
rformat ag4cat af. ; rformat sex sf. ; rformat ed4cat edf. ; rformat mar3cat mf. ; rformat mde yn. ; rformat ald yn. ;
class ag4cat sex ald ed4cat mar3cat mde / nofreq;
tables (ag4cat sex ald ed4cat mar3cat)*mde ;
test chisq llchisq ;
print nsum wsum rowper serow stestval sdf / style=nchs ;
setenv colwidth=7 ;
run ;

title "Numbers for Table 8.6, 8.7, 8.8" ;
proc rlogist data=C8_ncsr filetype=sas deft1 ;
nest sestrat seclustr ;
weight ncsrwtlg ;
rformat ag4cat af. ; rformat sex sf. ; rformat ed4cat edf. ; rformat mar3cat mf. ; rformat mde yn. ; rformat ald yn. ;
class ag4cat ed4cat mar3cat sex / nofreq ;
reflevel ag4cat=1 ed4cat=1 mar3cat=1 sex=2 ;
model mde=ag4cat sex ald ed4cat mar3cat ;
setenv decwidth=3 colwidth=8 ;
print or lower upor / betas=all tests=all hlttest=all style=nchs ;
run ;

* Note: Checking to see how to produce average marginal effects from Sudaan, not yet sure if this can be as in Stata ;
title "Interaction Testing for Preliminary Model Predicting MDE Outcome" ;
proc rlogist data=c8_ncsr filetype=sas deft1 ;
nest sestrat seclustr ;
weight ncsrwtlg ;
rformat ag4cat af. ; rformat sex sf. ; rformat ed4cat edf. ; rformat mar3cat mf. ; rformat mde yn. ; rformat ald yn. ;
class ag4cat ed4cat mar3cat sex / nofreq ;
reflevel ag4cat=1 ed4cat=1 mar3cat=1 sex=2 ;
model mde=ag4cat sex ald ed4cat mar3cat ag4cat*sex ald*sex ed4cat*sex mar3cat*sex ;
setenv decwidth=3 colwidth=8 ;
print or lower upor / betas=all tests=all hlttest=all style=nchs ;
run ;

title "Numbers for Tables 8.9, 8.10, and 8.11 " ;
title2 "Logistic Regression" ;
title "Numbers for Table 8.6, 8.7, 8.8" ;
proc rlogist data=C8_ncsr filetype=sas deft1 ;
nest sestrat seclustr ;
weight ncsrwtlg ;
rformat ag4cat af. ; rformat sex sf. ; rformat ed4cat edf. ; rformat mar3cat mf. ; rformat mde yn. ; rformat ald yn. ;
class ag4cat ed4cat mar3cat sex / nofreq ;
reflevel ag4cat=1 ed4cat=1 mar3cat=1 sex=2 ;
model mde=ag4cat sex ald ed4cat mar3cat ;
setenv decwidth=3 colwidth=8 ;
print or lower upor / betas=all tests=all hlttest=all style=nchs ;
run ;
data _null_ ;
  file print ;
  put "Probit and CLOGLOG Models Not Available in Sudaan" ;
run ;
```

Output SUDAAN Analysis Example Replication C8

Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS-R Data, Numbers for Table 8.5

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 Software for the Statistical Analysis of Correlated Data
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DESIGN SUMMARY: Variances will be computed using the Taylor Linearization Method, Assuming a With Replacement (WR) Design
 Sample Weight: NCSRWTLG
 Stratification Variables(s): SESTRAT
 Primary Sampling Unit: SECLUSTR

Number of observations read : 5692 Weighted count : 5692
 Number of observations skipped : 3590
 (WEIGHT variable nonpositive)
 Denominator degrees of freedom : 42

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SUDAAN

Page: 1
 Table: 1

Variance Estimation Method: Taylor Series (WR)
 by: Age 1=17-29 2=30-44 3=45-59 4=60+, Major Depressive Episode 1=Yes 0=No.

