```
* IVEware Analysis Examples Replication for ASDA 3rd Edition
* Berglund Winter 2025
* Chapter 8 ;

ods graphics off ;
options nodate nonumber ls=125 ps=68 ;

*set options and location to call IVEware from SAS session ;
options set=srclib "E:\ive 11feb24\sas" sasautos=('!srclib' sasautos) mautosource ;
title ;

libname d "P:\ASDA3\Data Sets for Analysis Examples and Stata R Code" ;

data c8_ncsr ;
 set d.ncsr ;
 * reverse coding for correct omitted group ;
 r_ag4cat=5-ag4cat ;
 r_mar3cat=4-mar3cat ;
 r_sex=3-sex ;
 r_ald=2-ald ;
 r_mde=2-mde ;
 r_ed4cat=5-ed4cat ;
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 ;

ods rtf style=normalprinter bodytitle file="P:\ASDA3\Replication Iveware\Chapter 8\Analysis Example Replication ASDA3
IVE C8 Code and Results.rtf"  ;

*Note: bad strata message, program aborts ;
%describe (setup=new, name="Example 8.1", dir=P:\ASDA3\Replication Iveware\Chapter 8) ;
title "Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS-R Data, Numbers for Table
8.5" ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 mean mde ;
 by ag4cat ;
run;

%describe (setup=new, name="Example 8.1", dir=P:\ASDA3\Replication Iveware\Chapter 8) ;
title "Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS-R Data, Numbers for Table
8.5" ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 table mde ;
 by sex ;
run;


*Note: bad strata message, program aborts ;
%describe (setup=new, name="Example 8.1", dir=P:\ASDA3\Replication Iveware\Chapter 8) ;
title "Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS-R Data, Numbers for Table
8.5" ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 table mde ;
 by ed4cat ;
run;
```

```
%describe (setup=new, name="Example 8.1", dir=P:\ASDA3\Replication Iveware\Chapter 8) ;
title "Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS-R Data, Numbers for Table
8.5  " ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 table mde ;
 by mar3cat ;
run;

****;
%regress (setup=new, name="Example 8.1 Numbers for 8.6 and 8.7 (8.8 not available in IVEware)",
dir=P:\ASDA3\Replication Iveware\Chapter 8) ;
title Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS-R Data, Numbers for Tables
8.6, 8.7 ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 class r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 dependent r_mde ;
 predictor r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 link logistic ;
run;

ods text ="Margins Plot and GOF tests are not available in IVEware" ;

data c8_ncsr1 ;
 set c8_ncsr ;
 * interactions variables created manually for models ;
 a1_m=(ag4cat=1)*(sex=1) ;
 a2_m=(ag4cat=2)*(sex=1) ;
 a3_m=(ag4cat=3)*(sex=1) ;
 a4_m=(ag4cat=4)*(sex=1) ;
 e1_m=(ed4cat=1)*(sex=1) ;
 e2_m=(ed4cat=2)*(sex=1) ;
 e3_m=(ed4cat=3)*(sex=1) ;
 e4_m=(ed4cat=4)*(sex=1) ;
 ald_m=(ald=1)*(sex=1) ;
 mar1_m=(mar3cat=1)*(sex=1) ;
 mar2_m=(mar3cat=2)*(sex=1) ;
 mar3_m=(mar3cat=3)*(sex=1) ;
run ;

%regress (setup=new, name="Example 8.1 Interaction Tests ", dir=P:\ASDA3\Replication Iveware\Chapter 8) ;
title Example 8.1: Interaction Tests for Preliminary Model ;
 datain c8_ncsr1 ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 class r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 dependent r_mde ;
 predictor r_ag4cat sex r_ald r_ed4cat r_mar3cat a2_m a3_m a4_m ald_m e2_m e3_m e4_m mar2_m mar3_m ;
 link logistic ;
run;

ods text="Design Adjusted AIC not available in IVEware" ;

* Test need for weights using SAS with estimate statement since IVEware does not allow custom contrasts ;
proc surveylogistic data=c8_ncsr ;
 strata sestrat ; cluster seclustr ;
 class ag4cat (ref=first) sex (ref=last) ed4cat (ref=first) mar3cat (ref=first) ;
 model mde (event='1') = ag4cat sex ald ed4cat mar3cat ncsrwtlg ncsrwtlg*ag4cat ncsrwtlg*sex ncsrwtlg*ald
ncsrwtlg*ed4cat ncsrwtlg*mar3cat ;
    estimate 'Weight and Weight Interactions'
      ncsrwtlg 1,
      ncsrwtlg*ag4cat 1 0 0 , ag4cat*ncsrwtlg  0 1 0 , ag4cat*ncsrwtlg 0 0 1 ,
      sex*ncsrwtlg 1 ,
```

```
      ald*ncsrwtlg 1 ,
      ed4cat*ncsrwtlg 1 0 0 , ed4cat*ncsrwtlg  0 1 0 , ed4cat*ncsrwtlg 0 0 1,
      mar3cat*ncsrwtlg 1 0 , mar3cat*ncsrwtlg  0 1 / joint  ;
run ;


* Run final model using weights as they are informative ;
%regress (setup=new, name="Example 8.1 Model Predicting MDE Final Model", dir=P:\ASDA3\Replication Iveware\Chapter 8)
title Example 8.1: Numbers for Table 8.11 Final Model Predicting Lifetime Major Depressive Episode in the NCS-R Data ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 class r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 dependent r_mde ;
 predictor r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 link logistic ;
run ;

ods text="Bayesian Data Set not shown here, see Chapters 5 and 6 for examples." ;


%regress (setup=new, name="Example 8.1 Model Predicting Alcohol Dependence", dir=P:\ASDA3\Replication Iveware\Chapter
8) ;
title Example 8.1: Numbers for Tables 8.12 Design Based Model ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 class r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 dependent r_ald ;
 predictor r_ag4cat sex r_ed4cat r_mar3cat ;
 link logistic ;
run;

ods text="Probit and CLOGLOG Models are Not Available in IVEware" ;

ods rtf close ;
```

```
IVEware Setup Checker, Fri Feb 28 15:55:57 2025                                    1

Setup listing:

title "Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode
 in the NCS-R Data, Numbers for Table 8.5" ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 table mde ;
 by sex ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 15:55:58 2025    1

"Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS

By variables:            sex  Sex 1=Male 2=Female
Stratum variable:        sestrat  SAMPLING ERROR STRATUM
Cluster variable:        seclustr  SAMPLING ERROR CLUSTER
Weight variable:         ncsrwtlg  NCSR sample part 2 weight

Analysis description:

         5  Variables
        42  Strata
        84  Secus

    Strata  Model
        42  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      5692  Cases Read
```

