

Binary Logistic Regression: Outcome versus Pregnancies, Glucose, BMI, Di...

* WARNING * When the data are in the Response/Frequency format, the Residuals versus fits plot is unavailable.

Method

Link function Logit
Rows used 768

Response Information

Variable	Value	Count
Outcome	1	268 (Event)
	0	500
	Total	768

Regression Equation

$$P(1) = \frac{\exp(Y')}{1 + \exp(Y')}$$

$$Y' = -8.724 + 0.1346 \text{ Pregnancies} + 0.03678 \text{ Glucose} + 0.0771 \text{ BMI} + 0.891 \text{ DiabetesPedigreeFunction}$$

Coefficients

Term	Coef	SE Coef	Z-Value	P-Value	VIF
Constant	-8.724	0.672	-12.99	0.000	
Pregnancies	0.1346	0.0279	4.83	0.000	1.02
Glucose	0.03678	0.00347	10.60	0.000	1.00
BMI	0.0771	0.0139	5.56	0.000	1.02
DiabetesPedigreeFunction	0.891	0.295	3.02	0.003	1.01

Odds Ratios for Continuous Predictors

	Odds Ratio	95% CI
Pregnancies	1.1441	(1.0832, 1.2083)
Glucose	1.0375	(1.0304, 1.0445)
BMI	1.0801	(1.0512, 1.1099)
DiabetesPedigreeFunction	2.4386	(1.3682, 4.3464)

Model Summary

Deviance R-Sq	Deviance R-Sq(adj)	AIC	AICc	BIC	Area Under ROC Curve
27.00%	26.60%	735.20	735.28	758.42	0.8390

Goodness-of-Fit Tests

Test	DF	Chi-Square	P-Value
Deviance	763	725.20	0.833
Pearson	763	779.22	0.334
Hosmer-Lemeshow	8	7.99	0.434

Analysis of Variance

Source	Wald Test		
	DF	Chi-Square	P-Value
Regression	4	169.23	0.000
Pregnancies	1	23.29	0.000
Glucose	1	112.36	0.000
BMI	1	30.92	0.000
DiabetesPedigreeFunction	1	9.14	0.003

Fits and Diagnostics for Unusual Observations

Observed		Fit	Resid	Std Resid	
Obs	Probability				
5	1.0000	0.8425	0.5855	0.60	X
7	1.0000	0.0552	2.4072	2.41	R
10	1.0000	0.0550	2.4083	2.42	R
13	0.0000	0.7517	-1.6692	-1.69	X
29	0.0000	0.5715	-1.3020	-1.32	X
40	1.0000	0.4990	1.1792	1.19	X
59	0.0000	0.7950	-1.7803	-1.81	X
87	0.0000	0.4761	-1.1370	-1.15	X
110	1.0000	0.1065	2.1163	2.12	R
126	1.0000	0.3383	1.4722	1.49	X
130	1.0000	0.1140	2.0842	2.09	R
178	1.0000	0.8142	0.6412	0.65	X
198	1.0000	0.1176	2.0690	2.07	R
229	0.0000	0.9814	-2.8226	-2.83	R
244	1.0000	0.4315	1.2966	1.31	X
255	1.0000	0.3160	1.5179	1.53	X
271	1.0000	0.7036	0.8385	0.85	X
285	1.0000	0.1024	2.1347	2.14	R
304	1.0000	0.6089	0.9961	1.01	X
309	1.0000	0.3953	1.3625	1.38	X
328	0.0000	0.8898	-2.1004	-2.11	R
331	0.0000	0.4474	-1.0892	-1.11	X
372	0.0000	0.0551	-0.3368	-0.34	X
396	0.0000	0.4446	-1.0846	-1.10	X
401	1.0000	0.1109	2.0971	2.10	R
430	1.0000	0.1007	2.1428	2.15	R
449	1.0000	0.1354	1.9998	2.00	R
488	0.0000	0.9052	-2.1707	-2.18	R
490	0.0000	0.8798	-2.0585	-2.07	R
559	0.0000	0.5544	-1.2715	-1.29	X
594	0.0000	0.1509	-0.5720	-0.58	X
619	1.0000	0.4808	1.2102	1.22	X
622	0.0000	0.1555	-0.5814	-0.59	X
623	0.0000	0.9631	-2.5686	-2.58	R
674	0.0000	0.8030	-1.8025	-1.82	X
707	1.0000	0.0514	2.4367	2.45	R
745	0.0000	0.9442	-2.4026	-2.41	R

R Large residual
X Unusual X

Deviance Residual Plots for Outcome