```

-----
Age 1=17-29 2=30-44
 3=45-59 4=60+
Major Depressive
Episode 1=Yes
0=No
Sample   Weighted   Row   SE Row
Size     Size        Percent  Percent
-----
Total
Total      5692    5692.00    100.00    0.00
No         3896    4600.48     80.82    0.64
Yes        1796    1091.52     19.18    0.64
18-29
Total      1371    1337.48    100.00    0.00
No         974     1091.40     81.60    0.89
Yes        397     246.08     18.40    0.89
30-44
Total      1826    1642.59    100.00    0.00
No         1176    1266.82     77.12    1.10
Yes         650     375.77     22.88    1.10
45-59
Total      1521    1505.63    100.00    0.00
No         997     1169.38     77.67    1.26
Yes        524     336.25     22.33    1.26
60+
Total      974     1206.30    100.00    0.00
No         749     1072.88     88.94    0.96
Yes        225     133.43     11.06    0.96
-----
    
```

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 Table: 2

Variance Estimation Method: Taylor Series (WR)
 by: Sex 1=Male 2=Female, Major Depressive Episode 1=Yes 0=No.

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-----
```

Sex 1=Male 2=Female				
Major Depressive				
Episode 1=Yes	Sample	Weighted	Row	SE Row
0=No	Size	Size	Percent	Percent

Total				
Total	5692	5692.00	100.00	0.00
No	3896	4600.48	80.82	0.64
Yes	1796	1091.52	19.18	0.64
M				
Total	2382	2672.56	100.00	0.00
No	1779	2263.94	84.71	0.91
Yes	603	408.61	15.29	0.91
F				
Total	3310	3019.44	100.00	0.00
No	2117	2336.53	77.38	0.67
Yes	1193	682.91	22.62	0.67

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 Table: 3

Variance Estimation Method: Taylor Series (WR)
 by: Alcohol Dependence 1=Yes 0=No, Major Depressive Episode 1=Yes 0=No.

```
-----
```

Alcohol Dependence				
1=Yes 0=No				
Major Depressive				
Episode 1=Yes	Sample	Weighted	Row	SE Row
0=No	Size	Size	Percent	Percent

Total				
Total	5692	5692.00	100.00	0.00
No	3896	4600.48	80.82	0.64
Yes	1796	1091.52	19.18	0.64
No				
Total	5249	5384.26	100.00	0.00
No	3664	4431.71	82.31	0.65
Yes	1585	952.55	17.69	0.65
Yes				
Total	443	307.74	100.00	0.00
No	232	168.77	54.84	2.90
Yes	211	138.97	45.16	2.90

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 Table: 4

Variance Estimation Method: Taylor Series (WR)
 by: Education 1=0-11 2=12 3=13-15 4=16+ Yrs, Major Depressive Episode 1=Yes 0=No.

Education 1=0-11 2=12 3=13-15 4=16+ Yrs				
Major Depressive Episode 1=Yes 0=No				
	Sample Size	Weighted Size	Row Percent	SE Row Percent

Total				
Total	5692	5692.00	100.00	0.00
No	3896	4600.48	80.82	0.64
Yes	1796	1091.52	19.18	0.64
0-11				
Total	849	953.95	100.00	0.00
No	613	798.37	83.69	1.21
Yes	236	155.57	16.31	1.21
12				
Total	1712	1851.32	100.00	0.00
No	1177	1507.90	81.45	0.83
Yes	535	343.41	18.55	0.83
13-15				
Total	1709	1567.87	100.00	0.00
No	1139	1234.72	78.75	1.04
Yes	570	333.15	21.25	1.04
16+				
Total	1422	1318.87	100.00	0.00
No	967	1059.48	80.33	1.09
Yes	455	259.39	19.67	1.09

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 Table: 5

Variance Estimation Method: Taylor Series (WR)
 by: Marital Status 1=Married 2=Previously Married 3=Never Married, Major Depressive Episode 1=Yes 0=No.

Marital Status 1=Married 2=Previously Married 3=Never Married				
Major Depressive Episode 1=Yes 0=No				
	Sample Size	Weighted Size	Row Percent	SE Row Percent

Total				
Total	5692	5692.00	100.00	0.00
No	3896	4600.48	80.82	0.64
Yes	1796	1091.52	19.18	0.64
Currently Married				
Total	3236	3184.45	100.00	0.00
No	2316	2632.70	82.67	0.74
Yes	920	551.74	17.33	0.74
Previously Married				
Total	1239	1184.42	100.00	0.00
No	750	901.32	76.10	1.45
Yes	489	283.10	23.90	1.45
Never Married				
Total	1217	1323.13	100.00	0.00
No	830	1066.45	80.60	1.15
Yes	387	256.68	19.40	1.15

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 Table: 1

Variance Estimation Method: Taylor Series (WR)

Test Statistics for Stratum-Specific Hypotheses

Variable AG4CAT by Variable MDE

by: Hypothesis Test, Test Statistic.

Hypothesis Test Test Statistic	Test Value	DF
CHISQ (Obs - Exp) Wald-F	18.1630	3
LLCHISQ (Log-Lin Model) Wald-F	20.2905	3

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Table: 2

Variance Estimation Method: Taylor Series (WR)
Test Statistics for Stratum-Specific Hypotheses
Variable SEX by Variable MDE
by: Hypothesis Test, Test Statistic.