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 15:55:58 2025
2

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

By Condition
sex
1

Problem 1

Degrees of freedom
42

Factor	Covariance of denominator
None	0.04535

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	1779	2263.942	0.84711	0.00914
1	603	408.6142	0.15289	0.00914

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.82867	0.86555	92.70577	0.00000
1	0.13445	0.17133	16.73227	0.00000

	Unweighted Proportion	Bias	Design Effect
0	0.74685	-11.83510	1.53496
1	0.25315	65.57279	1.53496

By Condition
sex
2

Problem 2

Degrees of freedom
42

Factor	Covariance of denominator
None	0.05119

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	2117	2336.535	0.77383	0.00673
1	1193	682.9091	0.22617	0.00673

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.76025	0.78741	115.02296	0.00000
1	0.21259	0.23975	33.61826	0.00000

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 15:55:58 2025
3

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

	Unweighted Proportion	Bias	Design Effect
0	0.63958	-17.34910	0.85573
1	0.36042	59.35897	0.85573

```
IVEware Setup Checker, Fri Feb 28 15:56:01 2025                                    1

Setup listing:

title "Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode
 in the NCS-R Data, Numbers for Table 8.5  " ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 table mde ;
 by mar3cat ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 15:56:02 2025    1

"Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NCS

By variables:           MAR3CAT  Marital Status 1=Married 2=Previously Married 3=Never Married
Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtlg  NCSR sample part 2 weight

Analysis description:

         5  Variables
        42  Strata
        84  Secus

    Strata  Model
        42  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      5692  Cases Read
```

