

## CHAPTER 8 ASDA ANALYSIS EXAMPLES REPLICATION-SUDAAN 10.0.1

### GENERAL NOTES ABOUT ANALYSIS EXAMPLES REPLICATION

These examples are intended to provide guidance on how to use the commands/procedures for analysis of complex sample survey data and assume all data management and other preliminary work is done. The relevant syntax for the procedure of interest is shown first along with the associated output for that procedure(s). In some examples, there may be more than one block of syntax and in this case all syntax is first presented followed by the output produced.

In some software packages certain procedures or options are not available but we have made every attempt to demonstrate how to match the output produced by Stata 10+ in the textbook. Check the ASDA website for updates to the various software tools we cover.

### NOTES ABOUT LOGISTIC REGRESSION ANALYSIS IN SUDAAN 10.0.1

The analysis replication examples were all run using SAS-callable SUDAAN version 10.0.1. There are very few differences between SAS-callable and stand-alone SUDAAN with the exception of the names of the procedures are sometimes slightly different as to avoid confusion with SAS procedures.

SUDAAN does not offer the ability to perform graphical analyses within the program therefore are not included in this output however output data sets can be saved and used in other software packages, see Chapter 7 for an example of saving output for use in SAS.

SUDAAN PROC LOGIST (RLOGIST FOR SAS-CALLABLE SUDAAN) can perform all of the analyses presented in Chapter 8 of ASDA with the exception of the Probit and Complementary Log-Log regressions included as a comparison to the logit link. Some of the fine points of these procedures are the use of a SUBPOPN statement for subpopulation analyses, a CLASS statement for declaration of categorical variables, RFORMAT and REFLEVEL for use with formatted variables and optional reference level changes, and a TEST statement for hypothesis tests and many other options for analysis/output. Please see the Sudaan 10.0.1 Language and Examples Guides for additional detail.