Hypothesis Test Test Statistic	Test Value	DF
CHISQ (Obs - Exp) Wald-F	64.3848	1
LLCHISQ (Log-Lin Model) Wald-F	44.3586	1

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Table: 3

Variance Estimation Method: Taylor Series (WR)
Test Statistics for Stratum-Specific Hypotheses
Variable ALD by Variable MDE
by: Hypothesis Test, Test Statistic.

Hypothesis Test Test Statistic	Test Value	DF
CHISQ (Obs - Exp) Wald-F	97.6863	1
LLCHISQ (Log-Lin Model) Wald-F	106.1440	1

Variance Estimation Method: Taylor Series (WR)
Test Statistics for Stratum-Specific Hypotheses
Variable ED4CAT by Variable MDE
by: Hypothesis Test, Test Statistic.

Hypothesis Test Test Statistic	Test Value	DF
CHISQ (Obs - Exp) Wald-F	4.1279	3
LLCHISQ (Log-Lin Model) Wald-F	4.0298	3

Variance Estimation Method: Taylor Series (WR)
Test Statistics for Stratum-Specific Hypotheses
Variable MAR3CAT by Variable MDE
by: Hypothesis Test, Test Statistic.

Hypothesis Test Test Statistic	Test Value	DF
CHISQ (Obs - Exp) Wald-F	13.6975	2
LLCHISQ (Log-Lin Model) Wald-F	14.2810	2

Numbers for Table 8.6, 8.7, 8.8

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DESIGN SUMMARY: Variances will be computed using the Taylor Linearization Method, Assuming a With Replacement (WR) Design

Sample Weight: NCSRWTLG
Stratification Variables(s): SESTRAT
Primary Sampling Unit: SECLUSTR

Number of zero responses : 3896
Number of non-zero responses : 1796

Independence parameters have converged in 6 iterations.

Number of observations read : 5692 Weighted count: 5692
Number of observations skipped : 3590
(WEIGHT variable nonpositive)
Observations used in the analysis : 5692 Weighted count: 5692
Denominator degrees of freedom : 42

Maximum number of estimable parameters for the model is 11

File C8_NCSR contains 84 Clusters
84 clusters were used to fit the model
Maximum cluster size is 142 records
Minimum cluster size is 18 records

Sample and Population Counts for Response Variable MDE
Based on observations used in the analysis
0: Sample Count 3896 Population Count 4600
1: Sample Count 1796 Population Count 1092

R-Square for dependent variable MDE (Cox & Snell, 1989): 0.050615

-2 * Normalized Log-Likelihood with Intercepts Only : 5564.17
-2 * Normalized Log-Likelihood Full Model : 5268.53
Approximate Chi-Square (-2 * Log-L Ratio) : 295.65
Degrees of Freedom : 10

Note: The approximate Chi-Square is not adjusted for clustering.
Refer to hypothesis test table for adjusted test.

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Independent Variables and Effects.

Independent Variables and Effects	Beta Coeff.	DEFF Beta #1	SE Beta	Lower 95% Limit Beta	Upper 95% Limit Beta	T-Test B=0	P-value T-Test B=0	Var Beta
Intercept	-1.583	0.763	0.121	-1.827	-1.340	-13.120	0.000	0.015
Age 1=17-29 2=30-44 3=45-59 4=60+								
18-29	0.000	.	0.000	0.000	0.000	.	.	0.000
30-44	0.256	0.777	0.094	0.065	0.446	2.708	0.010	0.009
45-59	0.206	0.652	0.092	0.022	0.391	2.256	0.029	0.008
60+	-0.676	1.026	0.141	-0.961	-0.391	-4.783	0.000	0.020
Sex 1=Male 2=Female								
M	-0.577	1.121	0.077	-0.733	-0.422	-7.477	0.000	0.006
F	0.000	.	0.000	0.000	0.000	.	.	0.000
Alcohol Dependence 1=Yes 0=No	1.424	1.505	0.154	1.113	1.735	9.235	0.000	0.024
Education 1=0-11 2=12 3=13-15 4=16+ Yrs								
0-11	0.000	.	0.000	0.000	0.000	.	.	0.000
12	0.079	0.784	0.097	-0.116	0.275	0.818	0.418	0.009
13-15	0.231	0.689	0.093	0.043	0.418	2.477	0.017	0.009
16+	0.163	0.882	0.111	-0.060	0.386	1.473	0.148	0.012
Marital Status 1=Married 2=Previously Married 3=Never Married								
Currently Married	0.000	.	0.000	0.000	0.000	.	.	0.000
Previously Married	0.486	0.898	0.085	0.314	0.659	5.695	0.000	0.007
Never Married	0.116	1.140	0.108	-0.102	0.333	1.071	0.290	0.012

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Contrast.