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 15:56:03 2025
2

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

By Condition
MAR3CAT
1

Problem 1

Degrees of freedom
42

Factor	Covariance of denominator
None	0.05107

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	2316	2632.704	0.82674	0.00742
1	920	551.742	0.17326	0.00742

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.81177	0.84171	111.42600	0.00000
1	0.15829	0.18823	23.35181	0.00000

	Unweighted Proportion	Bias	Design Effect
0	0.71570	-13.43110	1.24327
1	0.28430	64.08812	1.24327

By Condition
MAR3CAT
2

Problem 2

Degrees of freedom
42

Factor	Covariance of denominator
None	0.05023

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	750	901.3201	0.76098	0.01449
1	489	283.1011	0.23902	0.01449

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.73173	0.79023	52.50353	0.00000
1	0.20977	0.26827	16.49116	0.00000

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 15:56:03 2025
3

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

	Unweighted Proportion	Bias	Design Effect
0	0.60533	-20.45423	1.42982
1	0.39467	65.12094	1.42982

By Condition
MAR3CAT
3

Problem 3

Degrees of freedom
42

Factor	Covariance of denominator
None	0.06665

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	830	1066.453	0.80601	0.01155
1	387	256.6802	0.19399	0.01155

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.78270	0.82931	69.78806	0.00000
1	0.17069	0.21730	16.79700	0.00000

	Unweighted Proportion	Bias	Design Effect
0	0.68200	-15.38461	1.03734
1	0.31800	63.91986	1.03734

```
IVEware Setup Checker, Fri Feb 28 15:56:04 2025                                  1

Setup listing:

title Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in
 the NCS-R Data, Numbers for Tables 8.6, 8.7 ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 class r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 dependent r_mde ;
 predictor r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 link logistic ;
run;
```

```
IVEware Jackknife Regression Procedure, Fri Feb 28 15:56:05 2025                 1

Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NC

Regression type:        Logistic
Dependent variable:     r_mde
Predictors:             r_ag4cat
                        sex  Sex 1=Male 2=Female
                        r_ald
                        r_ed4cat
                        r_mar3cat
Cat. var. ref. codes:   sex  2
                        r_ag4cat  4
                        r_mar3cat  3
                        r_ald  2
                        r_mde  2
                        r_ed4cat  4
Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtlg  NCSR sample part 2 weight

Valid cases                5692
Sum weights          5692.000478
Replicates                   42

Degr freedom                 42

-2 LogLike           5268.526425

Variable                Estimate         Std Error            T Test        Prob > |T|
Intercept             -1.5830767         0.1223398         -12.94000           0.00000
r_ag4cat.1            -0.6757863         0.1407557          -4.80113           0.00002
r_ag4cat.2             0.2064465         0.0918258           2.24824           0.02987
r_ag4cat.3             0.2556185         0.0941162           2.71599           0.00955
sex                   -0.5773452         0.0790030          -7.30789           0.00000
r_ald                  1.4236762         0.1592221           8.94145           0.00000
r_ed4cat.1             0.1629254         0.1120799           1.45365           0.15347
r_ed4cat.2             0.2305111         0.0942888           2.44473           0.01877
r_ed4cat.3             0.0792550         0.1003241           0.78999           0.43397
r_mar3cat.1            0.1155794         0.1082687           1.06752           0.29183
r_mar3cat.2            0.4864225         0.0854730           5.69095           0.00000

Variable                   Odds             95% Confidence Interval
                          Ratio             Lower              Upper
Intercept
r_ag4cat.1             0.5087563         0.3829532         0.6758865
r_ag4cat.2             1.2293019         1.0213597         1.4795798
r_ag4cat.3             1.2912600         1.0678898         1.5613524
sex                    0.5613867         0.4786530         0.6584208
r_ald                  4.1523575         3.0112447         5.7258955
r_ed4cat.1             1.1769489         0.9386988         1.4756690
r_ed4cat.2             1.2592434         1.0410490         1.5231694
r_ed4cat.3             1.0824803         0.8840807         1.3254034
r_mar3cat.1            1.1225236         0.9022033         1.3966467
r_mar3cat.2            1.6264870         1.3687957         1.9326917
```