\*Bivariate Testing using PROC CROSSTAB (COULD ALSO BE DONE IN PROC RLOGIST) ;

```
title "Analysis Example 8.1: Predictors of Lifetime MDE in the NCS-R Data" ;
proc crosstab data=ncsr filetype=sas deff;
nest sestrat seclustr ;
weight ncsrwtlg ;
rformat ag4cat agf. ; rformat sex sf. ; rformat ed4cat edf. ; rformat mar3cat marf. ; rformat mde mdef. ;
    rformat ald aldf. ;
class ag4cat sex ald ed4cat mar3cat mde / nofreq;
tables (ag4cat sex ald ed4cat mar3cat)*mde ;
test chisq llchisq ;
print nsum wsum rowper serow chisq chisqdf chisqp / style=nchs ;
setenv colwidth=7 ;
run ;
Analysis Example 8.1: Predictors of Lifetime MDE in the NCS-R 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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Variance Estimation Method: Taylor Series (WR)  
by: AG4CAT, MDE.

-----

AG4CAT	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
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

-----

Variance Estimation Method: Taylor Series (WR)  
by: Sex, MDE.

---

Sex	MDE	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
Male					
	Total	2382	2672.56	100.00	0.00
	No	1779	2263.94	84.71	0.91
	Yes	603	408.61	15.29	0.91
Female					
	Total	3310	3019.44	100.00	0.00
	No	2117	2336.53	77.38	0.67
	Yes	1193	682.91	22.62	0.67

---

Variance Estimation Method: Taylor Series (WR)  
by: ALD, MDE.

---

ALD	MDE	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					
	Total	5249	5384.26	100.00	0.00
	No	3664	4431.71	82.31	0.65
	Yes	1585	952.55	17.69	0.65
1					
	Total	443	307.74	100.00	0.00
	No	232	168.77	54.84	2.90
	Yes	211	138.97	45.16	2.90

---

Variance Estimation Method: Taylor Series (WR)  
 by: Years of education-4 categories, MDE.

Years of education-4 categories MDE	Sample Size	Weighted Size	Row Percent	SE Row Percent
<b>Total</b>				
Total	5692	5692.00	100.00	0.00
No	3896	4600.48	80.82	0.64
Yes	1796	1091.52	19.18	0.64
<b>0-11 Yrs</b>				
Total	849	953.95	100.00	0.00
No	613	798.37	83.69	1.21
Yes	236	155.57	16.31	1.21
<b>12 Yrs</b>				
Total	1712	1851.32	100.00	0.00
No	1177	1507.90	81.45	0.83
Yes	535	343.41	18.55	0.83
<b>13-15 Yrs</b>				
Total	1709	1567.87	100.00	0.00
No	1139	1234.72	78.75	1.04
Yes	570	333.15	21.25	1.04
<b>16+ Yrs</b>				
Total	1422	1318.87	100.00	0.00
No	967	1059.48	80.33	1.09
Yes	455	259.39	19.67	1.09

Variance Estimation Method: Taylor Series (WR)  
 by: Marital Status-3 categories, MDE.

Marital Status-3 categories MDE	Sample Size	Weighted Size	Row Percent	SE Row Percent
<b>Total</b>				
Total	5692	5692.00	100.00	0.00
No	3896	4600.48	80.82	0.64
Yes	1796	1091.52	19.18	0.64
<b>Married</b>				
Total	3236	3184.45	100.00	0.00
No	2316	2632.70	82.67	0.74
Yes	920	551.74	17.33	0.74
<b>Previously Married</b>				
Total	1239	1184.42	100.00	0.00
No	750	901.32	76.10	1.45
Yes	489	283.10	23.90	1.45
<b>Never Married</b>				
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)  
Chi Square Test of Independence for AG4CAT and MDE

-----

ChiSq	Deg- rees of Fre- edom Chi- Sq	P-value ChiSq
18.16	3	0.0000

-----

Date: 04-01-2010  
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Table: 2

Variance Estimation Method: Taylor Series (WR)  
Chi Square Test of Independence for Sex and MDE

-----

ChiSq	Deg- rees of Fre- edom Chi- Sq	P-value ChiSq
64.38	1	0.0000

-----

Date: 04-01-2010  
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SUDAAN

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Table: 3

Variance Estimation Method: Taylor Series (WR)  
Chi Square Test of Independence for ALD and MDE

-----

ChiSq	Deg- rees of Fre- edom Chi- Sq	P-value ChiSq
97.69	1	0.0000

-----

Variance Estimation Method: Taylor Series (WR)  
Chi Square Test of Independence for Years of education-4 categories and MDE

-----

ChiSq	Deg- rees of Fre- edom Chi- Sq	P-value ChiSq
4.13	3	0.0118

-----

Variance Estimation Method: Taylor Series (WR)  
Chi Square Test of Independence for Marital Status-3 categories and MDE

-----

ChiSq	Deg- rees of Fre- edom Chi- Sq	P-value ChiSq
13.70	2	0.0000

-----

```

title "Analysis Example 8.1: Logistic Regression with Binary Outcome: NCSR" ;
* note: no analogous test in SAS for svylogitgof ;
* note: use of rlogist for SAS-callable Sudaan, use proc logist for stand-alone Sudaan ;