Contrast	Degrees of Freedom	S _{waite} Adj DF	S _{waite} Adj F	P-value S _{waite} Adj F	S _{waite} Adj ChiSq	P-value S _{waite} ChiSq	Wald F	P-value Wald F	Adj Wald F
OVERALL MODEL	11.000	7.240	161.346	0.000	1168.105	0.000	166.125	0.000	126.572
MODEL MINUS INTERCEPT	10.000	6.766	27.490	0.000	185.992	0.000	35.726	0.000	28.070
INTERCEPT	.	.	.	.	.	.	.	.	.
AG4CAT	3.000	2.793	25.705	0.000	71.782	0.000	19.983	0.000	19.031
SEX	1.000	1.000	55.907	0.000	55.907	0.000	55.907	0.000	55.907
ALD	1.000	1.000	85.285	0.000	85.285	0.000	85.285	0.000	85.285
ED4CAT	3.000	2.805	2.122	0.115	5.953	0.100	2.236	0.098	2.130
MAR3CAT	2.000	1.872	13.604	0.000	25.468	0.000	17.008	0.000	16.603

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Contrast.

Contrast	P-value Adj Wald F	Wald ChiSq	P-value Wald ChiSq
OVERALL MODEL	0.000	1827.379	0.000
MODEL MINUS INTERCEPT	0.000	357.255	0.000
INTERCEPT	.	.	.
AG4CAT	0.000	59.949	0.000
SEX	0.000	55.907	0.000
ALD	0.000	85.285	0.000
ED4CAT	0.112	6.709	0.082
MAR3CAT	0.000	34.016	0.000

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Independent Variables and Effects.

Independent Variables and Effects	Odds Ratio	Lower 95% Limit OR	Upper 95% Limit OR
Intercept	0.205	0.161	0.262
Age 1=17-29 2=30-44 3=45-59 4=60+			
18-29	1.000	1.000	1.000
30-44	1.291	1.067	1.562
45-59	1.229	1.022	1.479
60+	0.509	0.383	0.677
Sex 1=Male 2=Female			
M	0.561	0.480	0.656
F	1.000	1.000	1.000
Alcohol Dependence 1=Yes 0=No	4.152	3.042	5.668
Education 1=0-11 2=12 3=13-15 4=16+ Yrs			
0-11	1.000	1.000	1.000
12	1.082	0.890	1.316
13-15	1.259	1.044	1.519
16+	1.177	0.941	1.471
Marital Status 1=Married 2=Previously Married 3=Never Married			
Currently Married	1.000	1.000	1.000
Previously Married	1.626	1.369	1.932
Never Married	1.123	0.903	1.396

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 Hosmer-Lemeshow Goodness-of-Fit Test Statistics

H-L Chi-Square	H-L ChiSq DF	H-L ChiSq P-value	H-L Wald F	H-L Wald P-value	H-L Sattert-hwaite F	H-L Sattert-hwaite Adjusted DF	H-L Sattert-hwaite P-value	
2.623	8.000	0.956	0.507	9.000	0.861	0.415	5.920	0.863

Interaction Testing for Preliminary Model Predicting MDE Outcome

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DESIGN SUMMARY: Variances will be computed using the Taylor Linearization Method, Assuming a With Replacement (WR) Design
Sample Weight: NCSRWTLG
Stratification Variables(s): SESTRAT
Primary Sampling Unit: SECLUSTR

Number of zero responses : 3896
Number of non-zero responses : 1796

Independence parameters have converged in 7 iterations.

Number of observations read : 5692 Weighted count: 5692
Number of observations skipped : 3590
(WEIGHT variable nonpositive)
Observations used in the analysis : 5692 Weighted count: 5692
Denominator degrees of freedom : 42

Maximum number of estimable parameters for the model is 20

File C8_NCSR contains 84 Clusters
84 clusters were used to fit the model
Maximum cluster size is 142 records
Minimum cluster size is 18 records

Sample and Population Counts for Response Variable MDE
Based on observations used in the analysis
0: Sample Count 3896 Population Count 4600
1: Sample Count 1796 Population Count 1092

R-Square for dependent variable MDE (Cox & Snell, 1989): 0.051227

-2 * Normalized Log-Likelihood with Intercepts Only : 5564.17
-2 * Normalized Log-Likelihood Full Model : 5264.86
Approximate Chi-Square (-2 * Log-L Ratio) : 299.32
Degrees of Freedom : 19

Note: The approximate Chi-Square is not adjusted for clustering.
Refer to hypothesis test table for adjusted test.