Example 8.1: Examining Predictors of a Lifetime Major Depressive Episode in the NC

Variable	Design Effect	SRS Estimate	% Diff SRS v Est
Intercept	1.21741	-1.0248795	-35.26027
r_ag4cat.1	1.58217	-0.3924731	-41.92349
r_ag4cat.2	0.98084	0.2273644	10.13236
r_ag4cat.3	1.19952	0.2939657	15.00176
sex	1.63252	-0.5432110	-5.91227
r_ald	2.35892	0.8256041	-42.00900
r_ed4cat.1	1.26256	0.1589701	-2.42771
r_ed4cat.2	0.96931	0.1941795	-15.76131
r_ed4cat.3	1.09843	0.1257221	58.62986
r_mar3cat.1	1.69379	0.1903295	64.67425
r_mar3cat.2	1.32065	0.5092616	4.69532

Margins Plot and GOF tests are not available in IVEware

```
IVEware Setup Checker, Fri Feb 28 15:56:12 2025                                 1

Setup listing:

title Example 8.1: Interaction Tests for Preliminary Model ;
 datain c8_ncsr1 ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 class r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 dependent r_mde ;
 predictor r_ag4cat sex r_ald r_ed4cat r_mar3cat a2_m a3_m a4_m ald_m e2_m e3_m
 e4_m mar2_m mar3_m ;
 link logistic ;
run;
```

```
IVEware Jackknife Regression Procedure, Fri Feb 28 15:56:14 2025                1

Example 8.1: Interaction Tests for Preliminary Model

Regression type:         Logistic
Dependent variable:      r_mde
Predictors:              r_ag4cat
                         sex  Sex 1=Male 2=Female
                         r_ald
                         r_ed4cat
                         r_mar3cat
                         a2_m
                         a3_m
                         a4_m
                         ald_m
                         e2_m
                         e3_m
                         e4_m
                         mar2_m
                         mar3_m
Cat. var. ref. codes:    sex  2
                         r_ag4cat  4
                         r_mar3cat  3
                         r_ald  2
                         r_mde  2
                         r_ed4cat  4
Stratum variable:        sestrat  SAMPLING ERROR STRATUM
Cluster variable:        seclustr  SAMPLING ERROR CLUSTER
Weight variable:         ncsrwtlg  NCSR sample part 2 weight

Valid cases                 5692
Sum weights           5692.000478
Replicates                    42

Degr freedom                  42

-2 LogLike            5264.857536

Variable                 Estimate         Std Error            T Test        Prob > |T|
Intercept               -1.5998893         0.1346657          -11.88045            0.00000
r_ag4cat.1              -0.6455558         0.1748696           -3.69164            0.00064
r_ag4cat.2               0.2146410         0.1040597            2.06267            0.04536
r_ag4cat.3               0.2204041         0.1134640            1.94250            0.05880
sex                     -0.5464415         0.3737739           -1.46196            0.15120
r_ald                    1.5531400         0.2145938            7.23758            0.00000
r_ed4cat.1               0.2422184         0.1508935            1.60523            0.11594
r_ed4cat.2               0.2973241         0.1167067            2.54762            0.01460
r_ed4cat.3               0.1305184         0.0836146            1.56095            0.12604
r_mar3cat.1              0.0173370         0.1303200            0.13303            0.89480
r_mar3cat.2              0.4177856         0.1103824            3.78489            0.00048
a2_m                     0.0967431         0.2009836            0.48135            0.63277
a3_m                     0.0026370         0.2141225            0.01232            0.99023
a4_m                    -0.0378099         0.3032617           -0.12468            0.90137
ald_m                   -0.2004168         0.2450479           -0.81787            0.41805
e2_m                    -0.1377802         0.2825224           -0.48768            0.62831
```