proc rlogist data=ncsr filetype=sas deft1 ;
nest sestrat seclustr ;
weight ncsrwtlg ;
rformat ag4cat agf. ; rformat sex sf. ; rformat ed4cat edf. ; rformat mar3cat marf. ; rformat mde mdef. ;
      rformat ald aldf. ;
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 ;

```

Analysis Example 8.1: Logistic Regression with Binary Outcome: NCSR

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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 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: MDE

by: Independent Variables and Effects.

Independent Variables and Effects	Beta Coeff.	DEFF Beta #1	SE Beta	Lower	Upper
				95% Limit Beta	95% Limit Beta
Intercept	-1.583	0.763	0.121	-1.827	-1.340
AG4CAT					
18-29	0.000	.	0.000	0.000	0.000
30-44	0.256	0.777	0.094	0.065	0.446
45-59	0.206	0.652	0.092	0.022	0.391
60+	-0.676	1.026	0.141	-0.961	-0.391
Sex					
Male	-0.577	1.121	0.077	-0.733	-0.422
Female	0.000	.	0.000	0.000	0.000
ALD	1.424	1.505	0.154	1.113	1.735
Years of education-4 categories					
0-11 Yrs	0.000	.	0.000	0.000	0.000
12 Yrs	0.079	0.784	0.097	-0.116	0.275
13-15 Yrs	0.231	0.689	0.093	0.043	0.418
16+ Yrs	0.163	0.882	0.111	-0.060	0.386
Marital Status-3 categories					
Married	0.000	.	0.000	0.000	0.000
Previously Married	0.486	0.898	0.085	0.314	0.659
Never Married	0.116	1.140	0.108	-0.102	0.333

Variance Estimation Method: Taylor Series (WR)

SE Method: Robust (Binder, 1983)

Working Correlations: Independent

Link Function: Logit

Response variable MDE: MDE

by: Independent Variables and Effects.

Independent Variables and Effects	P-value		Var Beta
	T-Test B=0	T-Test B=0	
Intercept	-13.120	0.000	0.015
AG4CAT			
18-29	.	.	0.000
30-44	2.708	0.010	0.009
45-59	2.256	0.029	0.008
60+	-4.783	0.000	0.020
Sex			
Male	-7.477	0.000	0.006
Female	.	.	0.000
ALD	9.235	0.000	0.024
Years of education-4 categories			
0-11 Yrs	.	.	0.000
12 Yrs	0.818	0.418	0.009
13-15 Yrs	2.477	0.017	0.009
16+ Yrs	1.473	0.148	0.012
Marital Status-3 categories			
Married	.	.	0.000
Previously Married	5.695	0.000	0.007
Never Married	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: MDE  
 by: Contrast.

Contrast	Degrees of Freedom	S_waite Adj DF	S_waite Adj F	P-value S_waite Adj F	S_waite Adj ChiSq
OVERALL MODEL	11.000	7.240	161.346	0.000	1168.105
MODEL MINUS INTERCEPT	10.000	6.766	27.490	0.000	185.992
INTERCEPT	.	.	.	.	.
AG4CAT	3.000	2.793	25.705	0.000	71.782
SEX	1.000	1.000	55.907	0.000	55.907
ALD	1.000	1.000	85.285	0.000	85.285
ED4CAT	3.000	2.805	2.122	0.115	5.953
MAR3CAT	2.000	1.872	13.604	0.000	25.468

Variance Estimation Method: Taylor Series (WR)  
 SE Method: Robust (Binder, 1983)  
 Working Correlations: Independent  
 Link Function: Logit  
 Response variable MDE: MDE  
 by: Contrast.

Contrast	P-value S_waite ChiSq	Wald F	P-value Wald F	Adj Wald F	P-value Adj Wald F
OVERALL MODEL	0.000	166.125	0.000	126.572	0.000
MODEL MINUS INTERCEPT	0.000	35.726	0.000	28.070	0.000
INTERCEPT	.	.	.	.	.
AG4CAT	0.000	19.983	0.000	19.031	0.000
SEX	0.000	55.907	0.000	55.907	0.000
ALD	0.000	85.285	0.000	85.285	0.000
ED4CAT	0.100	2.236	0.098	2.130	0.112
MAR3CAT	0.000	17.008	0.000	16.603	0.000

Variance Estimation Method: Taylor Series (WR)  
 SE Method: Robust (Binder, 1983)  
 Working Correlations: Independent  
 Link Function: Logit  
 Response variable MDE: MDE  
 by: Contrast.

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

Variance Estimation Method: Taylor Series (WR)  
 SE Method: Robust (Binder, 1983)  
 Working Correlations: Independent  
 Link Function: Logit  
 Response variable MDE: MDE  
 by: Independent Variables and Effects.

Independent Variables and Effects	Odds Ratio	95% Limit OR	
		Lower 95% Limit OR	Upper 95% Limit OR
Intercept	0.205	0.161	0.262
AG4CAT			
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			
Male	0.561	0.480	0.656
Female	1.000	1.000	1.000
ALD	4.152	3.042	5.668
Years of education-4 categories			
0-11 Yrs	1.000	1.000	1.000
12 Yrs	1.082	0.890	1.316
13-15 Yrs	1.259	1.044	1.519
16+ Yrs	1.177	0.941	1.471
Marital Status-3 categories			
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: MDE  
Hosmer-Lemeshow Goodness-of-Fit Test Statistics

---

H-L Chi-Square	H-L ChiSq DF	H-L ChiSq value	P-value	H-L Wald F	H-L DF
2.623	8.000	0.956		0.507	9.000

---

Variance Estimation Method: Taylor Series (WR)  
SE Method: Robust (Binder, 1983)  
Working Correlations: Independent  
Link Function: Logit  
Response variable MDE: MDE  
Hosmer-Lemeshow Goodness-of-Fit Test Statistics

---

H-L Wald P-value	H-L Sattert-hwaite F	H-L Sattert-Adjusted DF	H-L Sattert-hwaite P-value
0.861	0.415	5.920	0.863

---