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Independent Variables and Effects.

Independent Variables and Effects	Beta Coeff.	DEFF Beta #1	SE Beta	Lower 95% Limit Beta	Upper 95% Limit Beta	T-Test B=0	P-value T-Test B=0	Var Beta
Intercept	-1.600	0.558	0.134	-1.870	-1.329	-11.939	0.000	0.018
Age 1=17-29 2=30-44 3=45-59 4=60+								
18-29	0.000	.	0.000	0.000	0.000	.	.	0.000
30-44	0.220	0.646	0.114	-0.009	0.450	1.937	0.059	0.013
45-59	0.215	0.483	0.102	0.008	0.421	2.094	0.042	0.011
60+	-0.646	0.982	0.175	-0.999	-0.292	-3.685	0.001	0.031
Sex 1=Male 2=Female								
M	-0.546	1.730	0.357	-1.267	0.174	-1.530	0.134	0.128
F	0.000	.	0.000	0.000	0.000	.	.	0.000
Alcohol Dependence 1=Yes 0=No	1.553	0.926	0.211	1.127	1.979	7.360	0.000	0.045
Education 1=0-11 2=12 3=13-15 4=16+ Yrs								
0-11	0.000	.	0.000	0.000	0.000	.	.	0.000
12	0.131	0.337	0.084	-0.038	0.299	1.559	0.126	0.007
13-15	0.297	0.629	0.117	0.061	0.534	2.540	0.015	0.014
16+	0.242	0.952	0.152	-0.064	0.549	1.595	0.118	0.023
Marital Status 1=Married 2=Previously Married 3=Never Married								
Currently Married	0.000	.	0.000	0.000	0.000	.	.	0.000
Previously Married	0.418	0.948	0.111	0.195	0.641	3.780	0.000	0.012
Never Married	0.017	0.940	0.130	-0.245	0.279	0.134	0.894	0.017
Age 1=17-29 2=30-44 3=45-59 4=60+, Sex 1=Male 2=Female								
18-29, M	0.000	.	0.000	0.000	0.000	.	.	0.000
18-29, F	0.000	.	0.000	0.000	0.000	.	.	0.000
30-44, M	0.097	0.864	0.201	-0.309	0.502	0.482	0.633	0.040
30-44, F	0.000	.	0.000	0.000	0.000	.	.	0.000
45-59, M	0.003	0.853	0.213	-0.427	0.432	0.012	0.990	0.045
45-59, F	0.000	.	0.000	0.000	0.000	.	.	0.000
60+, M	-0.038	1.073	0.302	-0.647	0.572	-0.125	0.901	0.091
60+, F	0.000	.	0.000	0.000	0.000	.	.	0.000
Alcohol Dependence 1=Yes 0=No, Sex 1=Male 2=Female								
1, M	-0.200	0.811	0.242	-0.689	0.288	-0.827	0.413	0.059
1, F	0.000	.	0.000	0.000	0.000	.	.	0.000

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Independent Variables and Effects.

Independent Variables and Effects	Beta Coeff.	DEFF Beta #1	SE Beta	Lower 95% Limit Beta	Upper 95% Limit Beta	T-Test B=0	P-value T-Test B=0	Var Beta

Education 1=0-11 2=12 3=13-15 4=16+ Yrs, Sex 1=Male 2=Female								
0-11, M	0.000	.	0.000	0.000	0.000	.	.	0.000
0-11, F	0.000	.	0.000	0.000	0.000	.	.	0.000
12, M	-0.138	1.484	0.271	-0.685	0.409	-0.508	0.614	0.073
12, F	0.000	.	0.000	0.000	0.000	.	.	0.000
13-15, M	-0.169	1.400	0.269	-0.712	0.375	-0.627	0.534	0.073
13-15, F	0.000	.	0.000	0.000	0.000	.	.	0.000
16+, M	-0.194	2.087	0.344	-0.889	0.501	-0.564	0.576	0.118
16+, F	0.000	.	0.000	0.000	0.000	.	.	0.000

Marital Status 1=Married 2=Previously Married 3=Never Married, Sex 1=Male 2=Female Currently Married, M								
Currently Married, F	0.000	.	0.000	0.000	0.000	.	.	0.000
Previously Married, M	0.183	1.212	0.208	-0.237	0.602	0.878	0.385	0.043
Previously Married, F	0.000	.	0.000	0.000	0.000	.	.	0.000
Never Married, M	0.232	1.079	0.212	-0.196	0.660	1.094	0.280	0.045
Never Married, F	0.000	.	0.000	0.000	0.000	.	.	0.000

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Contrast.