Example 8.1: Interaction Tests for Preliminary Model

Variable	Estimate	Std Error	T Test	Prob > |T|
e3_m	-0.1687904	0.2810361	-0.60060	0.55133
e4_m	-0.1940178	0.3579164	-0.54208	0.59063
mar2_m	0.1825040	0.2124054	0.85923	0.39509
mar3_m	0.2318977	0.2115482	1.09619	0.27924

Variable	Odds Ratio	95% Confidence Interval Lower	Upper
Intercept			
r_ag4cat.1	0.5243710	0.3684477	0.7462794
r_ag4cat.2	1.2394169	1.0046512	1.5290423
r_ag4cat.3	1.2465803	0.9914615	1.5673452
sex	0.5790065	0.2723284	1.2310452
r_ald	4.7262875	3.0650779	7.2878389
r_ed4cat.1	1.2740724	0.9396043	1.7276002
r_ed4cat.2	1.3462516	1.0637505	1.7037768
r_ed4cat.3	1.1394189	0.9624988	1.3488593
r_mar3cat.1	1.0174881	0.7821889	1.3235704
r_mar3cat.2	1.5185951	1.2153417	1.8975167
a2_m	1.1015773	0.7342854	1.6525899
a3_m	1.0026404	0.6508481	1.5445813
a4_m	0.9628960	0.5221419	1.7757024
ald_m	0.8183896	0.4991030	1.3419302
e2_m	0.8712902	0.4926617	1.5409085
e3_m	0.8446859	0.4790534	1.4893837
e4_m	0.8236432	0.3999878	1.6960220
mar2_m	1.2002190	0.7818076	1.8425578
mar3_m	1.2609908	0.8228156	1.9325081

Variable	Design Effect	SRS Estimate	% Diff SRS v Est
Intercept	0.95934	-0.9594586	-40.02969
r_ag4cat.1	1.64672	-0.3082472	-52.25088
r_ag4cat.2	0.81072	0.2225707	3.69440
r_ag4cat.3	1.11290	0.2764957	25.44948
sex	2.77084	-0.6961233	27.39209
r_ald	1.74107	0.9021342	-41.91546
r_ed4cat.1	1.38489	0.0975990	-59.70619
r_ed4cat.2	0.91016	0.1761099	-40.76839
r_ed4cat.3	0.46659	0.1042057	-20.16014
r_mar3cat.1	1.51673	0.1465917	745.54464
r_mar3cat.2	1.48447	0.3672797	-12.08895
a2_m	1.25508	0.0459198	-52.53431
a3_m	1.21603	0.0235376	792.60523
a4_m	1.56454	-0.2112388	458.68654
ald_m	1.33110	-0.1348661	-32.70719
e2_m	2.04863	0.0276108	-120.03975
e3_m	2.02725	0.0297750	-117.64024
e4_m	3.06469	0.1479616	-176.26186
mar2_m	1.78053	0.4219446	131.19743
mar3_m	1.50890	0.1106629	-52.27943

Design Adjusted AIC not available in IVEware

The SURVEYLOGISTIC Procedure

Model Information		
Data Set	WORK.C8_NCSR	
Response Variable	mde	Major Depressive Episode 1=Yes 0=No
Number of Response Levels	2	
Stratum Variable	sestrat	SAMPLING ERROR STRATUM
Number of Strata	42	
Cluster Variable	seclustr	SAMPLING ERROR CLUSTER
Number of Clusters	84	
Model	Binary Logit	
Optimization Technique	Fisher's Scoring	
Variance Adjustment	Degrees of Freedom (DF)	

Variance Estimation	
Method	Taylor Series
Variance Adjustment	Degrees of Freedom (DF)

Number of Observations Read	9282
Number of Observations Used	5692

Response Profile		
Ordered Value	**mde**	**Total Frequency**
1	0	3896
2	1	1796

Probability modeled is mde=1.

Note: 3590 observations were deleted due to missing values for the response or explanatory variables.

