mus008.sas: Marginal Logistic Regression Model for Obesity Muscatine Coronary Risk Factor Study 1. Table 13.4

The GENMOD Procedure

Model Information		
Data Set	WORK.A	
Distribution	Binomial	
Link Function	Logit	
Dependent Variable	obesity	Obesity (0=no, 1=yes)

Number of Observations Read	9856
Number of Observations Used	9856
Number of Events	2112
Number of Trials	9856

Class Level Information		
Class	**Levels**	**Values**
id	4856	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 ...
occasion	3	1 2 3

Response Profile		
Ordered Value	**obesity**	**Total Frequency**
1	1	2112
2	0	7744

PROC GENMOD is modeling the probability that obesity='1'.

Parameter Information	
Parameter	**Effect**
Prm1	Intercept
Prm2	gender
Prm3	cage
Prm4	cage2

Algorithm converged.

mus008.sas: Marginal Logistic Regression Model for Obesity Muscatine Coronary Risk Factor Study 1. Table 13.4

The GENMOD Procedure

GEE Model Information	
Log Odds Ratio Structure	Replicated Z-Matrix
Within-Subject Effect	occasion (3 levels)
Subject Effect	id (4856 levels)
Number of Clusters	4856
Correlation Matrix Dimension	3
Maximum Cluster Size	3
Minimum Cluster Size	1

Log Odds Ratio Parameter Information		
Cluster Pair	**Alpha1**	**Alpha2**
(1, 2)	1	0
(1, 3)	0	1
(2, 3)	1	0

Algorithm converged.

GEE Fit Criteria	
QIC	10198.8094
QICu	10196.6784

Analysis Of GEE Parameter Estimates						
Empirical Standard Error Estimates						
Parameter	**Estimate**	**Standard Error**	**95% Confidence Limits**		**Z**	**Pr > |Z|**
Intercept	-1.2270	0.0477	-1.3205	-1.1335	-25.72	<.0001
gender	0.1445	0.0627	0.0216	0.2674	2.31	0.0212
cage	0.0416	0.0091	0.0238	0.0594	4.58	<.0001
cage2	-0.0156	0.0023	-0.0201	-0.0111	-6.77	<.0001
Alpha1	3.0684	0.0957	2.8809	3.2559	32.07	<.0001
Alpha2	2.5929	0.1353	2.3278	2.8581	19.17	<.0001

mus008.sas: Marginal Logistic Regression Model for Obesity Muscatine Coronary Risk Factor Study 2. Table 13.4

The GENMOD Procedure

Model Information		
Data Set	WORK.A	
Distribution	Binomial	
Link Function	Logit	
Dependent Variable	obesity	Obesity (0=no, 1=yes)

Number of Observations Read	9856
Number of Observations Used	9856
Number of Events	2112
Number of Trials	9856

Class Level Information		
Class	**Levels**	**Values**
id	4856	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 ...
occasion	3	1 2 3

Response Profile		
Ordered Value	**obesity**	**Total Frequency**
1	1	2112
2	0	7744

PROC GENMOD is modeling the probability that obesity='1'.

Parameter Information	
Parameter	**Effect**
Prm1	Intercept
Prm2	gender
Prm3	cage
Prm4	cage2

Algorithm converged.

mus008.sas: Marginal Logistic Regression Model for Obesity Muscatine Coronary Risk Factor Study 2. Table 13.4

The GENMOD Procedure

GEE Model Information	
Log Odds Ratio Structure	Replicated Z-Matrix
Within-Subject Effect	occasion (3 levels)
Subject Effect	id (4856 levels)
Number of Clusters	4856
Correlation Matrix Dimension	3
Maximum Cluster Size	3
Minimum Cluster Size	1

Log Odds Ratio Parameter Information		
Cluster Pair	**Alpha1**	**Alpha2**
(1, 2)	1	0
(1, 3)	0	1
(2, 3)	1	0

Algorithm converged.

GEE Fit Criteria	
QIC	10198.8094
QICu	10196.6784

Analysis Of GEE Parameter Estimates						
Empirical Standard Error Estimates						
Parameter	**Estimate**	**Standard Error**	**95% Confidence Limits**		**Z**	**Pr > |Z|**
Intercept	-1.2270	0.0477	-1.3205	-1.1335	-25.72	<.0001
gender	0.1445	0.0627	0.0216	0.2674	2.31	0.0212
cage	0.0416	0.0091	0.0238	0.0594	4.58	<.0001
cage2	-0.0156	0.0023	-0.0201	-0.0111	-6.77	<.0001
Alpha1	3.0684	0.0957	2.8809	3.2559	32.07	<.0001
Alpha2	2.5929	0.1353	2.3278	2.8581	19.17	<.0001