Contrast	Degrees of Freedom	S _{waite} Adj DF	S _{waite} Adj F	P-value S _{waite} Adj F	S _{waite} Adj ChiSq	P-value S _{waite} ChiSq	Wald F	P-value Wald F	Adj Wald F
OVERALL MODEL	20.000	8.636	86.099	0.000	743.526	0.000	143.070	0.000	78.348
MODEL MINUS INTERCEPT	19.000	8.425	13.683	0.000	115.287	0.000	30.012	0.000	17.150
INTERCEPT	.	.	.	.	.	.	.	.	.
AG4CAT	.	.	.	.	.	.	.	.	.
SEX	.	.	.	.	.	.	.	.	.
ALD	.	.	.	.	.	.	.	.	.
ED4CAT	.	.	.	.	.	.	.	.	.
MAR3CAT	.	.	.	.	.	.	.	.	.
AG4CAT * SEX	3.000	2.449	0.153	0.896	0.374	0.896	0.260	0.854	0.248
ALD * SEX	1.000	1.000	0.684	0.413	0.684	0.408	0.684	0.413	0.684
ED4CAT * SEX	3.000	2.283	0.207	0.841	0.473	0.840	0.132	0.941	0.126
MAR3CAT * SEX	2.000	1.987	0.814	0.449	1.617	0.442	0.784	0.463	0.765

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Contrast.

Contrast	P-value Adj Wald F	Wald ChiSq	P-value Wald ChiSq
OVERALL MODEL	0.000	2861.407	0.000
MODEL MINUS INTERCEPT	0.000	570.232	0.000
INTERCEPT	.	.	.
AG4CAT	.	.	.
SEX	.	.	.
ALD	.	.	.
ED4CAT	.	.	.
MAR3CAT	.	.	.
AG4CAT * SEX	0.863	0.780	0.854
ALD * SEX	0.413	0.684	0.408
ED4CAT * SEX	0.944	0.395	0.941
MAR3CAT * SEX	0.472	1.567	0.457

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Independent Variables and Effects.

```

-----
Independent
Variables and
Effects
Odds
Ratio
Lower
95%
Limit OR
Upper
95%
Limit OR
-----
Intercept
0.202
0.154
0.265
Age 1=17-29 2=30-44
3=45-59 4=60+
18-29
1.000
1.000
1.000
30-44
1.247
0.991
1.568
45-59
1.239
1.008
1.524
60+
0.524
0.368
0.747
Sex 1=Male 2=Female
M
0.579
0.282
1.190
F
1.000
1.000
1.000
Alcohol Dependence
1=Yes 0=No
4.726
3.087
7.236
Education 1=0-11
2=12 3=13-15 4=16+
Yrs
0-11
1.000
1.000
1.000
12
1.139
0.962
1.349
13-15
1.346
1.063
1.705
16+
1.274
0.938
1.731
Marital Status
1=Married
2=Previously
Married 3=Never
Married
Currently Married
1.000
1.000
1.000
Previously Married
1.519
1.215
1.898
Never Married
1.017
0.783
1.322
Age 1=17-29 2=30-44
3=45-59 4=60+, Sex
1=Male 2=Female
18-29, M
1.000
1.000
1.000
18-29, F
1.000
1.000
1.000
30-44, M
1.102
0.734
1.652
30-44, F
1.000
1.000
1.000
45-59, M
1.003
0.653
1.541
45-59, F
1.000
1.000
1.000
60+, M
0.963
0.523
1.771
60+, F
1.000
1.000
1.000
Alcohol Dependence
1=Yes 0=No, Sex
1=Male 2=Female
1, M
0.818
0.502
1.334
1, F
1.000
1.000
1.000
-----
  
```

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 by: Independent Variables and Effects.