Class Level Information				
Class	**Value**	**Design Variables**		
ag4cat	**1**	-1	-1	-1
	2	1	0	0
	3	0	1	0
	4	0	0	1
sex	**1**	1		
	2	-1		
ED4CAT	**1**	-1	-1	-1
	2	1	0	0
	3	0	1	0
	4	0	0	1
MAR3CAT	**1**	-1	-1	
	2	1	0	
	3	0	1	

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	7099.406	6233.479
SC	7106.053	6379.709
-2 Log L	7097.406	6189.479

Testing Global Null Hypothesis: BETA=0				
Test	F Value	Num DF	Den DF	Pr > F
Likelihood Ratio	31.33	4.7111	197.87	<.0001
Score	48.89	21	22	<.0001
Wald	7.68	21	22	<.0001
NOTE: Second-order Rao-Scott design correction 3.4575 applied to the Likelihood Ratio test.				

Joint Tests				
Effect	F Value	Num DF	Den DF	Pr > F
ag4cat	0.77	3	40	0.5198
sex	7.29	1	42	0.0099
ald	0.55	1	42	0.4623
ED4CAT	2.99	3	40	0.0420
MAR3CAT	2.26	2	41	0.1167
ncsrwtlg	31.34	1	42	<.0001
ncsrwtlg*ag4cat	3.51	3	40	0.0238
ncsrwtlg*sex	0.08	1	42	0.7818
ald*ncsrwtlg	7.42	1	42	0.0094
ncsrwtlg*ED4CAT	1.92	3	40	0.1412
ncsrwtlg*MAR3CAT	0.82	2	41	0.4462

Note:	Under full-rank parameterizations, Type 3 effect tests are replaced by joint tests. The joint test for an effect is a test that all the parameters associated with that effect are zero. Such joint tests might not be equivalent to Type 3 effect tests under GLM parameterization.

Analysis of Maximum Likelihood Estimates					
Parameter		Estimate	Standard Error	t Value	Pr > |t|
Intercept		0.3943	0.1659	2.38	0.0221
ag4cat	2	0.00949	0.0837	0.11	0.9102
ag4cat	3	0.1318	0.1051	1.25	0.2169
ag4cat	4	0.0243	0.1254	0.19	0.8474
sex	1	-0.1992	0.0738	-2.70	0.0099
ald		-0.1937	0.2611	-0.74	0.4623
ED4CAT	2	0.0548	0.0873	0.63	0.5333
ED4CAT	3	0.1310	0.0757	1.73	0.0908
ED4CAT	4	0.1291	0.1220	1.06	0.2962
MAR3CAT	2	0.0865	0.1094	0.79	0.4335
MAR3CAT	3	0.0954	0.1098	0.87	0.3899
ncsrwtlg		-1.5937	0.2847	-5.60	<.0001
ncsrwtlg*ag4cat	2	0.2202	0.1180	1.87	0.0689
ncsrwtlg*ag4cat	3	0.1665	0.1073	1.55	0.1282
ncsrwtlg*ag4cat	4	-0.3942	0.1561	-2.52	0.0154
ncsrwtlg*sex	1	0.0242	0.0867	0.28	0.7818

Analysis of Maximum Likelihood Estimates					
Parameter		Estimate	Standard Error	t Value	Pr > |t|
ald*ncsrwtlg		1.2116	0.4449	2.72	0.0094
ncsrwtlg*ED4CAT	2	0.0243	0.1285	0.19	0.8506
ncsrwtlg*ED4CAT	3	-0.1353	0.0828	-1.63	0.1097
ncsrwtlg*ED4CAT	4	-0.2423	0.1824	-1.33	0.1911
ncsrwtlg*MAR3CAT	2	0.1012	0.1108	0.91	0.3662
ncsrwtlg*MAR3CAT	3	0.00738	0.1198	0.06	0.9512
NOTE: The degrees of freedom for the t tests is 42.					