```

rsubmit ; options ls=125 ps=65 ;
title "Analysis Example 8.1: Logistic Regression with Binary Outcome and Interaction Variables: NCSR" ;
proc rlogist data=ncsr filetype=sas deft1 ;
nest sestrat seclustr ;
weight ncsrwtlg ;
rformat ag4cat agf. ; rformat sex sf. ; rformat ed4cat edf. ; rformat mar3cat marf. ; rformat mde mdef. ;
      rformat ald aldf. ;
class ag4cat ed4cat mar3cat sex / nofreq;
reflevel ag4cat=1 ed4cat=1 mar3cat=1 sex=2 ;
model mde=ag4cat sexm ald ed4cat mar3cat ag4cat*sex ald*sex ed4cat*sex mar3cat*sex ;
setenv decwidth=3 ;
print or lowor upor / betas=all tests=all ;
run ;

```

Analysis Example 8.1: Logistic Regression with Binary Outcome and Interaction Variables: NCSR

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 Release 10.0.1

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 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 21

File 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: MDE  
 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
AG4CAT								
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
SEXM	-0.546	1.730	0.357	-1.267	0.174	-1.530	0.134	0.128
ALD	1.553	0.926	0.211	1.127	1.979	7.360	0.000	0.045
Years of education-4 categories								
0-11 Yrs	0.000	.	0.000	0.000	0.000	.	.	0.000
12 Yrs	0.131	0.337	0.084	-0.038	0.299	1.559	0.126	0.007
13-15 Yrs	0.297	0.629	0.117	0.061	0.534	2.540	0.015	0.014
16+ Yrs	0.242	0.952	0.152	-0.064	0.549	1.595	0.118	0.023
Marital Status-3 categories								
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
AG4CAT, Sex								
18-29, Male	0.000	.	0.000	0.000	0.000	.	.	0.000
18-29, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
30-44, Male	0.097	0.864	0.201	-0.309	0.502	0.482	0.633	0.040
30-44, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
45-59, Male	0.003	0.853	0.213	-0.427	0.432	0.012	0.990	0.045
45-59, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
60+, Male	-0.038	1.073	0.302	-0.647	0.572	-0.125	0.901	0.091
60+, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
ALD, Sex								
1, Male	-0.200	0.811	0.242	-0.689	0.288	-0.827	0.413	0.059
1, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
Years of education-4 categories, Sex								
0-11 Yrs, Male	0.000	.	0.000	0.000	0.000	.	.	0.000
0-11 Yrs, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
12 Yrs, Male	-0.138	1.484	0.271	-0.685	0.409	-0.508	0.614	0.073
12 Yrs, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
13-15 Yrs, Male	-0.169	1.400	0.269	-0.712	0.375	-0.627	0.534	0.073
13-15 Yrs, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
16+ Yrs, Male	-0.194	2.087	0.344	-0.889	0.501	-0.564	0.576	0.118
16+ Yrs, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
Marital Status-3 categories, Sex								
Married, Male	0.000	.	0.000	0.000	0.000	.	.	0.000
Married, Female	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: MDE  
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
Marital Status-3 categories, Sex								
Previously Married, Male	0.183	1.212	0.208	-0.237	0.602	0.878	0.385	0.043
Previously Married, Female	0.000	.	0.000	0.000	0.000	.	.	0.000
Never Married, Male	0.232	1.079	0.212	-0.196	0.660	1.094	0.280	0.045
Never Married, Female	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: MDE  
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
OVERALL MODEL	20.000	8.636	86.099	0.000	743.526	0.000	143.070	0.000