Independent Variables and Effects	Odds Ratio	Lower 95% Limit OR	Upper 95% Limit OR
Education 1=0-11 2=12 3=13-15 4=16+ Yrs, Sex 1=Male 2=Female			
0-11, M	1.000	1.000	1.000
0-11, F	1.000	1.000	1.000
12, M	0.871	0.504	1.506
12, F	1.000	1.000	1.000
13-15, M	0.845	0.490	1.455
13-15, F	1.000	1.000	1.000
16+, M	0.824	0.411	1.650
16+, F	1.000	1.000	1.000
Marital Status 1=Married 2=Previously Married 3=Never Married, Sex 1=Male 2=Female Currently Married, M	1.000	1.000	1.000
Currently Married, F	1.000	1.000	1.000
Previously Married, M	1.200	0.789	1.826
Previously Married, F	1.000	1.000	1.000
Never Married, M	1.261	0.822	1.934
Never Married, F	1.000	1.000	1.000

Variance Estimation Method: Taylor Series (WR)
 SE Method: Robust (Binder, 1983)
 Working Correlations: Independent
 Link Function: Logit
 Response variable MDE: Major Depressive Episode 1=Yes 0=No
 Hosmer-Lemeshow Goodness-of-Fit Test Statistics

H-L Chi-Square	H-L ChiSq DF	H-L ChiSq P-value	H-L Wald F	H-L DF	H-L Wald P-value	H-L Sattert-hwaite F	H-L Sattert-hwaite Adjusted DF	H-L Sattert-hwaite P-value
5.465	8.000	0.707	1.242	9.000	0.297	1.215	5.662	0.318

Numbers for Table 8.6, 8.7, 8.8

S U D A A N

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Release 11.0.1

DESIGN SUMMARY: Variances will be computed using the Taylor Linearization Method, Assuming a With Replacement (WR) Design

Sample Weight: NCSRWTLG
Stratification Variables(s): SESTRAT
Primary Sampling Unit: SECLUSTR

Number of zero responses : 3896
Number of non-zero responses : 1796

Independence parameters have converged in 6 iterations.

Number of observations read : 5692 Weighted count: 5692
Number of observations skipped : 3590
(WEIGHT variable nonpositive)
Observations used in the analysis : 5692 Weighted count: 5692
Denominator degrees of freedom : 42

Maximum number of estimable parameters for the model is 11

File C8_NCSR contains 84 Clusters
84 clusters were used to fit the model
Maximum cluster size is 142 records
Minimum cluster size is 18 records

Sample and Population Counts for Response Variable MDE
Based on observations used in the analysis
0: Sample Count 3896 Population Count 4600
1: Sample Count 1796 Population Count 1092

R-Square for dependent variable MDE (Cox & Snell, 1989): 0.050615

-2 * Normalized Log-Likelihood with Intercepts Only : 5564.17
-2 * Normalized Log-Likelihood Full Model : 5268.53
Approximate Chi-Square (-2 * Log-L Ratio) : 295.65
Degrees of Freedom : 10

Note: The approximate Chi-Square is not adjusted for clustering.
Refer to hypothesis test table for adjusted test.

Variance Estimation Method: Taylor Series (WR)
SE Method: Robust (Binder, 1983)
Working Correlations: Independent
Link Function: Logit
Response variable MDE: Major Depressive Episode 1=Yes 0=No
by: Independent Variables and Effects.

Independent Variables and Effects	Beta Coeff.	DEFF Beta #1	SE Beta	Lower 95% Limit Beta	Upper 95% Limit Beta	T-Test B=0	P-value T-Test B=0	Var Beta
Intercept	-1.583	0.763	0.121	-1.827	-1.340	-13.120	0.000	0.015
Age 1=17-29 2=30-44 3=45-59 4=60+								
18-29	0.000	.	0.000	0.000	0.000	.	.	0.000
30-44	0.256	0.777	0.094	0.065	0.446	2.708	0.010	0.009
45-59	0.206	0.652	0.092	0.022	0.391	2.256	0.029	0.008
60+	-0.676	1.026	0.141	-0.961	-0.391	-4.783	0.000	0.020
Sex 1=Male 2=Female								
M	-0.577	1.121	0.077	-0.733	-0.422	-7.477	0.000	0.006
F	0.000	.	0.000	0.000	0.000	.	.	0.000
Alcohol Dependence 1=Yes 0=No	1.424	1.505	0.154	1.113	1.735	9.235	0.000	0.024
Education 1=0-11 2=12 3=13-15 4=16+ Yrs								
0-11	0.000	.	0.000	0.000	0.000	.	.	0.000
12	0.079	0.784	0.097	-0.116	0.275	0.818	0.418	0.009
13-15	0.231	0.689	0.093	0.043	0.418	2.477	0.017	0.009
16+	0.163	0.882	0.111	-0.060	0.386	1.473	0.148	0.012
Marital Status 1=Married 2=Previously Married 3=Never Married								
Currently Married	0.000	.	0.000	0.000	0.000	.	.	0.000
Previously Married	0.486	0.898	0.085	0.314	0.659	5.695	0.000	0.007
Never Married	0.116	1.140	0.108	-0.102	0.333	1.071	0.290	0.012

Variance Estimation Method: Taylor Series (WR)
SE Method: Robust (Binder, 1983)
Working Correlations: Independent
Link Function: Logit
Response variable MDE: Major Depressive Episode 1=Yes 0=No
by: Contrast.