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	71.9	Somers' D	0.440
Percent Discordant	27.8	Gamma	0.442
Percent Tied	0.3	Tau-a	0.190
Pairs	6997216	c	0.720

Estimates					
Label	Estimate	Standard Error	DF	t Value	Pr > |t|
Weight and Weight Interactions	-1.5937	0.2847	42	-5.60	<.0001
Row 2	0.2202	0.1180	42	1.87	0.0689
Row 3	0.1665	0.1073	42	1.55	0.1282
Row 4	-0.3942	0.1561	42	-2.52	0.0154
Row 5	0.02417	0.08672	42	0.28	0.7818
Row 6	1.2116	0.4449	42	2.72	0.0094
Row 7	0.02434	0.1285	42	0.19	0.8506
Row 8	-0.1353	0.08278	42	-1.63	0.1097
Row 9	-0.2423	0.1824	42	-1.33	0.1911
Row 10	0.1012	0.1108	42	0.91	0.3662
Row 11	0.007379	0.1198	42	0.06	0.9512

F Test for Estimates				
Label	Num DF	Den DF	F Value	Pr > F
Weight and Weight Interactions	11	32	7.15	<.0001

```
IVEware Setup Checker, Fri Feb 28 15:56:25 2025                                  1

Setup listing:

title Example 8.1: Numbers for Table 8.11 Final Model Predicting Lifetime Major
 Depressive Episode in the NCS-R Data ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 class r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 dependent r_mde ;
 predictor r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 link logistic ;
run ;
```

```
IVEware Jackknife Regression Procedure, Fri Feb 28 15:56:26 2025                 1

Example 8.1: Numbers for Table 8.11 Final Model Predicting Lifetime Major Depressi

Regression type:        Logistic
Dependent variable:     r_mde
Predictors:             r_ag4cat
                        sex  Sex 1=Male 2=Female
                        r_ald
                        r_ed4cat
                        r_mar3cat
Cat. var. ref. codes:   sex  2
                        r_ag4cat  4
                        r_mar3cat  3
                        r_ald  2
                        r_mde  2
                        r_ed4cat  4
Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtlg  NCSR sample part 2 weight

Valid cases                5692
Sum weights          5692.000478
Replicates                   42

Degr freedom                 42

-2 LogLike           5268.526425

Variable                Estimate         Std Error            T Test        Prob > |T|
Intercept             -1.5830767         0.1223398         -12.94000           0.00000
r_ag4cat.1            -0.6757863         0.1407557          -4.80113           0.00002
r_ag4cat.2             0.2064465         0.0918258           2.24824           0.02987
r_ag4cat.3             0.2556185         0.0941162           2.71599           0.00955
sex                   -0.5773452         0.0790030          -7.30789           0.00000
r_ald                  1.4236762         0.1592221           8.94145           0.00000
r_ed4cat.1             0.1629254         0.1120799           1.45365           0.15347
r_ed4cat.2             0.2305111         0.0942888           2.44473           0.01877
r_ed4cat.3             0.0792550         0.1003241           0.78999           0.43397
r_mar3cat.1            0.1155794         0.1082687           1.06752           0.29183
r_mar3cat.2            0.4864225         0.0854730           5.69095           0.00000

Variable                   Odds             95% Confidence Interval
                          Ratio             Lower              Upper
Intercept
r_ag4cat.1             0.5087563         0.3829532         0.6758865
r_ag4cat.2             1.2293019         1.0213597         1.4795798
r_ag4cat.3             1.2912600         1.0678898         1.5613524
sex                    0.5613867         0.4786530         0.6584208
r_ald                  4.1523575         3.0112447         5.7258955
r_ed4cat.1             1.1769489         0.9386988         1.4756690
r_ed4cat.2             1.2592434         1.0410490         1.5231694
r_ed4cat.3             1.0824803         0.8840807         1.3254034
r_mar3cat.1            1.1225236         0.9022033         1.3966467
r_mar3cat.2            1.6264870         1.3687957         1.9326917
```

Example 8.1: Numbers for Table 8.11 Final Model Predicting Lifetime Major Depressi

Variable	Design Effect	SRS Estimate	% Diff SRS v Est
Intercept	1.21741	-1.0248795	-35.26027
r_ag4cat.1	1.58217	-0.3924731	-41.92349
r_ag4cat.2	0.98084	0.2273644	10.13236
r_ag4cat.3	1.19952	0.2939657	15.00176
sex	1.63252	-0.5432110	-5.91227
r_ald	2.35892	0.8256041	-42.00900
r_ed4cat.1	1.26256	0.1589701	-2.42771
r_ed4cat.2	0.96931	0.1941795	-15.76131
r_ed4cat.3	1.09843	0.1257221	58.62986
r_mar3cat.1	1.69379	0.1903295	64.67425
r_mar3cat.2	1.32065	0.5092616	4.69532