MODEL MINUS INTERCEPT	19.000	8.425	13.683	0.000	115.287	0.000	30.012	0.000
INTERCEPT	.	.	.	.	.	.	.	.
AG4CAT	.	.	.	.	.	.	.	.
SEXM	.	.	.	.	.	.	.	.
ALD	.	.	.	.	.	.	.	.
ED4CAT	.	.	.	.	.	.	.	.
MAR3CAT	.	.	.	.	.	.	.	.
AG4CAT * SEX	3.000	2.449	0.153	0.896	0.374	0.896	0.260	0.854
ALD * SEX	1.000	1.000	0.684	0.413	0.684	0.408	0.684	0.413
ED4CAT * SEX	3.000	2.283	0.207	0.841	0.473	0.840	0.132	0.941
MAR3CAT * SEX	2.000	1.987	0.814	0.449	1.617	0.442	0.784	0.463

Variance Estimation Method: Taylor Series (WR)  
 SE Method: Robust (Binder, 1983)  
 Working Correlations: Independent  
 Link Function: Logit  
 Response variable MDE: MDE  
 by: Contrast.

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Contrast                P-value      P-value
                        Adj Wald      Wald
                        F          F          Wald ChiSq  Wald
                        F          F          ChiSq      ChiSq
-----
OVERALL MODEL          78.348      0.000      2861.407    0.000
MODEL MINUS
  INTERCEPT          17.150      0.000      570.232     0.000
INTERCEPT            .            .            .            .
AG4CAT                 .            .            .            .
SEXM                   .            .            .            .
ALD                    .            .            .            .
ED4CAT                 .            .            .            .
MAR3CAT                .            .            .            .
AG4CAT * SEX           0.248      0.863      0.780       0.854
ALD * SEX              0.684      0.413      0.684       0.408
ED4CAT * SEX           0.126      0.944      0.395       0.941
MAR3CAT * SEX          0.765      0.472      1.567       0.457
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Variance Estimation Method: Taylor Series (WR)  
 SE Method: Robust (Binder, 1983)  
 Working Correlations: Independent  
 Link Function: Logit  
 Response variable MDE: MDE  
 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
AG4CAT			
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
SEXM	0.579	0.282	1.190
ALD	4.726	3.087	7.236
Years of education-4 categories			
0-11 Yrs	1.000	1.000	1.000
12 Yrs	1.139	0.962	1.349
13-15 Yrs	1.346	1.063	1.705
16+ Yrs	1.274	0.938	1.731
Marital Status-3 categories			
Married	1.000	1.000	1.000
Previously Married	1.519	1.215	1.898
Never Married	1.017	0.783	1.322
AG4CAT, Sex			
18-29, Male	1.000	1.000	1.000
18-29, Female	1.000	1.000	1.000
30-44, Male	1.102	0.734	1.652
30-44, Female	1.000	1.000	1.000
45-59, Male	1.003	0.653	1.541
45-59, Female	1.000	1.000	1.000
60+, Male	0.963	0.523	1.771
60+, Female	1.000	1.000	1.000
ALD, Sex			
1, Male	0.818	0.502	1.334
1, Female	1.000	1.000	1.000
Years of education-4 categories, Sex			
0-11 Yrs, Male	1.000	1.000	1.000
0-11 Yrs, Female	1.000	1.000	1.000
12 Yrs, Male	0.871	0.504	1.506
12 Yrs, Female	1.000	1.000	1.000
13-15 Yrs, Male	0.845	0.490	1.455
13-15 Yrs, Female	1.000	1.000	1.000
16+ Yrs, Male	0.824	0.411	1.650
16+ Yrs, Female	1.000	1.000	1.000
Marital Status-3 categories, Sex			
Married, Male	1.000	1.000	1.000
Married, Female	1.000	1.000	1.000
Marital Status-3 categories, Sex			
Previously Married, Male	1.200	0.789	1.826
Previously Married, Female	1.000	1.000	1.000
Never Married, Male	1.261	0.822	1.934
Never Married, Female	1.000	1.000	1.000



\*comparison of logistic with Probit and Cloglog not possible in Sudaan 10.0.1.