Contrast	Degrees of Freedom	S_waite Adj DF	S_waite Adj F	P-value S_waite Adj F	S_waite Adj ChiSq	P-value S_waite ChiSq	Wald F	P-value Wald F	Adj Wald F
OVERALL MODEL	11.000	7.240	161.346	0.000	1168.105	0.000	166.125	0.000	126.572
MODEL MINUS INTERCEPT	10.000	6.766	27.490	0.000	185.992	0.000	35.726	0.000	28.070
INTERCEPT	.	.	.	.	.	.	.	.	.
AG4CAT	3.000	2.793	25.705	0.000	71.782	0.000	19.983	0.000	19.031
SEX	1.000	1.000	55.907	0.000	55.907	0.000	55.907	0.000	55.907
ALD	1.000	1.000	85.285	0.000	85.285	0.000	85.285	0.000	85.285
ED4CAT	3.000	2.805	2.122	0.115	5.953	0.100	2.236	0.098	2.130
MAR3CAT	2.000	1.872	13.604	0.000	25.468	0.000	17.008	0.000	16.603

Variance Estimation Method: Taylor Series (WR)
SE Method: Robust (Binder, 1983)
Working Correlations: Independent
Link Function: Logit
Response variable MDE: Major Depressive Episode 1=Yes 0=No
by: Contrast.

Contrast	P-value		P-value	
	Adj F	Wald	Wald	Wald
		ChiSq	ChiSq	
OVERALL MODEL	0.000	1827.379	0.000	
MODEL MINUS				
INTERCEPT	0.000	357.255	0.000	
INTERCEPT	.	.	.	
AG4CAT	0.000	59.949	0.000	
SEX	0.000	55.907	0.000	
ALD	0.000	85.285	0.000	
ED4CAT	0.112	6.709	0.082	
MAR3CAT	0.000	34.016	0.000	

Variance Estimation Method: Taylor Series (WR)
SE Method: Robust (Binder, 1983)
Working Correlations: Independent
Link Function: Logit
Response variable MDE: Major Depressive Episode 1=Yes 0=No
by: Independent Variables and Effects.

Independent Variables and Effects	Odds Ratio	Lower	Upper
		95% Limit OR	95% Limit OR
Intercept	0.205	0.161	0.262
Age 1=17-29 2=30-44 3=45-59 4=60+			
18-29	1.000	1.000	1.000
30-44	1.291	1.067	1.562
45-59	1.229	1.022	1.479
60+	0.509	0.383	0.677
Sex 1=Male 2=Female			
M	0.561	0.480	0.656
F	1.000	1.000	1.000
Alcohol Dependence 1=Yes 0=No	4.152	3.042	5.668
Education 1=0-11 2=12 3=13-15 4=16+ Yrs			
0-11	1.000	1.000	1.000
12	1.082	0.890	1.316
13-15	1.259	1.044	1.519
16+	1.177	0.941	1.471
Marital Status 1=Married 2=Previously Married 3=Never Married			
Currently Married	1.000	1.000	1.000
Previously Married	1.626	1.369	1.932
Never Married	1.123	0.903	1.396

Variance Estimation Method: Taylor Series (WR)
SE Method: Robust (Binder, 1983)
Working Correlations: Independent
Link Function: Logit
Response variable MDE: Major Depressive Episode 1=Yes 0=No
Hosmer-Lemeshow Goodness-of-Fit Test Statistics

H-L Chi-Square	H-L ChiSq DF	H-L ChiSq P-value	H-L Wald F	H-L DF	H-L Wald P-value	H-L Sattert-hwaite F	H-L Sattert-hwaite Adjusted DF	H-L Sattert-hwaite P-value
2.623	8.000	0.956	0.507	9.000	0.861	0.415	5.920	0.863

Note: Currently checking to see how to produce average marginal effects from Sudaan, not yet clear if this can be as in Stata.

Note: Numbers for Table 8.6, 8.7, 8.8 not available for Probit and CLOGLOG Models because this options are not available in Sudaan.