Bayesian Data Set Production Not Shown, see Chapters 5 and 6 for examples.

```
IVEware Setup Checker, Fri Feb 28 15:56:33 2025                                 1

Setup listing:

title Example 8.1: Numbers for Tables 8.12 Design Based Model ;
 datain c8_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtlg ;
 class r_ag4cat sex r_ald r_ed4cat r_mar3cat ;
 dependent r_ald ;
 predictor r_ag4cat sex r_ed4cat r_mar3cat ;
 link logistic ;
run;
```

```
IVEware Jackknife Regression Procedure, Fri Feb 28 15:56:34 2025                1

Example 8.1: Numbers for Tables 8.12 Design Based Model

Regression type:        Logistic
Dependent variable:     r_ald
Predictors:             r_ag4cat
                        sex  Sex 1=Male 2=Female
                        r_ed4cat
                        r_mar3cat
Cat. var. ref. codes:   sex  2
                        r_ag4cat  4
                        r_mar3cat  3
                        r_ald  2
                        r_ed4cat  4
Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtlg  NCSR sample part 2 weight

Valid cases                5692
Sum weights          5692.000478
Replicates                   42

Degr freedom                 42

-2 LogLike           2268.902472

Variable                Estimate         Std Error            T Test        Prob > |T|
Intercept             -3.1243207         0.2277487          -13.71828            0.00000
r_ag4cat.1            -1.1203348         0.2113458           -5.30096            0.00000
r_ag4cat.2            -0.0507070         0.1441728           -0.35171            0.72681
r_ag4cat.3             0.1462759         0.1769574            0.82662            0.41313
sex                    0.9979891         0.1185340            8.41943            0.00000
r_ed4cat.1            -0.7362285         0.2005004           -3.67196            0.00067
r_ed4cat.2            -0.2644809         0.1780030           -1.48582            0.14479
r_ed4cat.3            -0.2684385         0.1996438           -1.34459            0.18598
r_mar3cat.1            0.0653150         0.1694598            0.38543            0.70186
r_mar3cat.2            0.5178315         0.1419002            3.64926            0.00072

Variable                    Odds              95% Confidence Interval
                           Ratio              Lower               Upper
Intercept
r_ag4cat.1             0.3261706          0.2129182          0.4996625
r_ag4cat.2             0.9505571          0.7105904          1.2715606
r_ag4cat.3             1.1575155          0.8099052          1.6543197
sex                    2.7128210          2.1356652          3.4459511
r_ed4cat.1             0.4789167          0.3195460          0.7177722
r_ed4cat.2             0.7676043          0.5359550          1.0993765
r_ed4cat.3             0.7645724          0.5110257          1.1439171
r_mar3cat.1            1.0674953          0.7583062          1.5027520
r_mar3cat.2            1.6783841          1.2604460          2.2349018

Variable                  Design              SRS              % Diff
                          Effect            Estimate           SRS v Est
Intercept                1.64021          -2.5769627           -17.51926
```

Example 8.1: Numbers for Tables 8.12 Design Based Model

Variable	Design Effect	SRS Estimate	% Diff SRS v Est
r_ag4cat.1	0.97451	-0.9094689	-18.82169
r_ag4cat.2	0.81282	-0.0690219	36.11906
r_ag4cat.3	1.53872	0.2406087	64.48968
sex	1.30217	0.9141335	-8.40245
r_ed4cat.1	1.47219	-0.8559178	16.25708
r_ed4cat.2	1.51037	-0.3836098	45.04254
r_ed4cat.3	1.87792	-0.4356781	62.30092
r_mar3cat.1	1.44755	0.0752636	15.23171
r_mar3cat.2	1.23332	0.4472200	-13.63600

Probit and CLOGLOG Models are Not Available in IVEware